READ INSTRUCTIONS BEFORE FILLING ANY DETAILS OR ATTEMPTING TO ANSWER THE QUESTIONS.

Booklet Sr. No.

Question Booklet Set
A

Candidate's Name _____

Father's Name _____

Date of Birth : | | | | | | | | |

D D M M Y Y Y Y

OMR Response Sheet No. _____ **Roll No.** _____

Candidate's Signature :
(Please sign in the box)

Total Questions : **120**]
Time Allowed : **2** Hours]

INSTRUCTIONS

1. The candidate shall NOT open this booklet till the time he/she is told to do so by the Invigilation Staff. However, in the meantime, the candidate can read these instructions carefully and subsequently fill the appropriate columns given above in CAPITAL letters. The candidate may also fill the relevant boxes out of 1 to 9 of the Optical Mark Reader (OMR) response sheet, supplied separately.
2. Use only blue or black **ball point pen** to fill the relevant columns on this page as well as in the OMR sheet. Use of ink pen or any other pen is not allowed.
3. The candidate shall be liable for any adverse effect if the information given above is wrong or illegible or incomplete.
4. Each candidate is required to attempt 120 questions in 120 minutes, except for orthopedically/visually impaired candidates, who would be given 40 extra minutes, for marking correct responses on the OMR sheet.
5. The question paper booklet has **28** pages.
6. The candidates, when allowed to open the question paper booklet, must first check the entire booklet to confirm that the booklet has complete number of pages, the pages printed correctly and there are no blank pages. In case there is any such error in the question paper booklet then the candidate should IMMEDIATELY bring this fact to the notice of the Invigilation Staff and obtain a new booklet of the same series as given earlier.
7. The serial number of the new Question booklet if issued for some reason should be entered in the relevant column of the OMR. The Invigilation Staff must make necessary corrections in their record regarding the change in the serial no. of Question booklet.
8. The paper consists of total 300 Marks. Each question shall carry 2·5 marks. There are four options for each question and the candidate has to mark the MOST APPROPRIATE answer on the OMR response sheet.
9. There is negative marking (0·5 marks for each question) for questions wrongly answered by the candidate.
10. Use of Electronic/Manual Calculator is prohibited.
11. The candidate **MUST READ INSTRUCTIONS BEHIND THE OMR SHEET** before answering the questions and check that two carbon copies attached to the OMR sheet are intact.

SECTION A

Directions (Questions no. 1 to 5) : *Based on the following information, answer the given questions.*

In a one-day workshop, the following five researchers are invited : G, H, J, K and L. Each of the researchers will deliver a lecture of one hour. The five lectures need to be scheduled in five consecutive hours. The schedule for the lectures is also constrained by the following conditions :

H cannot deliver a lecture in any of the first three hours.

L must take the lecture in any of the hours before the lecture of H.

J must take the lecture in any of the hours before the lecture of G.

G must take the lecture in any of the hours before the lecture of K.

1. Which of the following can be the order from first to fifth, in which five researchers deliver their lectures ?

(a) G, K, L, J, H
(b) J, G, K, H, L
(c) J, G, K, L, H
(d) J, K, G, L, H

2. If K delivers the lecture in the fourth hour, then which of the following must be true ?

(a) G delivers the lecture in the third hour
(b) H delivers the lecture in the fifth hour
(c) J delivers the lecture in the first hour
(d) L delivers the lecture in the third hour

3. If J does not deliver the lecture in the first hour, then which of the following must be true ?

(a) G does not deliver the lecture in the third hour
(b) H does not deliver the lecture in the fourth hour
(c) J delivers the lecture in the second hour
(d) K does not deliver the lecture in the fifth hour

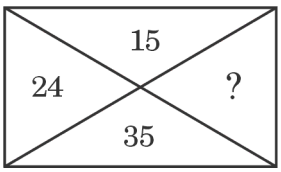
4. If H does not deliver the fifth lecture, then which of the following must be true ?

(a) G delivers the second lecture
(b) J delivers the first lecture
(c) L delivers the fifth lecture
(d) K delivers the fifth lecture

5. If G delivers the third lecture, then which of the following is true ?

(a) L is only one of the five researchers who can take the first lecture
(b) J is only one of the five researchers who can take the second lecture
(c) Any one of exactly three of the five researchers can take the second lecture
(d) Either one of exactly two of the five researchers can take the fifth lecture

6. In the following diagram, which number will replace the question mark ?



(a) 72

(b) 63

(c) 49

(d) 48

7. The height of a right angled triangle is increased by 20% and base is decreased by 10%. The change in the area of the triangle is :

(a) 10% increase

(b) 12% decrease

(c) 8% increase

(d) 8% decrease

8. A watch slows by 3 seconds in 4 minutes. If the clock shows the right time at 8 AM, then what time will it show at 11 PM on the same day ?

(a) 11:11:15

(b) 10:48:45

(c) 10:48:15

(d) 10:49:45

9. Three friends Raj, Sameer and Vijay are standing in a queue. There are 5 people between Raj and Sameer and 8 people between Sameer and Vijay. If there are 3 people ahead of Vijay and 19 people behind Raj, then what could be the minimum number of persons in the queue ?

(a) 37

(b) 27

(c) 26

(d) 28

10. Maria tells her daughter, "I was of your present age when you were born." If Maria is 58 years old now, then what was the age of her daughter 10 years back ?

(a) 15 years

(b) 19 years

(c) 21 years

(d) None of these

Directions (Questions no. 11 to 14) :

In a group of 200 people, 75 persons can play cricket or football but not hockey. 65 persons can play hockey or football but not cricket. 20 persons can play both football and hockey. 15 persons can play both cricket and football. 15 persons can play both hockey and cricket. 50 persons can play hockey and 5 persons can play all three games.

11. How many persons play exactly one game ?

(a) 85
(b) 35
(c) 30
(d) 145

12. How many persons do ***not*** play any game ?

(a) 65
(b) 45
(c) 75
(d) 35

13. How many persons play exactly two games ?

(a) 30
(b) 35
(c) 40
(d) 45

14. How many persons can only play football ?

(a) 20
(b) 25
(c) 15
(d) 30

15. In a group of children, there are 5 girls and 7 boys. In how many ways can 6 children with equal number of boys and girls be selected for a play ?

(a) 200
(b) 250
(c) 300
(d) 350

16. Four persons P, Q, R and S are working in the same company. The sum of the incomes of P and Q is more than that of R and S together. The sum of the incomes of P and R is the same as the sum of the incomes of Q and S. Moreover, P earns half as much as the sum of the incomes of Q and S. Which one of the following persons has the highest income ?

(a) P
(b) Q
(c) R
(d) S

17. A student is practising some math problems. In the first hour he solves 3 problems, in the second hour he solves 5 problems, in the third hour he solves 7 problems and so on. What is the total number of problems solved by him in 10 hours ?

(a) 110
(b) 120
(c) 135
(d) None of these

18. The cost price of an article X is 200% more than that of Y, and 75% less than that of Z. The selling price of the article X is 500% more than that of Z. If the profit on article X is twice that on Y, and is twice the loss on Z, then what is the ratio of profit on article Y to its cost price ?

(a) 69 : 8
(b) 29 : 4
(c) 81 : 8
(d) 63 : 4

19. Abhishek invests ₹ 10,000 at a simple interest of 6% per annum for y years. The interest is paid annually, of which Abhishek spends half and keeps the remaining in cash, in a box labelled B at home. To begin with, B had no money in it, and nothing else, except half of these interest incomes is added to the box. No money is removed from B. After y years, if the cash in B is ₹ 2,400, then y =

(a) 4 years

(b) 6 years

(c) 8 years

(d) 12 years

20. A rectangular floor of dimensions $10' \times 8'$ ($120'' \times 96''$) has to be tiled using the same type of square tiles. Square tiles are available in various dimensions $1''$, $2''$, $3''$, $4''$, …, $48''$. What is the size of the largest square tile that can be used to tile the floor completely, without breaking any tile ?

(a) $32''$

(b) $24''$

(c) $12''$

(d) $8''$

21. The number of leap years from 1801 to 2000 are :

(a) 50

(b) 48

(c) 47

(d) None of these

22. If R.A.C.E = –4.13.11.9 and C.O.L.U.M.N = 11.–1.2.–7.1.0, then B.R.A.C.K.E.T =

(a) 12.–4.13.11.4.9.–5

(b) 12.–4.13.11.3.9.–5

(c) 12.–4.13.11.4.9.–6

(d) 12.–4.13.11.3.9.–6

23. What is the missing number in the following sequence ?

7, 22, 44, ?, 158

(a) 84

(b) 88

(c) 96

(d) 114

24. Four friends P, Q, R and S live in the same locality. The house of Q is in the east of P's house but in the north of R's house. The house of R is in the west of S's house. S's house is in which direction of P's house ?

(a) South-east

(b) North-west

(c) North-east

(d) Data is inadequate

25. Ms. Neelam likes to let her students choose who their partners will be for study during the course; however, no pair of students may work together more than seven class periods in a row. Anish and Boman have studied together seven class periods in a row. Cathy and Dodo have worked together three class periods in a row. Cathy does not want to work with Anish. Who should be assigned to work with Boman ?

(a) Neelam

(b) Anish

(c) Dodo

(d) Cathy

26. After completing a particular work, Sumeet and Suresh together earn ₹ 4,340. However, the earnings are to be divided in the proportion of work done by each of them. After the share is distributed, it is found that 8/15 of Sumeet's earnings is equal to 2/5 of Suresh's earnings. How much did Suresh earn (in ₹) ?

(a) 1,860

(b) 2,480

(c) 1,736

(d) 2,604

27. The angle between the minute hand and hour hand of a clock at 8:20 is :

(a) 120°

(b) 130°

(c) 140°

(d) 110°

28. A bag contains 5 red, 4 green, 6 blue and 3 yellow balls. Two balls are drawn at random. What is the probability that none of the balls drawn is blue ?

(a) 132/306

(b) 12/18

(c) 132/324

(d) 164/324

29. Ryan runs at a speed of 40 m/minute. Rohit follows him after an interval of 5 minutes and runs at a speed of 50 m/minute. Rohit's dog runs at a speed of 60 m/minute and starts along with Rohit. The dog reaches Ryan and then comes back to Rohit and continues to do so till Rohit reaches Ryan. What is the total distance covered by the dog in metres ?

(a) 720

(b) 600

(c) 960

(d) 1200

30. Two trains A and B are running in the opposite directions. Train A crosses a man standing on the platform in 27 seconds, while train B crosses the same man in 17 seconds. If they cross each other in 23 seconds, then the ratio of speed of train A to that of train B is :

(a) 3 : 2

(b) 1 : 4

(c) 2 : 3

(d) 2 : 5

31. The number of positive integers not exceeding 100 and divisible by 3 or 5 is :

(a) 53

(b) 35

(c) 47

(d) 40

32. In a basket, the ratio of Oranges, Guavas and Jackfruits is 2 : 3 : 5. Ram ate 60% of the fruits in the basket. 40% of the Guavas are remaining in the basket. At least what percentage of Jackfruits did Ram eat ?

(a) 44%

(b) 48%

(c) 36%

(d) 32%

33. A six-digit number ABCDEF is reversed to get a new number FEDCBA. The two numbers are added to get the answer 48X374 (where X is a digit, not necessarily distinct from A, B, C, D, E and F). Find the value of X.

(a) 7

(b) 6

(c) 5

(d) 4

34. A tank has three pipes — Pipe X, Pipe Y and Pipe Z attached. Pipe X and Pipe Z alone can fill the tank completely in 4 hours and 8 hours respectively. Pipe Y can empty the tank in 6 hours. Initially the tank is empty. The three pipes are operated in the following sequence. In the first hour, only Pipe X is opened. In the second hour, Pipes X and Y are opened. In the third hour, only Pipe Y is opened. In the fourth hour, Pipes Y and Z are opened. In the fifth hour, only Pipe Z is opened. This cycle of 5 hours is repeated. After how many hours will the tank be completely filled for the first time ?

(a) 16 hours

(b) 20 hours

(c) 3·5 hours

(d) The tank will never be filled

35. Sunil, Param and Vikas drive at 20 km/hr, 50 km/hr and 80 km/hr respectively. Sunil starts from Point A for Point B. Param starts from Point A, 2 hours after Sunil starts and Vikas leaves some time after Param from Point A. Both Param and Vikas overtake Sunil at the same instant. How many hours after Sunil does Vikas leave Point A ?

(a) 4·5 hours

(b) 4·0 hours

(c) 3·5 hours

(d) 2·5 hours

36. Rekha made a new year's resolution to exercise. On January 1, at 7 AM, she went for a jog from her home to the nearby park and back, returning at 7:32 AM. On January 2, at 7 AM, she went jogging to the park, but this time she walked back. Consequently, she returned home at 7:40 AM. On January 3 too, she set out at 7 AM, but this time she walked both ways. At what time did she return home (assuming her jogging speed and her walking speed are fixed) ?

(a) Between 7:41 AM and 7:45 AM

(b) Between 7:53 AM and 7:57 AM

(c) Between 7:49 AM and 7:53 AM

(d) Between 7:45 AM and 7:49 AM

37. On buying a pen, the shopkeeper gives three refills free. On buying a pen and six refills, the shopkeeper gives additional four refills free. If the equivalent discount is the same in both cases, then how many refills will be equal in value to a pen ?

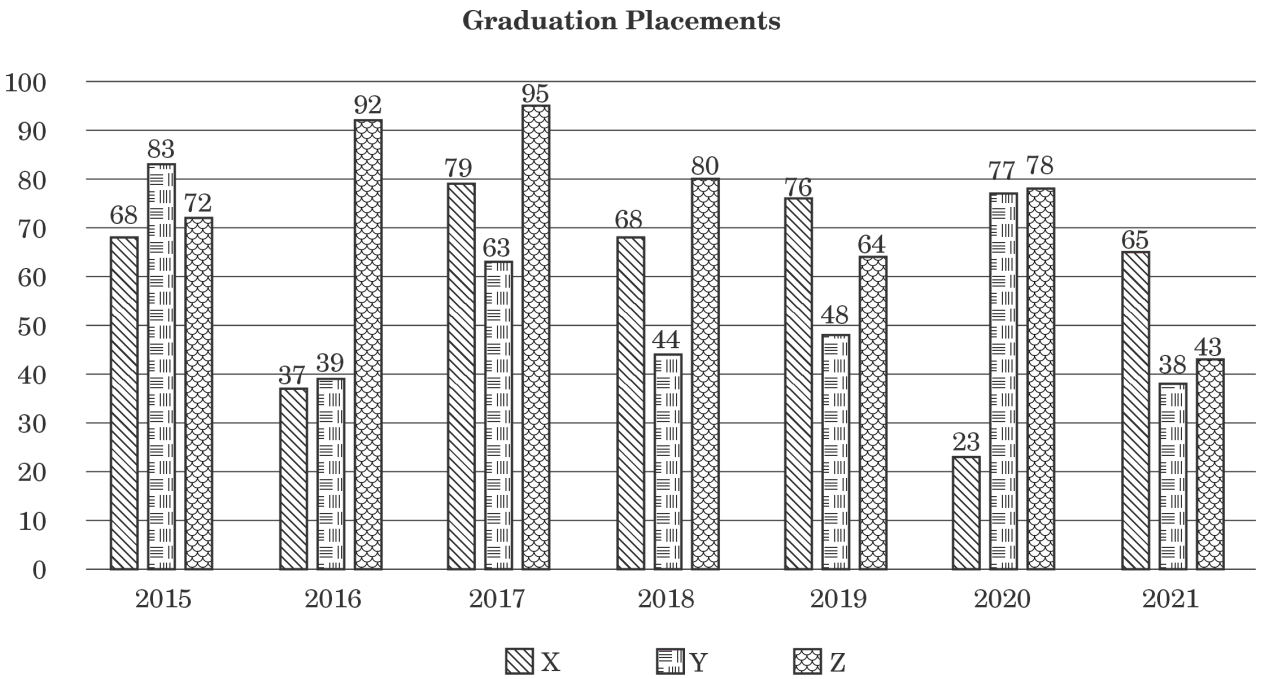
(a) 18

(b) 24

(c) 15

(d) 20

Directions (Questions no. 38 to 40) : *Read the graph given below and answer the questions. The following graph represents percentage of graduated students placed from the three engineering colleges X, Y and Z over the period of time.*



38. What is the difference in average placement percentage of colleges X and Y ?

(a) 2·92%

(b) 3·42%

(c) 4·12%

(d) 4·32%

39. If in 2019, colleges X, Y and Z had 150, 250 and 350 students graduating respectively, then what is the total number of students that got placed ?

(a) 356

(b) 458

(c) 424

(d) 288

40. If the college Y, had 200, 200, 300, 150, 300, 200 and 250 students graduating in the years 2015 to 2021 respectively, then what is the total number of students unplaced from college Y in these 7 years ?

(a) 708

(b) 528

(c) 646

(d) 829

SECTION B

41. Arrange the chronologies of the following events :

1. The Indian Councils Act
2. The Indian Universities Act
3. Criminal Law Amendment Bill
4. Partition of Bengal

Codes :

(a) 1, 2, 4, 3

(b) 3, 4, 2, 1

(c) 4, 3, 1, 2

(d) 2, 4, 3, 1

42. The Gandhi-Irwin Pact was signed on March 5, 1931. Which were the provisions of the pact ?

1. Civil Disobedience prisoners not guilty of violence to be released.
2. Immovable properties confiscated by the Government to be returned.
3. Remittance of fines not already realized.
4. The Indian National Congress might continue the Civil Disobedience Movement.

Which of the above mentioned provisions are correct ?

(a) 1 and 2 only

(b) 2 and 3 only

(c) 1, 3 and 4 only

(d) 1 and 3 only

43. Which is the correct chronology of the excavation of sites in the Indus Valley Civilization ?

1. Mohenjo-Daro
2. Chanhudaro
3. Harappa
4. Lothal

Select the correct answer from the following :

(a) 3, 1, 2, 4

(b) 1, 3, 2, 4

(c) 2, 1, 3, 4

(d) 3, 4, 2, 1

44. Vardhamana Mahavira at the age of 28 began his quest for truth and practised for 12 years, and at the end of austerities he was known as :

(a) Kaivalya

(b) Maha Gosala

(c) Siddhartha

(d) Ghora Angirasa

45. Gunadya has written a work known as :

(a) Kathamanjari

(b) Brihatkatha

(c) Panchatantra

(d) Gathasaptashati

46. Match List I with List II and select the correct answer from the codes given below the lists :

List I (Writer)	*List II (Manuscript)*
A. Bhai Santokh Singh Ji	1. Bansawalinama
B. Kesar Singh Chibber	2. Sikhan Di Bhagat Mala
C. Sainapati	3. Gurpartap Suraj Granth
D. Bhai Mani Singh Ji	4. Sri Gur Sobha

Codes :

	A	**B**	**C**	**D**
(a)	2	1	4	3
(b)	3	1	4	2
(c)	1	3	2	4
(d)	4	1	3	2

47. Match List I with List II and select the correct answer from the codes given below the lists :

List I	*List II*
A. Jallianwala Bagh Massacre	1. 1914
B. Komagata Maru	2. 1921
C. Jaito Morcha	3. 1919
D. Nankana Sahib Massacre	4. 1924

Codes :

	A	**B**	**C**	**D**
(a)	3	1	4	2
(b)	3	1	2	4
(c)	1	3	4	2
(d)	2	4	3	1

48. Which Government of India Act established the Punjab Legislative Council in Punjab ?

(a) The Government of India Act, 1935

(b) The Government of India Act, 1909

(c) The Government of India Act, 1919

(d) The Indian Councils Act, 1892

49. Match List I with List II and select the correct answer from the codes given below the lists :

List I (Sikh Gurus)	*List II (Guru's Writings)*
A. Guru Gobind Singh Ji	1. Anand Sahib
B. Guru Nanak Dev Ji	2. Adi Granth
C. Guru Arjan Dev Ji	3. Bachitar Natak
D. Guru Amar Das Ji	4. Asa Di Var

Codes :

	A	**B**	**C**	**D**
(a)	2	4	1	3
(b)	3	4	2	1
(c)	4	1	3	2
(d)	1	2	4	3

50. Match List I with List II and select the correct answer from the codes given below the lists :

List I (Sikh Misals)	*List II (Misal Leaders)*
A. Bhangi Misal	1. Nawab Kapur Singh
B. Kanhaiya Misal	2. Hari Singh
C. Faizalpuria Misal	3. Gulab Singh
D. Dallewalia Misal	4. Jai Singh

Codes :

	A	**B**	**C**	**D**
(a)	4	2	1	3
(b)	1	3	2	4
(c)	2	4	1	3
(d)	2	1	3	4

51. The Masand system was abolished by :

(a) Guru Arjan Dev Ji

(b) Guru Tegh Bahadur Ji

(c) Guru Hargobind Ji

(d) Guru Gobind Singh Ji

52. After the decline of Napoleon, two French officers who joined Maharaja Ranjit Singh's service in 1822 were :

(a) Duke of Wellington and Marshal Blücher

(b) Captain Allard and Jean-Baptiste Ventura

(c) Louis-Nicolas Davout and Jean Lafitte

(d) Marcellin Marbot and Jean Danjou

53. Who was the founder of 'Nyaya' – the system of logic ?

(a) Pururava

(b) Gautama

(c) Arjuna

(d) Vishwamitra

54. Consider the following statements :

1. Maulavi Ahmadullah Shah was one of the central figures in the Revolt of 1857 in Awadh and Rohilkhand.
2. He is said to have diplomatically avoided Sir Colin Campbell twice in pitched battle.
3. British officers and military commanders have praised his military qualities.
4. V.D. Savarkar has criticised the heroism of Maulavi Ahmadullah.

Which of the statements given above are correct ?

(a) 1, 2 and 3 only
(b) 1, 2 and 4 only
(c) 1, 3 and 4 only
(d) 2, 3 and 4 only

55. Arrange the following treaties and agreements in a chronological order :

1. India-US Nuclear Deal
2. Indo-Soviet Friendship Treaty
3. Tashkent Agreement
4. Shimla Agreement

Select the correct answer from the codes given below :

Codes :

(a) 3, 2, 4, 1
(b) 2, 3, 1, 4
(c) 1, 4, 2, 3
(d) 4, 1, 3, 2

56. With reference to the powers of the President of India, consider the following statements :

1. The President shall have the power to promulgate ordinance only when the Parliament is not in session and the ordinance ceases to have effect when the Parliament reassembles.
2. The ordinance-making power of the President is a parallel power of legislation irrespective of whether the Parliament is in session or not.

Which of the statements given above is/are correct ?

(a) 1 only
(b) 2 only
(c) Both 1 and 2
(d) Neither 1 nor 2

57. Which one of the following Acts/Reports created the Federal Court in India ?

(a) The Government of India Act, 1909
(b) The Government of India Act, 1919
(c) The Montague-Chelmsford Report
(d) The Government of India Act, 1935

58. Consider the following statements :

1. The Charter Act of 1833 was enacted during the tenure of William Bentinck.
2. The Charter Act of 1833 instituted the post of Governor General of India.
3. The Governor of Bombay was appointed as the first Deputy Governor General of India through the Charter Act of 1833.
4. William Bentinck became the first Governor General of India through the Charter Act of 1833.

Which of the statements given above is/are ***not*** correct ?

(a) 1 and 2 only
(b) 1 and 3 only
(c) 3 and 4 only
(d) 3 only

59. In connection with the Indian Independence Act, 1947, consider the following events :

1. The British Government sent as its envoy Sir Stafford Cripps to India to resolve the Indian impasse.
2. The British Government appointed a three-member Cabinet Mission.
3. Clement Attlee became the new Prime Minister in Britain.
4. A Resolution for *Purna Swaraj* (Complete Independence) was adopted by the Congress.

Which one is the correct chronological order ?

(a) 1, 2, 4, 3
(b) 4, 3, 2, 1
(c) 4, 1, 2, 3
(d) 4, 1, 3, 2

60. In connection with the first session of the Constituent Assembly, consider the following facts :

1. The first session went on from 9th December to 23rd December, 1946.
2. On the first day of the session, Sachchidananda Sinha, the seniormost member of the Constituent Assembly, was elected the acting Chairman of the Assembly.
3. On 10th December, under the Chairmanship of Rajendra Prasad, a Rules Committee was formed to frame rules for conducting business in the Assembly.
4. On 13th December, Jawaharlal Nehru introduced in the Assembly the Objective Resolution, delineating the objectives of the proposed Constitution.

Which of the statements given above are correct ?

(a) 2, 3 and 4 only
(b) 1, 2 and 3 only
(c) 1, 2 and 4 only
(d) 1, 3 and 4 only

61. Consider the following Committees :

1. Balwant Rai Mehta Committee
2. Ashok Mehta Committee
3. Hanumantha Rao Committee
4. L.M. Singhvi Committee

Which Committees were directly related to the Panchayati Raj System ?

(a) 1, 2 and 3 only
(b) 2, 3 and 4 only
(c) 1, 3 and 4 only
(d) 1, 2 and 4 only

62. In connection with Consolidated Fund of India, consider the following statements :

1. No money out of this fund can be appropriated except in accordance with a parliamentary law.
2. All revenues received by the Government, all loans raised and all money received by the Government in repayment of loans forms the Consolidated Fund of India.
3. All money of the Consolidated Fund of India should be spent after proper approval of the Lok Sabha.
4. The Consolidated Fund of India comes under Article 267 of the Indian Constitution.

Which of the statements given above are correct ?

(a) 1, 2 and 3 only
(b) 2, 3 and 4 only
(c) 1 and 2 only
(d) 2 and 4 only

63. The Montague-Chelmsford Proposals were related to :

(a) Social Reforms

(b) Economic Reforms

(c) Constitutional Reforms

(d) Legal Reforms

64. In connection with the Attorney General of India, consider the following statements :

1. The Attorney General of India can take part in the proceedings of the Lok Sabha.
2. The Attorney General of India can become a member of a Committee of the Lok Sabha.
3. The Attorney General of India can deliver a speech in the Lok Sabha.
4. The Attorney General of India can cast his vote in the Lok Sabha.

Which of the statements given above is/are correct ?

(a) 1, 2 and 3 only

(b) 2, 3 and 4 only

(c) 3 and 4 only

(d) 3 only

65. What are the key highlights under the National Manufacturing Policy ?

1. Increase manufacturing share in GDP from 16% to 22% by 2022.
2. Create 150 million additional jobs in the manufacturing sector by 2022.
3. Enhancing appropriate skill sets among the rural migrants and urban poor for their early absorption in manufacturing.

Select the correct answer :

(a) 2 only

(b) 3 only

(c) 2 and 3 only

(d) 1 and 2 only

66. Consider the following statements about NITI Aayog :

1. It is to function as a vehicle of good governance.
2. It has to develop a holistic and inclusive development model for the economy integrating the needs of Centre, States and local bodies.
3. This body subsumes the National Development Council in its Governing Council which gives it more legitimacy.
4. It has three specialized wings namely research, conflict resolution and team India.

Which of the statements given above are correct ?

(a) 1, 2 and 3 only

(b) 1, 2 and 4 only

(c) 2, 3 and 4 only

(d) 1, 2, 3 and 4

67. Which of the following statements about 'zero-coupon bond' is correct ?

(a) A bond with zero coupon rates which is sold at a price lower than its face value and investors get face value price at maturity.

(b) A bond with zero interest rate but with highest liquidity value for which investors get other concessions like tax breaks.

(c) A special category of bonds used as 'express money' to finance immediate needs of the economy which carries zero interest but gives tax credits to investors in their income tax returns.

(d) A kind of bond which is generally issued by governments in the times of financial crises to the high income group citizens which carry no interest but investors get tax concessions for investing in it.

68. Which city has become India's first 'Water Plus' city in Swachh Survekshan, 2021 ?

(a) Indore

(b) Bhopal

(c) Pune

(d) Bengaluru

69. The Ministry of Housing and Urban Affairs (MoHUA) launched 'SonChiraiya', a brand and logo for product marketing of which of the following ?

(a) Urban Self-Help Groups

(b) Rural Self-Help Groups

(c) Cooperative Societies

(d) None of the above

70. Consider the following statements relating to Mahatma Gandhi National Rural Employment Guarantee (MGNREG) Act :

1. 100 days of mandatory employment should be provided to rural job seekers.
2. Equal wage rates should be paid to male and female workers.
3. One-third of the beneficiaries should be women.
4. Employment should be provided only to the people below the poverty line.

Which of the above statements are correct as per the MGNREG Act ?

(a) 1, 2 and 4 only

(b) 1, 2 and 3 only

(c) 1, 2, 3 and 4

(d) 1, 3 and 4 only

71. Match List I with List II and select the correct answer from the codes given below the lists :

List I (Acts)		*List II (Aims)*
A. MRTP	1.	Maintenance of foreign exchange
B. FEMA	2.	Promotion of industrial peace
C. Industrial Disputes	3.	Control of unfair trade practices
D. Wealth Tax	4.	Reducing the concentration of economic power

Codes :

	A	**B**	**C**	**D**
(a)	1	2	3	4
(b)	3	4	2	1
(c)	2	4	1	3
(d)	3	1	2	4

72. According to the Union budget of India 2022 – 23, which of the following is/are correctly matched ?

Deficit		*Target (% GDP)*
1. Revenue deficit	—	3·6
2. Fiscal deficit	—	6·4
3. Primary deficit	—	2·4

(a) 1 and 3 only

(b) 2 and 3 only

(c) 1, 2 and 3

(d) 2 only

73. A geostationary satellite appears stationary relative to the Earth. Such a satellite appears stationary due to its zero relative velocity with respect to a place on the Earth. For such a satellite, the angular speed in terms of radians per hour is :

(a) π

(b) $\pi/2$

(c) $\pi/6$

(d) $\pi/12$

74. India successfully test-fired a new version of which supersonic cruise missile off the Odisha coast in January 2022 ?

(a) BrahMos

(b) Dhanush

(c) Prithvi

(d) Agni

75. An important observing campaign in the year 2022 – 23 is aiming to map the distribution of mysterious dark matter threading throughout the Universe, and understand the even more enigmatic dark energy driving it apart. Which of the following observatory/telescope will be involved in the observations ?

(a) James Webb Space Telescope

(b) Vera C. Rubin Observatory, Chile

(c) Himalayan Chandra Telescope, India

(d) Keck Observatory, USA

76. For generating 'Golden Rice' two genes (encoding for phytoene synthase and beta-cyclase) were taken from a plant and one (encoding for phytoene desaturase) from a soil bacterium *Erwinia uredovora* for beta-carotene biosynthesis. The two plant genes were taken from which of the following plants ?

(a) Chickpea
(b) Wheat
(c) Daffodil
(d) Tomato

77. A Biotech firm Oxitec constructed genetically engineered mosquitoes *Aedes aegypti*, and got them released into the environment. Which of the following represents the main mandate of releasing genetically engineered mosquitoes into the environment ?

(a) To suppress the populations of various insects/pests which are responsible for causing diseases in a variety of crops including cotton, corn and others
(b) To control viral diseases like zika, dengue, chikungunya and yellow fever for which mosquitoes are the carriers
(c) To control malaria in human beings that is caused by mosquitoes, and responsible for high morbidity and mortality
(d) To control protozoan originated diseases in humans and livestock which cause substantial losses of lives

78. Which of the following is ***not*** a connective tissue ?

(a) Bone
(b) Cartilage
(c) Adipose tissue
(d) Muscular tissue

79. Aducanumab, marketed as Aduhelm, has recently been developed by Biogen Inc., a pharmaceutical giant, and has been approved by FDA (USA) for usage for which of the following ailments ?

(a) Brain Cancer
(b) AIDS
(c) Alzheimer's disease
(d) COVID-19

80. 'Camaraderie – Cohesion – Collaboration' is the theme of which of the following exercises ?

(a) MILAN 2023
(b) MILAN 2021
(c) MILAN 2022
(d) MILAN 2020

81. There is a power-rivalry in the Indian Ocean. In that context, what is the base island of China in the Indian Ocean ?

(a) Mauritius
(b) Marao Island
(c) Zanzibar
(d) Sri Lanka

82. Which of the following is the highest peacetime honour accorded to a soldier in India ?

(a) Ashoka Chakra

(b) Param Vishishth Seva Medal

(c) Ati Vishishth Seva Medal

(d) Shaurya Chakra

83. India's first *Technology and Innovation Support Centre (TISC)* is in :

(a) Punjab

(b) Gujarat

(c) Karnataka

(d) Tamil Nadu

84. Who has created Bitcoin ?

(a) Samsung

(b) Satoshi Nakamoto

(c) John McAfee

(d) Google

85. Which one of the following pairs is ***not*** correctly matched ?

	(Thermal Power Station)	*(Location)*
(a)	Anpara Thermal Power Station	— Uttar Pradesh
(b)	Bakreshwar Thermal Power Station	— West Bengal
(c)	Anta Thermal Power Station	— Rajasthan
(d)	Ennore Thermal Power Station	— Andhra Pradesh

86. The famous Majuli Island is located in :

(a) Assam

(b) West Bengal

(c) Andhra Pradesh

(d) Gujarat

87. Match List I with List II and select the correct answer from the codes given below the lists :

	List I (Pass)		*List II (Location)*
A.	Debsa	1.	Arunachal Pradesh
B.	Mana	2.	Sikkim
C.	Jelep La	3.	Himachal Pradesh
D.	Diphu	4.	Uttarakhand

Codes :

	A	**B**	**C**	**D**
(a)	1	2	3	4
(b)	2	1	3	4
(c)	3	4	2	1
(d)	4	3	2	1

88. Match List I with List II and select the correct answer from the codes given below the lists :

List I (*Tribal Groups*)	*List II* (*Zone / Location*)
A. Gujjar, Bhotia and Tharu	1. The North Zone of India
B. Naga, Garo, Khasi, Kuki and Chakma	2. The North-Eastern Zone of India
C. Santhal, Gond, Bhil and Kol	3. The Central Zone of India
D. Toda	4. The Southern Zone of India

Codes :

	A	**B**	**C**	**D**
(a)	4	3	1	2
(b)	3	4	2	1
(c)	1	3	4	2
(d)	1	2	3	4

89. Which one of the following mountain peaks is ***not*** located in the Kumaon Himalaya ?

(a) Nanda Devi

(b) Trisul

(c) Makalu

(d) Kedarnath

90. The deltas of Narmada and Tapi rivers of India are an example of :

(a) Estuarine delta

(b) Arcuate delta

(c) Truncated delta

(d) Blocked delta

91. Match List I with List II and select the correct answer from the codes given below the lists :

List I (*Local Winds*)	*List II* (*Region*)
A. Yamo	1. Siberia
B. Buran	2. Japan
C. Zonda	3. New Zealand
D. Nor'wester	4. Argentina

Codes :

	A	**B**	**C**	**D**
(a)	1	2	3	4
(b)	1	2	4	3
(c)	2	1	4	3
(d)	4	3	2	1

92. Match List I with List II and select the correct answer from the codes given below the lists :

	List I *(Name of the Bird Sanctuaries)*	*List II* *(Location)*
A.	Nal Sarovar Bird Sanctuary	1. Tamil Nadu
B.	Vedanthangal Bird Sanctuary	2. Gujarat
C.	Kumarakom Bird Sanctuary	3. Kerala
D.	Salim Ali Bird Sanctuary	4. Goa

Codes :

	A	**B**	**C**	**D**
(a)	1	2	3	4
(b)	2	1	3	4
(c)	3	4	2	1
(d)	4	3	2	1

93. Match List I with List II and select the correct answer from the codes given below the lists :

	List I *(Steel Plant)*	*List II* *(Location)*
A.	IISCO Steel Plant, Burnpur	1. Jharkhand
B.	Visvesvaraya Steel Plant, Bhadravati	2. West Bengal
C.	Bhilai Steel Plant	3. Karnataka
D.	Bokaro Steel Plant	4. Chhattisgarh

Codes :

	A	**B**	**C**	**D**
(a)	2	3	4	1
(b)	1	3	2	4
(c)	3	4	1	2
(d)	4	2	3	1

94. 'Vivad se Viswas' Scheme of the Ministry of Finance is related to :

(a) Trade related dispute settlement

(b) FDI related dispute settlement

(c) Industrial dispute settlement

(d) Direct tax dispute settlement

95. Consider the following statements :

1. The Rashtriya Khel Protsahan Puruskar is a sports honour of the Republic of India. The award was started in 2009 under national sports awards of the Ministry of Youth Affairs and Sports.
2. The award is given in four categories viz. Identification and nurturing of budding and young talent, Encouragement to sports through corporate social responsibility, Employment of sportspersons and sports welfare measures, and Sports for development.
3. Entities who received Rashtriya Khel Protsahan Puraskar, 2021 are Railway Sports Promotion Board and Gagan Narang Sports Promotion Foundation.

Which of the above statements are correct ?

(a) 1 and 2 only

(b) 2 and 3 only

(c) 1 and 3 only

(d) 1, 2 and 3

96. The Badminton World Federation has allotted the BWF World Championships to India for the year :

(a) 2024
(b) 2025
(c) 2026
(d) 2027

97. Which app has been developed by the Government of India to give users familiarity with common expressions of daily conversation in 22 Scheduled Indian languages ?

(a) Multibhashi
(b) Pratilipi
(c) Bhasha Sangam
(d) Bhasha Learner

98. Dosti Trilateral Exercise is conducted between which of the following ?

1. Sri Lanka
2. India
3. Bangladesh
4. Maldives

Codes :

(a) 1, 2 and 4 only
(b) 2, 3 and 4 only
(c) 1, 3 and 4 only
(d) 1, 2 and 3 only

99. Build Back Better World (B3W) initiative is announced by which of the following ?

(a) G20
(b) G7
(c) ASEAN
(d) BRICS

100. India's first cryptogamic garden was inaugurated in :

(a) Dehradun
(b) Chandigarh
(c) Bengaluru
(d) None of the above

101. Which of the following are the initiatives taken by the government to reduce air pollution ?

1. UJALA Scheme
2. International Solar Alliance
3. SVAMITVA Scheme
4. National Action Plan on Climate Change

Codes :

(a) 1, 3 and 4 only
(b) 1, 2 and 4 only
(c) 1 and 4 only
(d) 2 and 4 only

102. The first Living Robots capable of reproducing are :

(a) Xenobots
(b) Xerobots
(c) Shalu
(d) Sofia

103. What is Param Ganga ?

(a) Telescope
(b) Satellite
(c) Supercomputer
(d) Superfast train

104. SpaceX, recently made history by launching the world's first all-civilian crewed space flight.

The name of the flight was :

(a) Aspiration 14
(b) Inspiration 4
(c) Exception New Crew 5
(d) SpaceX Adventure 3

105. Which of the following statements are true about "Raisina Dialogue" ?

1. It is India's flagship conference on foreign policy.
2. It's seventh edition was launched in April 2022.
3. It started in the year 2017 to cover geoeconomics and geopolitics issues.

Choose the most appropriate answer from the options given below :

(a) Only statements 1 and 3 are true
(b) Only statements 2 and 3 are true
(c) Only statements 1 and 2 are true
(d) All statements 1, 2 and 3 are true

106. Who became the first deaf actor to win an Academy Award for a supporting role in the film CODA at the recently concluded 94^{th} Academy Awards ceremony ?

(a) Will Smith
(b) Troy Kotsur
(c) Jessica Chastain
(d) King Richard

107. In 2022, following an oil spill that spilled 6,000 barrels of crude oil into the sea, which country declared a 90-day "environmental emergency" in damaged coastal territories ?

(a) Pakistan
(b) Mauritius
(c) Peru
(d) India

108. Janjatiya Gaurav Divas is celebrated to mark the birth anniversary of :

(a) Tilka Manjhi
(b) Birsa Munda
(c) Tirot Sing
(d) Rajmohini Devi

109. Which Indian economist has been chosen to receive the Malcolm Adiseshiah Award in 2022 ?

(a) Jayati Ghosh
(b) Abhijit Banerjee
(c) Prabhat Patnaik
(d) Jean Drèze

110. According to the National Commission on Population's recent report on population projections, India is expected to achieve a sex ratio of 957 : 1000 by which year ?

(a) 2030
(b) 2032
(c) 2034
(d) 2036

111. Which of the following world's regions are considered the "hottest hotspots of biodiversity" ?

1. Madagascar and the Indian Ocean Islands
2. The Philippines
3. NW Himalaya
4. The Atlantic Forest

Choose the most appropriate answer from the options given below :

(a) 1, 2 and 3 only
(b) 2, 3 and 4 only
(c) 1, 2 and 4 only
(d) 1, 3 and 4 only

112. Given below are two statements : one is labelled as **Assertion (A)** and the other is labelled as **Reason (R)** :

Assertion (A) :

Dioxins bio accumulate and are toxic at extremely low levels.

Reason (R) :

Dioxins are created mainly by burning plastics and medical waste containing chlorine.

In the light of the above statements, choose the most appropriate answer from the options given below :

(a) Both Assertion (A) and Reason (R) are correct and Reason (R) is the correct explanation of Assertion (A).

(b) Both Assertion (A) and Reason (R) are correct, but Reason (R) is ***not*** the correct explanation of Assertion (A).

(c) Assertion (A) is correct, but Reason (R) is not correct.

(d) Assertion (A) is not correct, but Reason (R) is correct.

113. Given below are two statements : one is labelled as **Assertion (A)** and the other is labelled as **Reason (R)** :

Assertion (A) :

Ocean currents are sometimes referred to as the "heat pumps" or "thermal conveyers" of the planet.

Reason (R) :

Ocean currents are responsible for about 40% of the heat exchanged between the tropics and the polar regions.

In the light of the above statements, choose the most appropriate answer from the options given below :

(a) Both Assertion (A) and Reason (R) are correct and Reason (R) is the correct explanation of Assertion (A).

(b) Both Assertion (A) and Reason (R) are correct, but Reason (R) is ***not*** the correct explanation of Assertion (A).

(c) Assertion (A) is correct, but Reason (R) is not correct.

(d) Assertion (A) is not correct, but Reason (R) is correct.

114. Which of the following statements correctly describe biomes ?

1. Biomes are categorized by the most common growth forms of plants distributed across large geographic areas.

2. The categorization of biomes also takes taxonomic relationships among organisms into account.

3. Biomes categorization relies on similarities in the morphological responses of organisms to the physical environment.

4. A biome includes similar biotic assemblages on distant continents, indicating similar responses to similar climate conditions in different locations.

In the light of the above statements, choose the most appropriate answer from the options given below :

(a) 1, 2, 3 and 4

(b) 1, 2 and 4 only

(c) 1, 3 and 4 only

(d) 2, 3 and 4 only

115. Which of the following statements are part of India's strategy to combat climate change that was declared at the 26th Conference of Parties (COP26) ?

1. Develop non-fossil energy capacity to 500 gigawatt and meet 50% of its energy requirements from renewable energy by 2030.

2. Reduce the total projected carbon emissions by one billion tonnes from now onwards till 2030.

3. Reduce the carbon intensity of its economy by less than 45 per cent by 2030.

4. Achieve the target of Net-Zero by 2070.

Choose the most appropriate answer from the options given below :

(a) 1, 2 and 4 only

(b) 1, 3 and 4 only

(c) 2, 3 and 4 only

(d) 1, 2, 3 and 4

116. When they come in contact with the target contaminant, Nanoparticles can detoxify or immobilize contaminants via a pump-and-treat process or in situ application. Which of the following statements are appropriately associated with nanoparticle application for the remediation of contaminants ?

1. Nanoparticles, due to their extremely small size, can penetrate into small pores in the soil or sediment.

2. By Brownian motion, nanoparticles move freely in soil to target sites.

3. Nanoparticles either degrade the targeted complex molecule or adsorb to the contaminant to immobilize it.

4. Nanoparticles can remain suspended in soil water for a very short period only and react with target molecules in situ processes.

In the light of the above statements, choose the most appropriate answer from the options given below :

(a) 1, 2, 3 and 4

(b) 1, 2 and 3 only

(c) 1, 2 and 4 only

(d) 2, 3 and 4 only

117. Match List I with List II and select the correct answer from the codes given below the lists :

	List I (Layers of atmosphere)	*List II (Characteristics)*
A.	Mesosphere	1. Reflects outgoing radio waves back to the Earth without the use of satellites, Auroras occur here
B.	Troposphere	2. Steady winds but no turbulence, commercial jets fly here
C.	Thermosphere	3. Meteors burn due to friction from air molecules
D.	Stratosphere	4. Temperature decreases with increasing altitude

Choose the most appropriate answer from the options given below :

	A	**B**	**C**	**D**
(a)	4	3	1	2
(b)	3	2	1	4
(c)	3	4	2	1
(d)	3	4	1	2

118. Which of the following is ***not*** an extinct species ?

(a) Olive Ridley sea turtle

(b) Dusky seaside sparrow

(c) Hawaii ʻōʻō

(d) Great auk

119. Consider the following statements :

1. During March 21 to September 22, the Northern Hemisphere tilts towards the Sun, while the Southern Hemisphere tilts away from the Sun.
2. During September 22 to March 21, Northern Hemisphere tilts away from the Sun, while the Southern Hemisphere tilts towards the Sun.
3. The Earth's inclination on its axis is 23·5 degrees from the equator.

Identify the correct statement/s.

(a) 3 only

(b) 1, 2 and 3

(c) 2 only

(d) Both 1 and 2

120. Which of the following diseases are transmitted by polluted water ?

1. Diphtheria
2. Poliomyelitis
3. Typhoid
4. Infectious hepatitis

Choose the most appropriate answer from the options given below :

(a) 1, 3 and 4 only

(b) 1, 2 and 4 only

(c) 2, 3 and 4 only

(d) 1, 2, 3 and 4

SPACE FOR ROUGH WORK

SPACE FOR ROUGH WORK

READ INSTRUCTIONS BEFORE FILLING ANY DETAILS OR ATTEMPTING TO ANSWER THE QUESTIONS.

Booklet Sr. No.

Question Booklet Set
B

Candidate's Name _____

Father's Name _____

Date of Birth : | | | | | | | | |
D D M M Y Y Y Y

OMR Response Sheet No. _____ **Roll No.** _____

Candidate's Signature :
(Please sign in the box)

Total Questions : **120**]
Time Allowed : **2** Hours]

INSTRUCTIONS

1. The candidate shall NOT open this booklet till the time he/she is told to do so by the Invigilation Staff. However, in the meantime, the candidate can read these instructions carefully and subsequently fill the appropriate columns given above in CAPITAL letters. The candidate may also fill the relevant boxes out of 1 to 9 of the Optical Mark Reader (OMR) response sheet, supplied separately.
2. Use only blue or black **ball point pen** to fill the relevant columns on this page as well as in the OMR sheet. Use of ink pen or any other pen is not allowed.
3. The candidate shall be liable for any adverse effect if the information given above is wrong or illegible or incomplete.
4. Each candidate is required to attempt 120 questions in 120 minutes, except for orthopedically/visually impaired candidates, who would be given 40 extra minutes, for marking correct responses on the OMR sheet.
5. The question paper booklet has **28** pages.
6. The candidates, when allowed to open the question paper booklet, must first check the entire booklet to confirm that the booklet has complete number of pages, the pages printed correctly and there are no blank pages. In case there is any such error in the question paper booklet then the candidate should IMMEDIATELY bring this fact to the notice of the Invigilation Staff and obtain a new booklet of the same series as given earlier.
7. The serial number of the new Question booklet if issued for some reason should be entered in the relevant column of the OMR. The Invigilation Staff must make necessary corrections in their record regarding the change in the serial no. of Question booklet.
8. The paper consists of total 300 Marks. Each question shall carry 2·5 marks. There are four options for each question and the candidate has to mark the MOST APPROPRIATE answer on the OMR response sheet.
9. There is negative marking (0·5 marks for each question) for questions wrongly answered by the candidate.
10. Use of Electronic/Manual Calculator is prohibited.
11. The candidate **MUST READ INSTRUCTIONS BEHIND THE OMR SHEET** before answering the questions and check that two carbon copies attached to the OMR sheet are intact.

SECTION A

1. Abhishek invests ₹ 10,000 at a simple interest of 6% per annum for y years. The interest is paid annually, of which Abhishek spends half and keeps the remaining in cash, in a box labelled B at home. To begin with, B had no money in it, and nothing else, except half of these interest incomes is added to the box. No money is removed from B. After y years, if the cash in B is ₹ 2,400, then y =

(a) 4 years

(b) 6 years

(c) 8 years

(d) 12 years

2. A rectangular floor of dimensions $10' \times 8'$ ($120'' \times 96''$) has to be tiled using the same type of square tiles. Square tiles are available in various dimensions $1''$, $2''$, $3''$, $4''$, …, $48''$. What is the size of the largest square tile that can be used to tile the floor completely, without breaking any tile ?

(a) $32''$

(b) $24''$

(c) $12''$

(d) $8''$

3. The number of leap years from 1801 to 2000 are :

(a) 50

(b) 48

(c) 47

(d) None of these

4. If R.A.C.E = –4.13.11.9 and C.O.L.U.M.N = 11.–1.2.–7.1.0, then B.R.A.C.K.E.T =

(a) 12.–4.13.11.4.9.–5

(b) 12.–4.13.11.3.9.–5

(c) 12.–4.13.11.4.9.–6

(d) 12.–4.13.11.3.9.–6

5. What is the missing number in the following sequence ?

7, 22, 44, ?, 158

(a) 84

(b) 88

(c) 96

(d) 114

6. Four friends P, Q, R and S live in the same locality. The house of Q is in the east of P's house but in the north of R's house. The house of R is in the west of S's house. S's house is in which direction of P's house ?

(a) South-east

(b) North-west

(c) North-east

(d) Data is inadequate

7. Ms. Neelam likes to let her students choose who their partners will be for study during the course; however, no pair of students may work together more than seven class periods in a row. Anish and Boman have studied together seven class periods in a row. Cathy and Dodo have worked together three class periods in a row. Cathy does not want to work with Anish. Who should be assigned to work with Boman ?

(a) Neelam

(b) Anish

(c) Dodo

(d) Cathy

8. After completing a particular work, Sumeet and Suresh together earn ₹ 4,340. However, the earnings are to be divided in the proportion of work done by each of them. After the share is distributed, it is found that 8/15 of Sumeet's earnings is equal to 2/5 of Suresh's earnings. How much did Suresh earn (in ₹) ?

(a) 1,860

(b) 2,480

(c) 1,736

(d) 2,604

9. The angle between the minute hand and hour hand of a clock at 8:20 is :

(a) 120°

(b) 130°

(c) 140°

(d) 110°

10. A bag contains 5 red, 4 green, 6 blue and 3 yellow balls. Two balls are drawn at random. What is the probability that none of the balls drawn is blue ?

(a) 132/306

(b) 12/18

(c) 132/324

(d) 164/324

11. Ryan runs at a speed of 40 m/minute. Rohit follows him after an interval of 5 minutes and runs at a speed of 50 m/minute. Rohit's dog runs at a speed of 60 m/minute and starts along with Rohit. The dog reaches Ryan and then comes back to Rohit and continues to do so till Rohit reaches Ryan. What is the total distance covered by the dog in metres ?

(a) 720

(b) 600

(c) 960

(d) 1200

12. Two trains A and B are running in the opposite directions. Train A crosses a man standing on the platform in 27 seconds, while train B crosses the same man in 17 seconds. If they cross each other in 23 seconds, then the ratio of speed of train A to that of train B is :

(a) 3 : 2

(b) 1 : 4

(c) 2 : 3

(d) 2 : 5

13. The number of positive integers not exceeding 100 and divisible by 3 or 5 is :

(a) 53

(b) 35

(c) 47

(d) 40

14. In a basket, the ratio of Oranges, Guavas and Jackfruits is 2 : 3 : 5. Ram ate 60% of the fruits in the basket. 40% of the Guavas are remaining in the basket. At least what percentage of Jackfruits did Ram eat ?

(a) 44%

(b) 48%

(c) 36%

(d) 32%

15. A six-digit number ABCDEF is reversed to get a new number FEDCBA. The two numbers are added to get the answer 48X374 (where X is a digit, not necessarily distinct from A, B, C, D, E and F). Find the value of X.

(a) 7

(b) 6

(c) 5

(d) 4

16. A tank has three pipes — Pipe X, Pipe Y and Pipe Z attached. Pipe X and Pipe Z alone can fill the tank completely in 4 hours and 8 hours respectively. Pipe Y can empty the tank in 6 hours. Initially the tank is empty. The three pipes are operated in the following sequence. In the first hour, only Pipe X is opened. In the second hour, Pipes X and Y are opened. In the third hour, only Pipe Y is opened. In the fourth hour, Pipes Y and Z are opened. In the fifth hour, only Pipe Z is opened. This cycle of 5 hours is repeated. After how many hours will the tank be completely filled for the first time ?

(a) 16 hours

(b) 20 hours

(c) 3·5 hours

(d) The tank will never be filled

17. Sunil, Param and Vikas drive at 20 km/hr, 50 km/hr and 80 km/hr respectively. Sunil starts from Point A for Point B. Param starts from Point A, 2 hours after Sunil starts and Vikas leaves some time after Param from Point A. Both Param and Vikas overtake Sunil at the same instant. How many hours after Sunil does Vikas leave Point A ?

(a) 4·5 hours

(b) 4·0 hours

(c) 3·5 hours

(d) 2·5 hours

18. Rekha made a new year's resolution to exercise. On January 1, at 7 AM, she went for a jog from her home to the nearby park and back, returning at 7:32 AM. On January 2, at 7 AM, she went jogging to the park, but this time she walked back. Consequently, she returned home at 7:40 AM. On January 3 too, she set out at 7 AM, but this time she walked both ways. At what time did she return home (assuming her jogging speed and her walking speed are fixed) ?

(a) Between 7:41 AM and 7:45 AM

(b) Between 7:53 AM and 7:57 AM

(c) Between 7:49 AM and 7:53 AM

(d) Between 7:45 AM and 7:49 AM

19. On buying a pen, the shopkeeper gives three refills free. On buying a pen and six refills, the shopkeeper gives additional four refills free. If the equivalent discount is the same in both cases, then how many refills will be equal in value to a pen ?

(a) 18

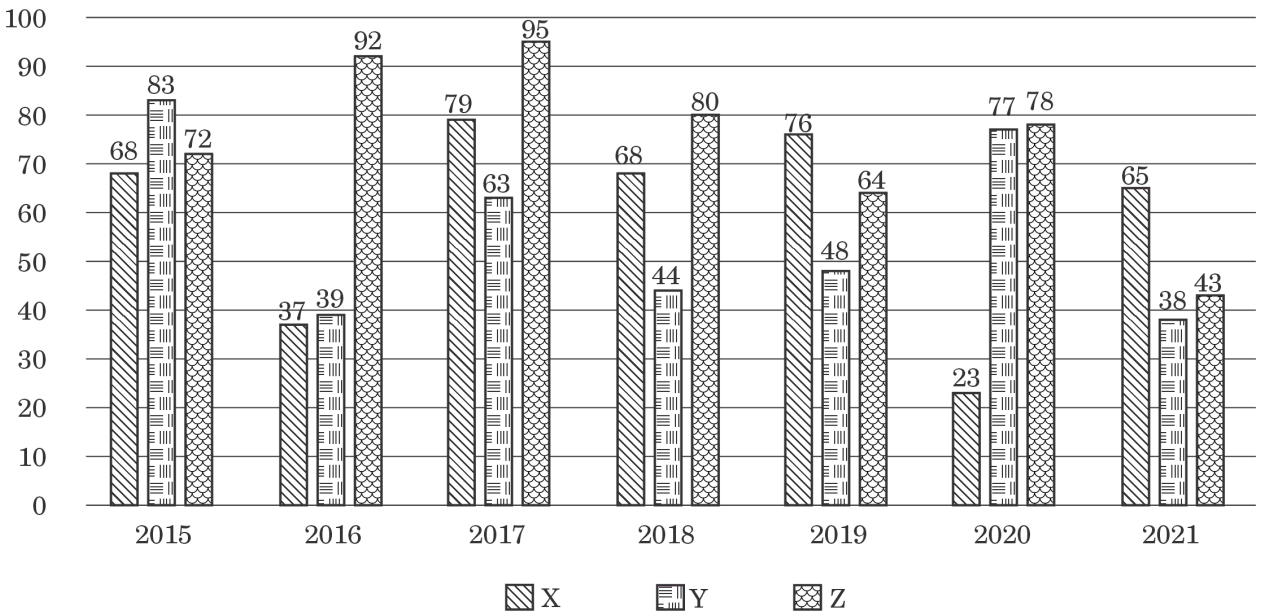
(b) 24

(c) 15

(d) 20

Directions (Questions no. 20 to 22) : *Read the graph given below and answer the questions. The following graph represents percentage of graduated students placed from the three engineering colleges X, Y and Z over the period of time.*

Graduation Placements



20. What is the difference in average placement percentage of colleges X and Y ?

(a) 2·92%

(b) 3·42%

(c) 4·12%

(d) 4·32%

21. If in 2019, colleges X, Y and Z had 150, 250 and 350 students graduating respectively, then what is the total number of students that got placed ?

(a) 356

(b) 458

(c) 424

(d) 288

22. If the college Y, had 200, 200, 300, 150, 300, 200 and 250 students graduating in the years 2015 to 2021 respectively, then what is the total number of students unplaced from college Y in these 7 years ?

(a) 708

(b) 528

(c) 646

(d) 829

Directions (Questions no. 23 to 27) : *Based on the following information, answer the given questions.*

In a one-day workshop, the following five researchers are invited : G, H, J, K and L. Each of the researchers will deliver a lecture of one hour. The five lectures need to be scheduled in five consecutive hours. The schedule for the lectures is also constrained by the following conditions :

H cannot deliver a lecture in any of the first three hours.

L must take the lecture in any of the hours before the lecture of H.

J must take the lecture in any of the hours before the lecture of G.

G must take the lecture in any of the hours before the lecture of K.

23. Which of the following can be the order from first to fifth, in which five researchers deliver their lectures ?

(a) G, K, L, J, H
(b) J, G, K, H, L
(c) J, G, K, L, H
(d) J, K, G, L, H

24. If K delivers the lecture in the fourth hour, then which of the following must be true ?

(a) G delivers the lecture in the third hour
(b) H delivers the lecture in the fifth hour
(c) J delivers the lecture in the first hour
(d) L delivers the lecture in the third hour

25. If J does not deliver the lecture in the first hour, then which of the following must be true ?

(a) G does not deliver the lecture in the third hour
(b) H does not deliver the lecture in the fourth hour
(c) J delivers the lecture in the second hour
(d) K does not deliver the lecture in the fifth hour

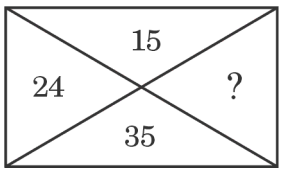
26. If H does not deliver the fifth lecture, then which of the following must be true ?

(a) G delivers the second lecture
(b) J delivers the first lecture
(c) L delivers the fifth lecture
(d) K delivers the fifth lecture

27. If G delivers the third lecture, then which of the following is true ?

(a) L is only one of the five researchers who can take the first lecture
(b) J is only one of the five researchers who can take the second lecture
(c) Any one of exactly three of the five researchers can take the second lecture
(d) Either one of exactly two of the five researchers can take the fifth lecture

28. In the following diagram, which number will replace the question mark ?



(a) 72

(b) 63

(c) 49

(d) 48

29. The height of a right angled triangle is increased by 20% and base is decreased by 10%. The change in the area of the triangle is :

(a) 10% increase

(b) 12% decrease

(c) 8% increase

(d) 8% decrease

30. A watch slows by 3 seconds in 4 minutes. If the clock shows the right time at 8 AM, then what time will it show at 11 PM on the same day ?

(a) 11:11:15

(b) 10:48:45

(c) 10:48:15

(d) 10:49:45

31. Three friends Raj, Sameer and Vijay are standing in a queue. There are 5 people between Raj and Sameer and 8 people between Sameer and Vijay. If there are 3 people ahead of Vijay and 19 people behind Raj, then what could be the minimum number of persons in the queue ?

(a) 37

(b) 27

(c) 26

(d) 28

32. Maria tells her daughter, "I was of your present age when you were born." If Maria is 58 years old now, then what was the age of her daughter 10 years back ?

(a) 15 years

(b) 19 years

(c) 21 years

(d) None of these

Directions (Questions no. 33 to 36) :

In a group of 200 people, 75 persons can play cricket or football but not hockey. 65 persons can play hockey or football but not cricket. 20 persons can play both football and hockey. 15 persons can play both cricket and football. 15 persons can play both hockey and cricket. 50 persons can play hockey and 5 persons can play all three games.

33. How many persons play exactly one game ?

(a) 85
(b) 35
(c) 30
(d) 145

34. How many persons do ***not*** play any game ?

(a) 65
(b) 45
(c) 75
(d) 35

35. How many persons play exactly two games ?

(a) 30
(b) 35
(c) 40
(d) 45

36. How many persons can only play football ?

(a) 20
(b) 25
(c) 15
(d) 30

37. In a group of children, there are 5 girls and 7 boys. In how many ways can 6 children with equal number of boys and girls be selected for a play ?

(a) 200
(b) 250
(c) 300
(d) 350

38. Four persons P, Q, R and S are working in the same company. The sum of the incomes of P and Q is more than that of R and S together. The sum of the incomes of P and R is the same as the sum of the incomes of Q and S. Moreover, P earns half as much as the sum of the incomes of Q and S. Which one of the following persons has the highest income ?

(a) P
(b) Q
(c) R
(d) S

39. A student is practising some math problems. In the first hour he solves 3 problems, in the second hour he solves 5 problems, in the third hour he solves 7 problems and so on. What is the total number of problems solved by him in 10 hours ?

(a) 110
(b) 120
(c) 135
(d) None of these

40. The cost price of an article X is 200% more than that of Y, and 75% less than that of Z. The selling price of the article X is 500% more than that of Z. If the profit on article X is twice that on Y, and is twice the loss on Z, then what is the ratio of profit on article Y to its cost price ?

(a) 69 : 8
(b) 29 : 4
(c) 81 : 8
(d) 63 : 4

SECTION B

41. Consider the following Committees :

1. Balwant Rai Mehta Committee
2. Ashok Mehta Committee
3. Hanumantha Rao Committee
4. L.M. Singhvi Committee

Which Committees were directly related to the Panchayati Raj System ?

(a) 1, 2 and 3 only

(b) 2, 3 and 4 only

(c) 1, 3 and 4 only

(d) 1, 2 and 4 only

42. In connection with Consolidated Fund of India, consider the following statements :

1. No money out of this fund can be appropriated except in accordance with a parliamentary law.
2. All revenues received by the Government, all loans raised and all money received by the Government in repayment of loans forms the Consolidated Fund of India.
3. All money of the Consolidated Fund of India should be spent after proper approval of the Lok Sabha.
4. The Consolidated Fund of India comes under Article 267 of the Indian Constitution.

Which of the statements given above are correct ?

(a) 1, 2 and 3 only

(b) 2, 3 and 4 only

(c) 1 and 2 only

(d) 2 and 4 only

43. The Montague-Chelmsford Proposals were related to :

(a) Social Reforms

(b) Economic Reforms

(c) Constitutional Reforms

(d) Legal Reforms

44. In connection with the Attorney General of India, consider the following statements :

1. The Attorney General of India can take part in the proceedings of the Lok Sabha.
2. The Attorney General of India can become a member of a Committee of the Lok Sabha.
3. The Attorney General of India can deliver a speech in the Lok Sabha.
4. The Attorney General of India can cast his vote in the Lok Sabha.

Which of the statements given above is/are correct ?

(a) 1, 2 and 3 only

(b) 2, 3 and 4 only

(c) 3 and 4 only

(d) 3 only

45. What are the key highlights under the National Manufacturing Policy ?

1. Increase manufacturing share in GDP from 16% to 22% by 2022.
2. Create 150 million additional jobs in the manufacturing sector by 2022.
3. Enhancing appropriate skill sets among the rural migrants and urban poor for their early absorption in manufacturing.

Select the correct answer :

(a) 2 only

(b) 3 only

(c) 2 and 3 only

(d) 1 and 2 only

46. Consider the following statements about NITI Aayog :

1. It is to function as a vehicle of good governance.
2. It has to develop a holistic and inclusive development model for the economy integrating the needs of Centre, States and local bodies.
3. This body subsumes the National Development Council in its Governing Council which gives it more legitimacy.
4. It has three specialized wings namely research, conflict resolution and team India.

Which of the statements given above are correct ?

(a) 1, 2 and 3 only

(b) 1, 2 and 4 only

(c) 2, 3 and 4 only

(d) 1, 2, 3 and 4

47. Which of the following statements about 'zero-coupon bond' is correct ?

(a) A bond with zero coupon rates which is sold at a price lower than its face value and investors get face value price at maturity.

(b) A bond with zero interest rate but with highest liquidity value for which investors get other concessions like tax breaks.

(c) A special category of bonds used as 'express money' to finance immediate needs of the economy which carries zero interest but gives tax credits to investors in their income tax returns.

(d) A kind of bond which is generally issued by governments in the times of financial crises to the high income group citizens which carry no interest but investors get tax concessions for investing in it.

48. Which city has become India's first 'Water Plus' city in Swachh Survekshan, 2021 ?

(a) Indore

(b) Bhopal

(c) Pune

(d) Bengaluru

49. The Ministry of Housing and Urban Affairs (MoHUA) launched 'SonChiraiya', a brand and logo for product marketing of which of the following ?

(a) Urban Self-Help Groups

(b) Rural Self-Help Groups

(c) Cooperative Societies

(d) None of the above

50. Consider the following statements relating to Mahatma Gandhi National Rural Employment Guarantee (MGNREG) Act :

1. 100 days of mandatory employment should be provided to rural job seekers.
2. Equal wage rates should be paid to male and female workers.
3. One-third of the beneficiaries should be women.
4. Employment should be provided only to the people below the poverty line.

Which of the above statements are correct as per the MGNREG Act ?

(a) 1, 2 and 4 only

(b) 1, 2 and 3 only

(c) 1, 2, 3 and 4

(d) 1, 3 and 4 only

51. Match List I with List II and select the correct answer from the codes given below the lists :

	List I (Acts)		*List II (Aims)*
A.	MRTP	1.	Maintenance of foreign exchange
B.	FEMA	2.	Promotion of industrial peace
C.	Industrial Disputes	3.	Control of unfair trade practices
D.	Wealth Tax	4.	Reducing the concentration of economic power

Codes :

	A	**B**	**C**	**D**
(a)	1	2	3	4
(b)	3	4	2	1
(c)	2	4	1	3
(d)	3	1	2	4

52. According to the Union budget of India 2022 – 23, which of the following is/are correctly matched ?

	Deficit		*Target (% GDP)*
1.	Revenue deficit	—	3·6
2.	Fiscal deficit	—	6·4
3.	Primary deficit	—	2·4

(a) 1 and 3 only

(b) 2 and 3 only

(c) 1, 2 and 3

(d) 2 only

53. A geostationary satellite appears stationary relative to the Earth. Such a satellite appears stationary due to its zero relative velocity with respect to a place on the Earth. For such a satellite, the angular speed in terms of radians per hour is :

(a) π

(b) $\pi/2$

(c) $\pi/6$

(d) $\pi/12$

54. India successfully test-fired a new version of which supersonic cruise missile off the Odisha coast in January 2022 ?

(a) BrahMos

(b) Dhanush

(c) Prithvi

(d) Agni

55. An important observing campaign in the year 2022 – 23 is aiming to map the distribution of mysterious dark matter threading throughout the Universe, and understand the even more enigmatic dark energy driving it apart. Which of the following observatory/telescope will be involved in the observations ?

(a) James Webb Space Telescope

(b) Vera C. Rubin Observatory, Chile

(c) Himalayan Chandra Telescope, India

(d) Keck Observatory, USA

56. For generating 'Golden Rice' two genes (encoding for phytoene synthase and beta-cyclase) were taken from a plant and one (encoding for phytoene desaturase) from a soil bacterium *Erwinia uredovora* for beta-carotene biosynthesis. The two plant genes were taken from which of the following plants ?

(a) Chickpea

(b) Wheat

(c) Daffodil

(d) Tomato

57. A Biotech firm Oxitec constructed genetically engineered mosquitoes *Aedes aegypti*, and got them released into the environment. Which of the following represents the main mandate of releasing genetically engineered mosquitoes into the environment ?

(a) To suppress the populations of various insects/pests which are responsible for causing diseases in a variety of crops including cotton, corn and others

(b) To control viral diseases like zika, dengue, chikungunya and yellow fever for which mosquitoes are the carriers

(c) To control malaria in human beings that is caused by mosquitoes, and responsible for high morbidity and mortality

(d) To control protozoan originated diseases in humans and livestock which cause substantial losses of lives

58. Which of the following is ***not*** a connective tissue ?

(a) Bone

(b) Cartilage

(c) Adipose tissue

(d) Muscular tissue

59. Aducanumab, marketed as Aduhelm, has recently been developed by Biogen Inc., a pharmaceutical giant, and has been approved by FDA (USA) for usage for which of the following ailments ?

(a) Brain Cancer

(b) AIDS

(c) Alzheimer's disease

(d) COVID-19

60. 'Camaraderie – Cohesion – Collaboration' is the theme of which of the following exercises ?

(a) MILAN 2023

(b) MILAN 2021

(c) MILAN 2022

(d) MILAN 2020

61. There is a power-rivalry in the Indian Ocean. In that context, what is the base island of China in the Indian Ocean ?

(a) Mauritius

(b) Marao Island

(c) Zanzibar

(d) Sri Lanka

62. Which of the following is the highest peacetime honour accorded to a soldier in India ?

(a) Ashoka Chakra

(b) Param Vishishth Seva Medal

(c) Ati Vishishth Seva Medal

(d) Shaurya Chakra

63. India's first *Technology and Innovation Support Centre (TISC)* is in :

(a) Punjab

(b) Gujarat

(c) Karnataka

(d) Tamil Nadu

64. Who has created Bitcoin ?

(a) Samsung

(b) Satoshi Nakamoto

(c) John McAfee

(d) Google

65. Which one of the following pairs is ***not*** correctly matched ?

	(Thermal Power Station)		*(Location)*
(a)	Anpara Thermal Power Station	—	Uttar Pradesh
(b)	Bakreshwar Thermal Power Station	—	West Bengal
(c)	Anta Thermal Power Station	—	Rajasthan
(d)	Ennore Thermal Power Station	—	Andhra Pradesh

66. The famous Majuli Island is located in :

(a) Assam

(b) West Bengal

(c) Andhra Pradesh

(d) Gujarat

67. Match List I with List II and select the correct answer from the codes given below the lists :

	List I (*Pass*)		*List II* (*Location*)
A.	Debsa	1.	Arunachal Pradesh
B.	Mana	2.	Sikkim
C.	Jelep La	3.	Himachal Pradesh
D.	Diphu	4.	Uttarakhand

Codes :

	A	**B**	**C**	**D**
(a)	1	2	3	4
(b)	2	1	3	4
(c)	3	4	2	1
(d)	4	3	2	1

68. Match List I with List II and select the correct answer from the codes given below the lists :

	List I (*Tribal Groups*)		*List II* (*Zone / Location*)
A.	Gujjar, Bhotia and Tharu	1.	The North Zone of India
B.	Naga, Garo, Khasi, Kuki and Chakma	2.	The North-Eastern Zone of India
C.	Santhal, Gond, Bhil and Kol	3.	The Central Zone of India
D.	Toda	4.	The Southern Zone of India

Codes :

	A	**B**	**C**	**D**
(a)	4	3	1	2
(b)	3	4	2	1
(c)	1	3	4	2
(d)	1	2	3	4

69. Which one of the following mountain peaks is ***not*** located in the Kumaon Himalaya ?

(a) Nanda Devi

(b) Trisul

(c) Makalu

(d) Kedarnath

70. The deltas of Narmada and Tapi rivers of India are an example of :

(a) Estuarine delta

(b) Arcuate delta

(c) Truncated delta

(d) Blocked delta

71. Match List I with List II and select the correct answer from the codes given below the lists :

	List I (*Local Winds*)		*List II* (*Region*)
A.	Yamo	1.	Siberia
B.	Buran	2.	Japan
C.	Zonda	3.	New Zealand
D.	Nor'wester	4.	Argentina

Codes :

	A	**B**	**C**	**D**
(a)	1	2	3	4
(b)	1	2	4	3
(c)	2	1	4	3
(d)	4	3	2	1

72. Match List I with List II and select the correct answer from the codes given below the lists :

	List I (*Name of the Bird Sanctuaries*)		*List II* (*Location*)
A.	Nal Sarovar Bird Sanctuary	1.	Tamil Nadu
B.	Vedanthangal Bird Sanctuary	2.	Gujarat
C.	Kumarakom Bird Sanctuary	3.	Kerala
D.	Salim Ali Bird Sanctuary	4.	Goa

Codes :

	A	**B**	**C**	**D**
(a)	1	2	3	4
(b)	2	1	3	4
(c)	3	4	2	1
(d)	4	3	2	1

73. Match List I with List II and select the correct answer from the codes given below the lists :

	List I (*Steel Plant*)		*List II* (*Location*)
A.	IISCO Steel Plant, Burnpur	1.	Jharkhand
B.	Visvesvaraya Steel Plant, Bhadravati	2.	West Bengal
C.	Bhilai Steel Plant	3.	Karnataka
D.	Bokaro Steel Plant	4.	Chhattisgarh

Codes :

	A	**B**	**C**	**D**
(a)	2	3	4	1
(b)	1	3	2	4
(c)	3	4	1	2
(d)	4	2	3	1

74. 'Vivad se Viswas' Scheme of the Ministry of Finance is related to :

(a) Trade related dispute settlement

(b) FDI related dispute settlement

(c) Industrial dispute settlement

(d) Direct tax dispute settlement

75. Consider the following statements :

1. The Rashtriya Khel Protsahan Puruskar is a sports honour of the Republic of India. The award was started in 2009 under national sports awards of the Ministry of Youth Affairs and Sports.
2. The award is given in four categories viz. Identification and nurturing of budding and young talent, Encouragement to sports through corporate social responsibility, Employment of sportspersons and sports welfare measures, and Sports for development.
3. Entities who received Rashtriya Khel Protsahan Puraskar, 2021 are Railway Sports Promotion Board and Gagan Narang Sports Promotion Foundation.

Which of the above statements are correct ?

(a) 1 and 2 only

(b) 2 and 3 only

(c) 1 and 3 only

(d) 1, 2 and 3

76. The Badminton World Federation has allotted the BWF World Championships to India for the year :

(a) 2024

(b) 2025

(c) 2026

(d) 2027

77. Which app has been developed by the Government of India to give users familiarity with common expressions of daily conversation in 22 Scheduled Indian languages ?

(a) Multibhashi

(b) Pratilipi

(c) Bhasha Sangam

(d) Bhasha Learner

78. Dosti Trilateral Exercise is conducted between which of the following ?

1. Sri Lanka
2. India
3. Bangladesh
4. Maldives

Codes :

(a) 1, 2 and 4 only

(b) 2, 3 and 4 only

(c) 1, 3 and 4 only

(d) 1, 2 and 3 only

79. Build Back Better World (B3W) initiative is announced by which of the following ?

(a) G20

(b) G7

(c) ASEAN

(d) BRICS

80. India's first cryptogamic garden was inaugurated in :

(a) Dehradun

(b) Chandigarh

(c) Bengaluru

(d) None of the above

81. Which of the following are the initiatives taken by the government to reduce air pollution ?

1. UJALA Scheme
2. International Solar Alliance
3. SVAMITVA Scheme
4. National Action Plan on Climate Change

Codes :

(a) 1, 3 and 4 only
(b) 1, 2 and 4 only
(c) 1 and 4 only
(d) 2 and 4 only

82. The first Living Robots capable of reproducing are :

(a) Xenobots
(b) Xerobots
(c) Shalu
(d) Sofia

83. What is Param Ganga ?

(a) Telescope
(b) Satellite
(c) Supercomputer
(d) Superfast train

84. SpaceX, recently made history by launching the world's first all-civilian crewed space flight.

The name of the flight was :

(a) Aspiration 14
(b) Inspiration 4
(c) Exception New Crew 5
(d) SpaceX Adventure 3

85. Which of the following statements are true about "Raisina Dialogue" ?

1. It is India's flagship conference on foreign policy.
2. It's seventh edition was launched in April 2022.
3. It started in the year 2017 to cover geoeconomics and geopolitics issues.

Choose the most appropriate answer from the options given below :

(a) Only statements 1 and 3 are true
(b) Only statements 2 and 3 are true
(c) Only statements 1 and 2 are true
(d) All statements 1, 2 and 3 are true

86. Who became the first deaf actor to win an Academy Award for a supporting role in the film CODA at the recently concluded 94^{th} Academy Awards ceremony ?

(a) Will Smith
(b) Troy Kotsur
(c) Jessica Chastain
(d) King Richard

87. In 2022, following an oil spill that spilled 6,000 barrels of crude oil into the sea, which country declared a 90-day "environmental emergency" in damaged coastal territories ?

(a) Pakistan
(b) Mauritius
(c) Peru
(d) India

88. Janjatiya Gaurav Divas is celebrated to mark the birth anniversary of :

(a) Tilka Manjhi
(b) Birsa Munda
(c) Tirot Sing
(d) Rajmohini Devi

89. Which Indian economist has been chosen to receive the Malcolm Adiseshiah Award in 2022 ?

(a) Jayati Ghosh

(b) Abhijit Banerjee

(c) Prabhat Patnaik

(d) Jean Drèze

90. According to the National Commission on Population's recent report on population projections, India is expected to achieve a sex ratio of 957 : 1000 by which year ?

(a) 2030

(b) 2032

(c) 2034

(d) 2036

91. Which of the following world's regions are considered the "hottest hotspots of biodiversity" ?

1. Madagascar and the Indian Ocean Islands
2. The Philippines
3. NW Himalaya
4. The Atlantic Forest

Choose the most appropriate answer from the options given below :

(a) 1, 2 and 3 only

(b) 2, 3 and 4 only

(c) 1, 2 and 4 only

(d) 1, 3 and 4 only

92. Given below are two statements : one is labelled as **Assertion (A)** and the other is labelled as **Reason (R)** :

Assertion (A) :

Dioxins bio accumulate and are toxic at extremely low levels.

Reason (R) :

Dioxins are created mainly by burning plastics and medical waste containing chlorine.

In the light of the above statements, choose the most appropriate answer from the options given below :

(a) Both Assertion (A) and Reason (R) are correct and Reason (R) is the correct explanation of Assertion (A).

(b) Both Assertion (A) and Reason (R) are correct, but Reason (R) is ***not*** the correct explanation of Assertion (A).

(c) Assertion (A) is correct, but Reason (R) is not correct.

(d) Assertion (A) is not correct, but Reason (R) is correct.

93. Given below are two statements : one is labelled as **Assertion (A)** and the other is labelled as **Reason (R)** :

Assertion (A) :

Ocean currents are sometimes referred to as the "heat pumps" or "thermal conveyers" of the planet.

Reason (R) :

Ocean currents are responsible for about 40% of the heat exchanged between the tropics and the polar regions.

In the light of the above statements, choose the most appropriate answer from the options given below :

(a) Both Assertion (A) and Reason (R) are correct and Reason (R) is the correct explanation of Assertion (A).

(b) Both Assertion (A) and Reason (R) are correct, but Reason (R) is ***not*** the correct explanation of Assertion (A).

(c) Assertion (A) is correct, but Reason (R) is not correct.

(d) Assertion (A) is not correct, but Reason (R) is correct.

94. Which of the following statements correctly describe biomes ?

1. Biomes are categorized by the most common growth forms of plants distributed across large geographic areas.

2. The categorization of biomes also takes taxonomic relationships among organisms into account.

3. Biomes categorization relies on similarities in the morphological responses of organisms to the physical environment.

4. A biome includes similar biotic assemblages on distant continents, indicating similar responses to similar climate conditions in different locations.

In the light of the above statements, choose the most appropriate answer from the options given below :

(a) 1, 2, 3 and 4

(b) 1, 2 and 4 only

(c) 1, 3 and 4 only

(d) 2, 3 and 4 only

95. Which of the following statements are part of India's strategy to combat climate change that was declared at the 26th Conference of Parties (COP26) ?

1. Develop non-fossil energy capacity to 500 gigawatt and meet 50% of its energy requirements from renewable energy by 2030.

2. Reduce the total projected carbon emissions by one billion tonnes from now onwards till 2030.

3. Reduce the carbon intensity of its economy by less than 45 per cent by 2030.

4. Achieve the target of Net-Zero by 2070.

Choose the most appropriate answer from the options given below :

(a) 1, 2 and 4 only

(b) 1, 3 and 4 only

(c) 2, 3 and 4 only

(d) 1, 2, 3 and 4

96. When they come in contact with the target contaminant, Nanoparticles can detoxify or immobilize contaminants via a pump-and-treat process or in situ application. Which of the following statements are appropriately associated with nanoparticle application for the remediation of contaminants ?

1. Nanoparticles, due to their extremely small size, can penetrate into small pores in the soil or sediment.
2. By Brownian motion, nanoparticles move freely in soil to target sites.
3. Nanoparticles either degrade the targeted complex molecule or adsorb to the contaminant to immobilize it.
4. Nanoparticles can remain suspended in soil water for a very short period only and react with target molecules in situ processes.

In the light of the above statements, choose the most appropriate answer from the options given below :

(a) 1, 2, 3 and 4

(b) 1, 2 and 3 only

(c) 1, 2 and 4 only

(d) 2, 3 and 4 only

97. Match List I with List II and select the correct answer from the codes given below the lists :

	List I (Layers of atmosphere)	*List II (Characteristics)*
A.	Mesosphere	1. Reflects outgoing radio waves back to the Earth without the use of satellites, Auroras occur here
B.	Troposphere	2. Steady winds but no turbulence, commercial jets fly here
C.	Thermosphere	3. Meteors burn due to friction from air molecules
D.	Stratosphere	4. Temperature decreases with increasing altitude

Choose the most appropriate answer from the options given below :

	A	**B**	**C**	**D**
(a)	4	3	1	2
(b)	3	2	1	4
(c)	3	4	2	1
(d)	3	4	1	2

98. Which of the following is ***not*** an extinct species ?

(a) Olive Ridley sea turtle

(b) Dusky seaside sparrow

(c) Hawaii ʻōʻō

(d) Great auk

99. Consider the following statements :

1. During March 21 to September 22, the Northern Hemisphere tilts towards the Sun, while the Southern Hemisphere tilts away from the Sun.
2. During September 22 to March 21, Northern Hemisphere tilts away from the Sun, while the Southern Hemisphere tilts towards the Sun.
3. The Earth's inclination on its axis is 23·5 degrees from the equator.

Identify the correct statement/s.

(a) 3 only

(b) 1, 2 and 3

(c) 2 only

(d) Both 1 and 2

100. Which of the following diseases are transmitted by polluted water ?

1. Diphtheria
2. Poliomyelitis
3. Typhoid
4. Infectious hepatitis

Choose the most appropriate answer from the options given below :

(a) 1, 3 and 4 only

(b) 1, 2 and 4 only

(c) 2, 3 and 4 only

(d) 1, 2, 3 and 4

101. Arrange the chronologies of the following events :

1. The Indian Councils Act
2. The Indian Universities Act
3. Criminal Law Amendment Bill
4. Partition of Bengal

Codes :

(a) 1, 2, 4, 3

(b) 3, 4, 2, 1

(c) 4, 3, 1, 2

(d) 2, 4, 3, 1

102. The Gandhi-Irwin Pact was signed on March 5, 1931. Which were the provisions of the pact ?

1. Civil Disobedience prisoners not guilty of violence to be released.
2. Immovable properties confiscated by the Government to be returned.
3. Remittance of fines not already realized.
4. The Indian National Congress might continue the Civil Disobedience Movement.

Which of the above mentioned provisions are correct ?

(a) 1 and 2 only

(b) 2 and 3 only

(c) 1, 3 and 4 only

(d) 1 and 3 only

103. Which is the correct chronology of the excavation of sites in the Indus Valley Civilization ?

1. Mohenjo-Daro
2. Chanhudaro
3. Harappa
4. Lothal

Select the correct answer from the following :

(a) 3, 1, 2, 4

(b) 1, 3, 2, 4

(c) 2, 1, 3, 4

(d) 3, 4, 2, 1

104. Vardhamana Mahavira at the age of 28 began his quest for truth and practised for 12 years, and at the end of austerities he was known as :

(a) Kaivalya

(b) Maha Gosala

(c) Siddhartha

(d) Ghora Angirasa

105. Gunadya has written a work known as :

(a) Kathamanjari

(b) Brihatkatha

(c) Panchatantra

(d) Gathasaptashati

106. Match List I with List II and select the correct answer from the codes given below the lists :

List I (Writer)	*List II (Manuscript)*
A. Bhai Santokh Singh Ji	1. Bansawalinama
B. Kesar Singh Chibber	2. Sikhan Di Bhagat Mala
C. Sainapati	3. Gurpartap Suraj Granth
D. Bhai Mani Singh Ji	4. Sri Gur Sobha

Codes :

	A	**B**	**C**	**D**
(a)	2	1	4	3
(b)	3	1	4	2
(c)	1	3	2	4
(d)	4	1	3	2

107. Match List I with List II and select the correct answer from the codes given below the lists :

List I		*List II*
A. Jallianwala Bagh Massacre	1.	1914
B. Komagata Maru	2.	1921
C. Jaito Morcha	3.	1919
D. Nankana Sahib Massacre	4.	1924

Codes :

	A	**B**	**C**	**D**
(a)	3	1	4	2
(b)	3	1	2	4
(c)	1	3	4	2
(d)	2	4	3	1

108. Which Government of India Act established the Punjab Legislative Council in Punjab ?

(a) The Government of India Act, 1935

(b) The Government of India Act, 1909

(c) The Government of India Act, 1919

(d) The Indian Councils Act, 1892

109. Match List I with List II and select the correct answer from the codes given below the lists :

List I (Sikh Gurus)		*List II (Guru's Writings)*
A. Guru Gobind Singh Ji	1.	Anand Sahib
B. Guru Nanak Dev Ji	2.	Adi Granth
C. Guru Arjan Dev Ji	3.	Bachitar Natak
D. Guru Amar Das Ji	4.	Asa Di Var

Codes :

	A	**B**	**C**	**D**
(a)	2	4	1	3
(b)	3	4	2	1
(c)	4	1	3	2
(d)	1	2	4	3

110. Match List I with List II and select the correct answer from the codes given below the lists :

List I (Sikh Misals)		*List II (Misal Leaders)*
A. Bhangi Misal	1.	Nawab Kapur Singh
B. Kanhaiya Misal	2.	Hari Singh
C. Faizalpuria Misal	3.	Gulab Singh
D. Dallewalia Misal	4.	Jai Singh

Codes :

	A	**B**	**C**	**D**
(a)	4	2	1	3
(b)	1	3	2	4
(c)	2	4	1	3
(d)	2	1	3	4

111. The Masand system was abolished by :

(a) Guru Arjan Dev Ji

(b) Guru Tegh Bahadur Ji

(c) Guru Hargobind Ji

(d) Guru Gobind Singh Ji

112. After the decline of Napoleon, two French officers who joined Maharaja Ranjit Singh's service in 1822 were :

(a) Duke of Wellington and Marshal Blücher

(b) Captain Allard and Jean-Baptiste Ventura

(c) Louis-Nicolas Davout and Jean Lafitte

(d) Marcellin Marbot and Jean Danjou

113. Who was the founder of 'Nyaya' – the system of logic ?

(a) Pururava

(b) Gautama

(c) Arjuna

(d) Vishwamitra

114. Consider the following statements :

1. Maulavi Ahmadullah Shah was one of the central figures in the Revolt of 1857 in Awadh and Rohilkhand.
2. He is said to have diplomatically avoided Sir Colin Campbell twice in pitched battle.
3. British officers and military commanders have praised his military qualities.
4. V.D. Savarkar has criticised the heroism of Maulavi Ahmadullah.

Which of the statements given above are correct ?

(a) 1, 2 and 3 only

(b) 1, 2 and 4 only

(c) 1, 3 and 4 only

(d) 2, 3 and 4 only

115. Arrange the following treaties and agreements in a chronological order :

1. India-US Nuclear Deal
2. Indo-Soviet Friendship Treaty
3. Tashkent Agreement
4. Shimla Agreement

Select the correct answer from the codes given below :

Codes :

(a) 3, 2, 4, 1

(b) 2, 3, 1, 4

(c) 1, 4, 2, 3

(d) 4, 1, 3, 2

116. With reference to the powers of the President of India, consider the following statements :

1. The President shall have the power to promulgate ordinance only when the Parliament is not in session and the ordinance ceases to have effect when the Parliament reassembles.
2. The ordinance-making power of the President is a parallel power of legislation irrespective of whether the Parliament is in session or not.

Which of the statements given above is/are correct ?

(a) 1 only
(b) 2 only
(c) Both 1 and 2
(d) Neither 1 nor 2

117. Which one of the following Acts/Reports created the Federal Court in India ?

(a) The Government of India Act, 1909
(b) The Government of India Act, 1919
(c) The Montague-Chelmsford Report
(d) The Government of India Act, 1935

118. Consider the following statements :

1. The Charter Act of 1833 was enacted during the tenure of William Bentinck.
2. The Charter Act of 1833 instituted the post of Governor General of India.
3. The Governor of Bombay was appointed as the first Deputy Governor General of India through the Charter Act of 1833.
4. William Bentinck became the first Governor General of India through the Charter Act of 1833.

Which of the statements given above is/are ***not*** correct ?

(a) 1 and 2 only
(b) 1 and 3 only
(c) 3 and 4 only
(d) 3 only

119. In connection with the Indian Independence Act, 1947, consider the following events :

1. The British Government sent as its envoy Sir Stafford Cripps to India to resolve the Indian impasse.
2. The British Government appointed a three-member Cabinet Mission.
3. Clement Attlee became the new Prime Minister in Britain.
4. A Resolution for *Purna Swaraj* (Complete Independence) was adopted by the Congress.

Which one is the correct chronological order ?

(a) 1, 2, 4, 3
(b) 4, 3, 2, 1
(c) 4, 1, 2, 3
(d) 4, 1, 3, 2

120. In connection with the first session of the Constituent Assembly, consider the following facts :

1. The first session went on from 9th December to 23rd December, 1946.
2. On the first day of the session, Sachchidananda Sinha, the seniormost member of the Constituent Assembly, was elected the acting Chairman of the Assembly.
3. On 10th December, under the Chairmanship of Rajendra Prasad, a Rules Committee was formed to frame rules for conducting business in the Assembly.
4. On 13th December, Jawaharlal Nehru introduced in the Assembly the Objective Resolution, delineating the objectives of the proposed Constitution.

Which of the statements given above are correct ?

(a) 2, 3 and 4 only
(b) 1, 2 and 3 only
(c) 1, 2 and 4 only
(d) 1, 3 and 4 only

SPACE FOR ROUGH WORK

SPACE FOR ROUGH WORK

READ INSTRUCTIONS BEFORE FILLING ANY DETAILS OR ATTEMPTING TO ANSWER THE QUESTIONS.

Booklet Sr. No.

Question Booklet Set
C

Candidate's Name _____

Father's Name _____

Date of Birth : | | | | | | | | |

D D M M Y Y Y Y

OMR Response Sheet No. _____ **Roll No.** _____

Candidate's Signature :
(Please sign in the box)

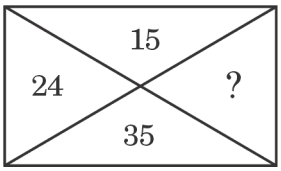
Total Questions : **120**]
Time Allowed : **2** Hours]

INSTRUCTIONS

1. The candidate shall NOT open this booklet till the time he/she is told to do so by the Invigilation Staff. However, in the meantime, the candidate can read these instructions carefully and subsequently fill the appropriate columns given above in CAPITAL letters. The candidate may also fill the relevant boxes out of 1 to 9 of the Optical Mark Reader (OMR) response sheet, supplied separately.
2. Use only blue or black **ball point pen** to fill the relevant columns on this page as well as in the OMR sheet. Use of ink pen or any other pen is not allowed.
3. The candidate shall be liable for any adverse effect if the information given above is wrong or illegible or incomplete.
4. Each candidate is required to attempt 120 questions in 120 minutes, except for orthopedically/visually impaired candidates, who would be given 40 extra minutes, for marking correct responses on the OMR sheet.
5. The question paper booklet has **28** pages.
6. The candidates, when allowed to open the question paper booklet, must first check the entire booklet to confirm that the booklet has complete number of pages, the pages printed correctly and there are no blank pages. In case there is any such error in the question paper booklet then the candidate should IMMEDIATELY bring this fact to the notice of the Invigilation Staff and obtain a new booklet of the same series as given earlier.
7. The serial number of the new Question booklet if issued for some reason should be entered in the relevant column of the OMR. The Invigilation Staff must make necessary corrections in their record regarding the change in the serial no. of Question booklet.
8. The paper consists of total 300 Marks. Each question shall carry 2·5 marks. There are four options for each question and the candidate has to mark the MOST APPROPRIATE answer on the OMR response sheet.
9. There is negative marking (0·5 marks for each question) for questions wrongly answered by the candidate.
10. Use of Electronic/Manual Calculator is prohibited.
11. The candidate **MUST READ INSTRUCTIONS BEHIND THE OMR SHEET** before answering the questions and check that two carbon copies attached to the OMR sheet are intact.

SECTION A

1. In the following diagram, which number will replace the question mark ?



(a) 72

(b) 63

(c) 49

(d) 48

2. The height of a right angled triangle is increased by 20% and base is decreased by 10%. The change in the area of the triangle is :

(a) 10% increase

(b) 12% decrease

(c) 8% increase

(d) 8% decrease

3. A watch slows by 3 seconds in 4 minutes. If the clock shows the right time at 8 AM, then what time will it show at 11 PM on the same day ?

(a) 11:11:15

(b) 10:48:45

(c) 10:48:15

(d) 10:49:45

4. Three friends Raj, Sameer and Vijay are standing in a queue. There are 5 people between Raj and Sameer and 8 people between Sameer and Vijay. If there are 3 people ahead of Vijay and 19 people behind Raj, then what could be the minimum number of persons in the queue ?

(a) 37

(b) 27

(c) 26

(d) 28

5. Maria tells her daughter, "I was of your present age when you were born." If Maria is 58 years old now, then what was the age of her daughter 10 years back ?

(a) 15 years

(b) 19 years

(c) 21 years

(d) None of these

Directions (Questions no. 6 to 9) :

In a group of 200 people, 75 persons can play cricket or football but not hockey. 65 persons can play hockey or football but not cricket. 20 persons can play both football and hockey. 15 persons can play both cricket and football. 15 persons can play both hockey and cricket. 50 persons can play hockey and 5 persons can play all three games.

6. How many persons play exactly one game ?
(a) 85
(b) 35
(c) 30
(d) 145

7. How many persons do ***not*** play any game ?
(a) 65
(b) 45
(c) 75
(d) 35

8. How many persons play exactly two games ?
(a) 30
(b) 35
(c) 40
(d) 45

9. How many persons can only play football ?
(a) 20
(b) 25
(c) 15
(d) 30

10. In a group of children, there are 5 girls and 7 boys. In how many ways can 6 children with equal number of boys and girls be selected for a play ?
(a) 200
(b) 250
(c) 300
(d) 350

11. Four persons P, Q, R and S are working in the same company. The sum of the incomes of P and Q is more than that of R and S together. The sum of the incomes of P and R is the same as the sum of the incomes of Q and S. Moreover, P earns half as much as the sum of the incomes of Q and S. Which one of the following persons has the highest income ?
(a) P
(b) Q
(c) R
(d) S

12. A student is practising some math problems. In the first hour he solves 3 problems, in the second hour he solves 5 problems, in the third hour he solves 7 problems and so on. What is the total number of problems solved by him in 10 hours ?
(a) 110
(b) 120
(c) 135
(d) None of these

13. The cost price of an article X is 200% more than that of Y, and 75% less than that of Z. The selling price of the article X is 500% more than that of Z. If the profit on article X is twice that on Y, and is twice the loss on Z, then what is the ratio of profit on article Y to its cost price ?
(a) 69 : 8
(b) 29 : 4
(c) 81 : 8
(d) 63 : 4

14. Abhishek invests ₹ 10,000 at a simple interest of 6% per annum for y years. The interest is paid annually, of which Abhishek spends half and keeps the remaining in cash, in a box labelled B at home. To begin with, B had no money in it, and nothing else, except half of these interest incomes is added to the box. No money is removed from B. After y years, if the cash in B is ₹ 2,400, then y =

(a) 4 years

(b) 6 years

(c) 8 years

(d) 12 years

15. A rectangular floor of dimensions $10' \times 8'$ ($120'' \times 96''$) has to be tiled using the same type of square tiles. Square tiles are available in various dimensions $1''$, $2''$, $3''$, $4''$, ..., $48''$. What is the size of the largest square tile that can be used to tile the floor completely, without breaking any tile ?

(a) $32''$

(b) $24''$

(c) $12''$

(d) $8''$

16. The number of leap years from 1801 to 2000 are :

(a) 50

(b) 48

(c) 47

(d) None of these

17. If R.A.C.E = –4.13.11.9 and C.O.L.U.M.N = 11.–1.2.–7.1.0, then B.R.A.C.K.E.T =

(a) 12.–4.13.11.4.9.–5

(b) 12.–4.13.11.3.9.–5

(c) 12.–4.13.11.4.9.–6

(d) 12.–4.13.11.3.9.–6

18. What is the missing number in the following sequence ?

7, 22, 44, ?, 158

(a) 84

(b) 88

(c) 96

(d) 114

19. Four friends P, Q, R and S live in the same locality. The house of Q is in the east of P's house but in the north of R's house. The house of R is in the west of S's house. S's house is in which direction of P's house ?

(a) South-east

(b) North-west

(c) North-east

(d) Data is inadequate

20. Ms. Neelam likes to let her students choose who their partners will be for study during the course; however, no pair of students may work together more than seven class periods in a row. Anish and Boman have studied together seven class periods in a row. Cathy and Dodo have worked together three class periods in a row. Cathy does not want to work with Anish. Who should be assigned to work with Boman ?

(a) Neelam

(b) Anish

(c) Dodo

(d) Cathy

21. After completing a particular work, Sumeet and Suresh together earn ₹ 4,340. However, the earnings are to be divided in the proportion of work done by each of them. After the share is distributed, it is found that 8/15 of Sumeet's earnings is equal to 2/5 of Suresh's earnings. How much did Suresh earn (in ₹) ?

(a) 1,860

(b) 2,480

(c) 1,736

(d) 2,604

22. The angle between the minute hand and hour hand of a clock at 8:20 is :

(a) 120°

(b) 130°

(c) 140°

(d) 110°

23. A bag contains 5 red, 4 green, 6 blue and 3 yellow balls. Two balls are drawn at random. What is the probability that none of the balls drawn is blue ?

(a) 132/306

(b) 12/18

(c) 132/324

(d) 164/324

24. Ryan runs at a speed of 40 m/minute. Rohit follows him after an interval of 5 minutes and runs at a speed of 50 m/minute. Rohit's dog runs at a speed of 60 m/minute and starts along with Rohit. The dog reaches Ryan and then comes back to Rohit and continues to do so till Rohit reaches Ryan. What is the total distance covered by the dog in metres ?

(a) 720

(b) 600

(c) 960

(d) 1200

25. Two trains A and B are running in the opposite directions. Train A crosses a man standing on the platform in 27 seconds, while train B crosses the same man in 17 seconds. If they cross each other in 23 seconds, then the ratio of speed of train A to that of train B is :

(a) 3 : 2

(b) 1 : 4

(c) 2 : 3

(d) 2 : 5

26. The number of positive integers not exceeding 100 and divisible by 3 or 5 is :

(a) 53

(b) 35

(c) 47

(d) 40

27. In a basket, the ratio of Oranges, Guavas and Jackfruits is 2 : 3 : 5. Ram ate 60% of the fruits in the basket. 40% of the Guavas are remaining in the basket. At least what percentage of Jackfruits did Ram eat ?

(a) 44%

(b) 48%

(c) 36%

(d) 32%

28. A six-digit number ABCDEF is reversed to get a new number FEDCBA. The two numbers are added to get the answer 48X374 (where X is a digit, not necessarily distinct from A, B, C, D, E and F). Find the value of X.

(a) 7

(b) 6

(c) 5

(d) 4

29. A tank has three pipes — Pipe X, Pipe Y and Pipe Z attached. Pipe X and Pipe Z alone can fill the tank completely in 4 hours and 8 hours respectively. Pipe Y can empty the tank in 6 hours. Initially the tank is empty. The three pipes are operated in the following sequence. In the first hour, only Pipe X is opened. In the second hour, Pipes X and Y are opened. In the third hour, only Pipe Y is opened. In the fourth hour, Pipes Y and Z are opened. In the fifth hour, only Pipe Z is opened. This cycle of 5 hours is repeated. After how many hours will the tank be completely filled for the first time ?

(a) 16 hours

(b) 20 hours

(c) 3·5 hours

(d) The tank will never be filled

30. Sunil, Param and Vikas drive at 20 km/hr, 50 km/hr and 80 km/hr respectively. Sunil starts from Point A for Point B. Param starts from Point A, 2 hours after Sunil starts and Vikas leaves some time after Param from Point A. Both Param and Vikas overtake Sunil at the same instant. How many hours after Sunil does Vikas leave Point A ?

(a) 4·5 hours

(b) 4·0 hours

(c) 3·5 hours

(d) 2·5 hours

31. Rekha made a new year's resolution to exercise. On January 1, at 7 AM, she went for a jog from her home to the nearby park and back, returning at 7:32 AM. On January 2, at 7 AM, she went jogging to the park, but this time she walked back. Consequently, she returned home at 7:40 AM. On January 3 too, she set out at 7 AM, but this time she walked both ways. At what time did she return home (assuming her jogging speed and her walking speed are fixed) ?

(a) Between 7:41 AM and 7:45 AM

(b) Between 7:53 AM and 7:57 AM

(c) Between 7:49 AM and 7:53 AM

(d) Between 7:45 AM and 7:49 AM

32. On buying a pen, the shopkeeper gives three refills free. On buying a pen and six refills, the shopkeeper gives additional four refills free. If the equivalent discount is the same in both cases, then how many refills will be equal in value to a pen ?

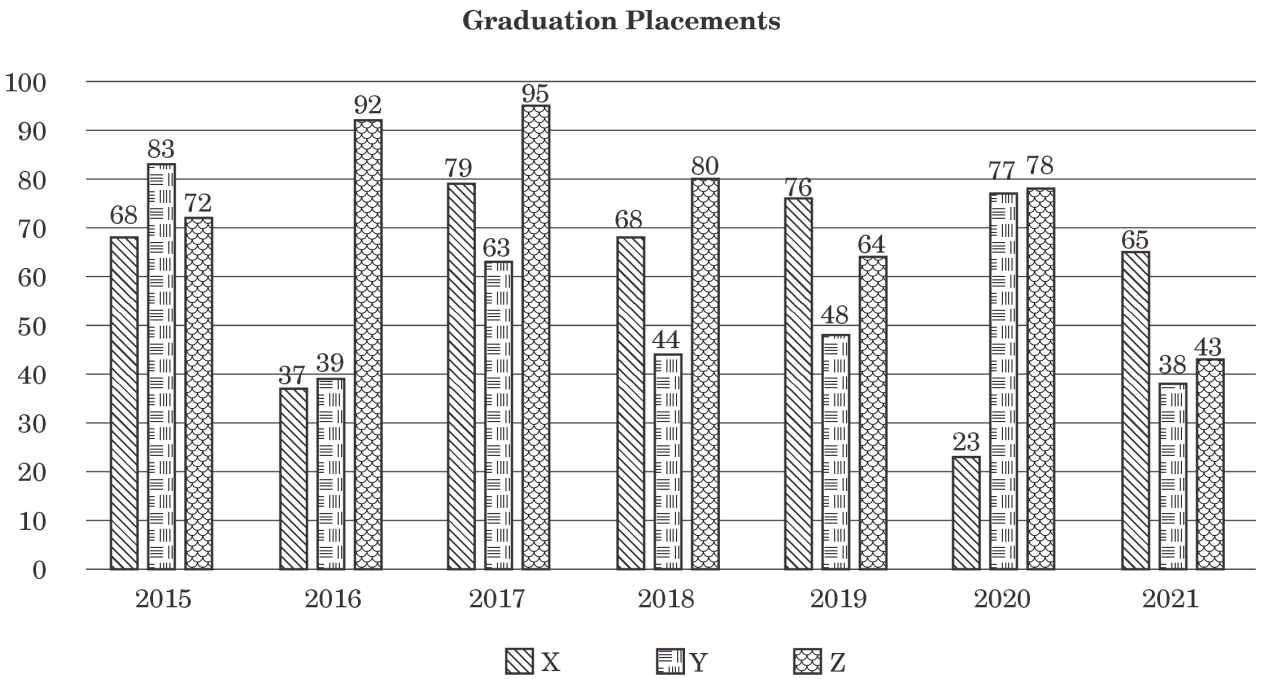
(a) 18

(b) 24

(c) 15

(d) 20

Directions (Questions no. 33 to 35) : *Read the graph given below and answer the questions. The following graph represents percentage of graduated students placed from the three engineering colleges X, Y and Z over the period of time.*



33. What is the difference in average placement percentage of colleges X and Y ?

(a) 2·92%

(b) 3·42%

(c) 4·12%

(d) 4·32%

34. If in 2019, colleges X, Y and Z had 150, 250 and 350 students graduating respectively, then what is the total number of students that got placed ?

(a) 356

(b) 458

(c) 424

(d) 288

35. If the college Y, had 200, 200, 300, 150, 300, 200 and 250 students graduating in the years 2015 to 2021 respectively, then what is the total number of students unplaced from college Y in these 7 years ?

(a) 708

(b) 528

(c) 646

(d) 829

Directions (Questions no. 36 to 40) : *Based on the following information, answer the given questions.*

In a one-day workshop, the following five researchers are invited : G, H, J, K and L. Each of the researchers will deliver a lecture of one hour. The five lectures need to be scheduled in five consecutive hours. The schedule for the lectures is also constrained by the following conditions :

H cannot deliver a lecture in any of the first three hours.

L must take the lecture in any of the hours before the lecture of H.

J must take the lecture in any of the hours before the lecture of G.

G must take the lecture in any of the hours before the lecture of K.

36. Which of the following can be the order from first to fifth, in which five researchers deliver their lectures ?

(a) G, K, L, J, H

(b) J, G, K, H, L

(c) J, G, K, L, H

(d) J, K, G, L, H

37. If K delivers the lecture in the fourth hour, then which of the following must be true ?

(a) G delivers the lecture in the third hour

(b) H delivers the lecture in the fifth hour

(c) J delivers the lecture in the first hour

(d) L delivers the lecture in the third hour

38. If J does not deliver the lecture in the first hour, then which of the following must be true ?

(a) G does not deliver the lecture in the third hour

(b) H does not deliver the lecture in the fourth hour

(c) J delivers the lecture in the second hour

(d) K does not deliver the lecture in the fifth hour

39. If H does not deliver the fifth lecture, then which of the following must be true ?

(a) G delivers the second lecture

(b) J delivers the first lecture

(c) L delivers the fifth lecture

(d) K delivers the fifth lecture

40. If G delivers the third lecture, then which of the following is true ?

(a) L is only one of the five researchers who can take the first lecture

(b) J is only one of the five researchers who can take the second lecture

(c) Any one of exactly three of the five researchers can take the second lecture

(d) Either one of exactly two of the five researchers can take the fifth lecture

SECTION B

41. Match List I with List II and select the correct answer from the codes given below the lists :

	List I (*Name of the Bird Sanctuaries*)		*List II* (*Location*)
A.	Nal Sarovar Bird Sanctuary	1.	Tamil Nadu
B.	Vedanthangal Bird Sanctuary	2.	Gujarat
C.	Kumarakom Bird Sanctuary	3.	Kerala
D.	Salim Ali Bird Sanctuary	4.	Goa

Codes :

	A	**B**	**C**	**D**
(a)	1	2	3	4
(b)	2	1	3	4
(c)	3	4	2	1
(d)	4	3	2	1

42. Match List I with List II and select the correct answer from the codes given below the lists :

	List I (*Steel Plant*)		*List II* (*Location*)
A.	IISCO Steel Plant, Burnpur	1.	Jharkhand
B.	Visvesvaraya Steel Plant, Bhadravati	2.	West Bengal
C.	Bhilai Steel Plant	3.	Karnataka
D.	Bokaro Steel Plant	4.	Chhattisgarh

Codes :

	A	**B**	**C**	**D**
(a)	2	3	4	1
(b)	1	3	2	4
(c)	3	4	1	2
(d)	4	2	3	1

43. 'Vivad se Viswas' Scheme of the Ministry of Finance is related to :

(a) Trade related dispute settlement

(b) FDI related dispute settlement

(c) Industrial dispute settlement

(d) Direct tax dispute settlement

44. Consider the following statements :

1. The Rashtriya Khel Protsahan Puruskar is a sports honour of the Republic of India. The award was started in 2009 under national sports awards of the Ministry of Youth Affairs and Sports.
2. The award is given in four categories viz. Identification and nurturing of budding and young talent, Encouragement to sports through corporate social responsibility, Employment of sportspersons and sports welfare measures, and Sports for development.
3. Entities who received Rashtriya Khel Protsahan Puraskar, 2021 are Railway Sports Promotion Board and Gagan Narang Sports Promotion Foundation.

Which of the above statements are correct ?

(a) 1 and 2 only

(b) 2 and 3 only

(c) 1 and 3 only

(d) 1, 2 and 3

45. The Badminton World Federation has allotted the BWF World Championships to India for the year :

(a) 2024
(b) 2025
(c) 2026
(d) 2027

46. Which app has been developed by the Government of India to give users familiarity with common expressions of daily conversation in 22 Scheduled Indian languages ?

(a) Multibhashi
(b) Pratilipi
(c) Bhasha Sangam
(d) Bhasha Learner

47. Dosti Trilateral Exercise is conducted between which of the following ?

1. Sri Lanka
2. India
3. Bangladesh
4. Maldives

Codes :

(a) 1, 2 and 4 only
(b) 2, 3 and 4 only
(c) 1, 3 and 4 only
(d) 1, 2 and 3 only

48. Build Back Better World (B3W) initiative is announced by which of the following ?

(a) G20
(b) G7
(c) ASEAN
(d) BRICS

49. India's first cryptogamic garden was inaugurated in :

(a) Dehradun
(b) Chandigarh
(c) Bengaluru
(d) None of the above

50. Which of the following are the initiatives taken by the government to reduce air pollution ?

1. UJALA Scheme
2. International Solar Alliance
3. SVAMITVA Scheme
4. National Action Plan on Climate Change

Codes :

(a) 1, 3 and 4 only
(b) 1, 2 and 4 only
(c) 1 and 4 only
(d) 2 and 4 only

51. The first Living Robots capable of reproducing are :

(a) Xenobots
(b) Xerobots
(c) Shalu
(d) Sofia

52. What is Param Ganga ?

(a) Telescope
(b) Satellite
(c) Supercomputer
(d) Superfast train

53. SpaceX, recently made history by launching the world's first all-civilian crewed space flight.

The name of the flight was :

(a) Aspiration 14
(b) Inspiration 4
(c) Exception New Crew 5
(d) SpaceX Adventure 3

54. Which of the following statements are true about "Raisina Dialogue" ?

1. It is India's flagship conference on foreign policy.
2. It's seventh edition was launched in April 2022.
3. It started in the year 2017 to cover geoeconomics and geopolitics issues.

Choose the most appropriate answer from the options given below :

(a) Only statements 1 and 3 are true
(b) Only statements 2 and 3 are true
(c) Only statements 1 and 2 are true
(d) All statements 1, 2 and 3 are true

55. Who became the first deaf actor to win an Academy Award for a supporting role in the film CODA at the recently concluded 94^{th} Academy Awards ceremony ?

(a) Will Smith
(b) Troy Kotsur
(c) Jessica Chastain
(d) King Richard

56. In 2022, following an oil spill that spilled 6,000 barrels of crude oil into the sea, which country declared a 90-day "environmental emergency" in damaged coastal territories ?

(a) Pakistan
(b) Mauritius
(c) Peru
(d) India

57. Janjatiya Gaurav Divas is celebrated to mark the birth anniversary of :

(a) Tilka Manjhi
(b) Birsa Munda
(c) Tirot Sing
(d) Rajmohini Devi

58. Which Indian economist has been chosen to receive the Malcolm Adiseshiah Award in 2022 ?

(a) Jayati Ghosh
(b) Abhijit Banerjee
(c) Prabhat Patnaik
(d) Jean Drèze

59. According to the National Commission on Population's recent report on population projections, India is expected to achieve a sex ratio of 957 : 1000 by which year ?

(a) 2030
(b) 2032
(c) 2034
(d) 2036

60. Which of the following world's regions are considered the "hottest hotspots of biodiversity" ?

1. Madagascar and the Indian Ocean Islands
2. The Philippines
3. NW Himalaya
4. The Atlantic Forest

Choose the most appropriate answer from the options given below :

(a) 1, 2 and 3 only
(b) 2, 3 and 4 only
(c) 1, 2 and 4 only
(d) 1, 3 and 4 only

61. Given below are two statements : one is labelled as **Assertion (A)** and the other is labelled as **Reason (R)** :

Assertion (A) :

Dioxins bio accumulate and are toxic at extremely low levels.

Reason (R) :

Dioxins are created mainly by burning plastics and medical waste containing chlorine.

In the light of the above statements, choose the most appropriate answer from the options given below :

(a) Both Assertion (A) and Reason (R) are correct and Reason (R) is the correct explanation of Assertion (A).

(b) Both Assertion (A) and Reason (R) are correct, but Reason (R) is ***not*** the correct explanation of Assertion (A).

(c) Assertion (A) is correct, but Reason (R) is not correct.

(d) Assertion (A) is not correct, but Reason (R) is correct.

62. Given below are two statements : one is labelled as **Assertion (A)** and the other is labelled as **Reason (R)** :

Assertion (A) :

Ocean currents are sometimes referred to as the "heat pumps" or "thermal conveyers" of the planet.

Reason (R) :

Ocean currents are responsible for about 40% of the heat exchanged between the tropics and the polar regions.

In the light of the above statements, choose the most appropriate answer from the options given below :

(a) Both Assertion (A) and Reason (R) are correct and Reason (R) is the correct explanation of Assertion (A).

(b) Both Assertion (A) and Reason (R) are correct, but Reason (R) is ***not*** the correct explanation of Assertion (A).

(c) Assertion (A) is correct, but Reason (R) is not correct.

(d) Assertion (A) is not correct, but Reason (R) is correct.

63. Which of the following statements correctly describe biomes ?

1. Biomes are categorized by the most common growth forms of plants distributed across large geographic areas.

2. The categorization of biomes also takes taxonomic relationships among organisms into account.

3. Biomes categorization relies on similarities in the morphological responses of organisms to the physical environment.

4. A biome includes similar biotic assemblages on distant continents, indicating similar responses to similar climate conditions in different locations.

In the light of the above statements, choose the most appropriate answer from the options given below :

(a) 1, 2, 3 and 4

(b) 1, 2 and 4 only

(c) 1, 3 and 4 only

(d) 2, 3 and 4 only

64. Which of the following statements are part of India's strategy to combat climate change that was declared at the 26th Conference of Parties (COP26) ?

1. Develop non-fossil energy capacity to 500 gigawatt and meet 50% of its energy requirements from renewable energy by 2030.

2. Reduce the total projected carbon emissions by one billion tonnes from now onwards till 2030.

3. Reduce the carbon intensity of its economy by less than 45 per cent by 2030.

4. Achieve the target of Net-Zero by 2070.

Choose the most appropriate answer from the options given below :

(a) 1, 2 and 4 only

(b) 1, 3 and 4 only

(c) 2, 3 and 4 only

(d) 1, 2, 3 and 4

65. When they come in contact with the target contaminant, Nanoparticles can detoxify or immobilize contaminants via a pump-and-treat process or in situ application. Which of the following statements are appropriately associated with nanoparticle application for the remediation of contaminants ?

1. Nanoparticles, due to their extremely small size, can penetrate into small pores in the soil or sediment.

2. By Brownian motion, nanoparticles move freely in soil to target sites.

3. Nanoparticles either degrade the targeted complex molecule or adsorb to the contaminant to immobilize it.

4. Nanoparticles can remain suspended in soil water for a very short period only and react with target molecules in situ processes.

In the light of the above statements, choose the most appropriate answer from the options given below :

(a) 1, 2, 3 and 4

(b) 1, 2 and 3 only

(c) 1, 2 and 4 only

(d) 2, 3 and 4 only

66. Match List I with List II and select the correct answer from the codes given below the lists :

	List I (Layers of atmosphere)	*List II (Characteristics)*
A.	Mesosphere	1. Reflects outgoing radio waves back to the Earth without the use of satellites, Auroras occur here
B.	Troposphere	2. Steady winds but no turbulence, commercial jets fly here
C.	Thermosphere	3. Meteors burn due to friction from air molecules
D.	Stratosphere	4. Temperature decreases with increasing altitude

Choose the most appropriate answer from the options given below :

	A	**B**	**C**	**D**
(a)	4	3	1	2
(b)	3	2	1	4
(c)	3	4	2	1
(d)	3	4	1	2

67. Which of the following is ***not*** an extinct species ?

(a) Olive Ridley sea turtle

(b) Dusky seaside sparrow

(c) Hawaii ʻōʻō

(d) Great auk

68. Consider the following statements :

1. During March 21 to September 22, the Northern Hemisphere tilts towards the Sun, while the Southern Hemisphere tilts away from the Sun.
2. During September 22 to March 21, Northern Hemisphere tilts away from the Sun, while the Southern Hemisphere tilts towards the Sun.
3. The Earth's inclination on its axis is 23·5 degrees from the equator.

Identify the correct statement/s.

(a) 3 only

(b) 1, 2 and 3

(c) 2 only

(d) Both 1 and 2

69. Which of the following diseases are transmitted by polluted water ?

1. Diphtheria
2. Poliomyelitis
3. Typhoid
4. Infectious hepatitis

Choose the most appropriate answer from the options given below :

(a) 1, 3 and 4 only

(b) 1, 2 and 4 only

(c) 2, 3 and 4 only

(d) 1, 2, 3 and 4

70. Arrange the chronologies of the following events :

1. The Indian Councils Act
2. The Indian Universities Act
3. Criminal Law Amendment Bill
4. Partition of Bengal

Codes :

(a) 1, 2, 4, 3

(b) 3, 4, 2, 1

(c) 4, 3, 1, 2

(d) 2, 4, 3, 1

71. The Gandhi-Irwin Pact was signed on March 5, 1931. Which were the provisions of the pact ?

1. Civil Disobedience prisoners not guilty of violence to be released.
2. Immovable properties confiscated by the Government to be returned.
3. Remittance of fines not already realized.
4. The Indian National Congress might continue the Civil Disobedience Movement.

Which of the above mentioned provisions are correct ?

(a) 1 and 2 only

(b) 2 and 3 only

(c) 1, 3 and 4 only

(d) 1 and 3 only

72. Which is the correct chronology of the excavation of sites in the Indus Valley Civilization ?

1. Mohenjo-Daro
2. Chanhudaro
3. Harappa
4. Lothal

Select the correct answer from the following :

(a) 3, 1, 2, 4

(b) 1, 3, 2, 4

(c) 2, 1, 3, 4

(d) 3, 4, 2, 1

73. Vardhamana Mahavira at the age of 28 began his quest for truth and practised for 12 years, and at the end of austerities he was known as :

(a) Kaivalya

(b) Maha Gosala

(c) Siddhartha

(d) Ghora Angirasa

74. Gunadya has written a work known as :

(a) Kathamanjari

(b) Brihatkatha

(c) Panchatantra

(d) Gathasaptashati

75. Match List I with List II and select the correct answer from the codes given below the lists :

List I (Writer)	*List II (Manuscript)*
A. Bhai Santokh Singh Ji	1. Bansawalinama
B. Kesar Singh Chibber	2. Sikhan Di Bhagat Mala
C. Sainapati	3. Gurpartap Suraj Granth
D. Bhai Mani Singh Ji	4. Sri Gur Sobha

Codes :

	A	**B**	**C**	**D**
(a)	2	1	4	3
(b)	3	1	4	2
(c)	1	3	2	4
(d)	4	1	3	2

76. Match List I with List II and select the correct answer from the codes given below the lists :

List I	*List II*
A. Jallianwala Bagh Massacre	1. 1914
B. Komagata Maru	2. 1921
C. Jaito Morcha	3. 1919
D. Nankana Sahib Massacre	4. 1924

Codes :

	A	**B**	**C**	**D**
(a)	3	1	4	2
(b)	3	1	2	4
(c)	1	3	4	2
(d)	2	4	3	1

77. Which Government of India Act established the Punjab Legislative Council in Punjab ?

(a) The Government of India Act, 1935

(b) The Government of India Act, 1909

(c) The Government of India Act, 1919

(d) The Indian Councils Act, 1892

78. Match List I with List II and select the correct answer from the codes given below the lists :

List I (Sikh Gurus)	*List II (Guru's Writings)*
A. Guru Gobind Singh Ji	1. Anand Sahib
B. Guru Nanak Dev Ji	2. Adi Granth
C. Guru Arjan Dev Ji	3. Bachitar Natak
D. Guru Amar Das Ji	4. Asa Di Var

Codes :

	A	**B**	**C**	**D**
(a)	2	4	1	3
(b)	3	4	2	1
(c)	4	1	3	2
(d)	1	2	4	3

79. Match List I with List II and select the correct answer from the codes given below the lists :

List I (Sikh Misals)	*List II (Misal Leaders)*
A. Bhangi Misal	1. Nawab Kapur Singh
B. Kanhaiya Misal	2. Hari Singh
C. Faizalpuria Misal	3. Gulab Singh
D. Dallewalia Misal	4. Jai Singh

Codes :

	A	**B**	**C**	**D**
(a)	4	2	1	3
(b)	1	3	2	4
(c)	2	4	1	3
(d)	2	1	3	4

80. The Masand system was abolished by :

(a) Guru Arjan Dev Ji

(b) Guru Tegh Bahadur Ji

(c) Guru Hargobind Ji

(d) Guru Gobind Singh Ji

81. After the decline of Napoleon, two French officers who joined Maharaja Ranjit Singh's service in 1822 were :

(a) Duke of Wellington and Marshal Blücher

(b) Captain Allard and Jean-Baptiste Ventura

(c) Louis-Nicolas Davout and Jean Lafitte

(d) Marcellin Marbot and Jean Danjou

82. Who was the founder of 'Nyaya' – the system of logic ?

(a) Pururava

(b) Gautama

(c) Arjuna

(d) Vishwamitra

83. Consider the following statements :

1. Maulavi Ahmadullah Shah was one of the central figures in the Revolt of 1857 in Awadh and Rohilkhand.
2. He is said to have diplomatically avoided Sir Colin Campbell twice in pitched battle.
3. British officers and military commanders have praised his military qualities.
4. V.D. Savarkar has criticised the heroism of Maulavi Ahmadullah.

Which of the statements given above are correct ?

(a) 1, 2 and 3 only
(b) 1, 2 and 4 only
(c) 1, 3 and 4 only
(d) 2, 3 and 4 only

84. Arrange the following treaties and agreements in a chronological order :

1. India-US Nuclear Deal
2. Indo-Soviet Friendship Treaty
3. Tashkent Agreement
4. Shimla Agreement

Select the correct answer from the codes given below :

Codes :

(a) 3, 2, 4, 1
(b) 2, 3, 1, 4
(c) 1, 4, 2, 3
(d) 4, 1, 3, 2

85. With reference to the powers of the President of India, consider the following statements :

1. The President shall have the power to promulgate ordinance only when the Parliament is not in session and the ordinance ceases to have effect when the Parliament reassembles.
2. The ordinance-making power of the President is a parallel power of legislation irrespective of whether the Parliament is in session or not.

Which of the statements given above is/are correct ?

(a) 1 only
(b) 2 only
(c) Both 1 and 2
(d) Neither 1 nor 2

86. Which one of the following Acts/Reports created the Federal Court in India ?

(a) The Government of India Act, 1909
(b) The Government of India Act, 1919
(c) The Montague-Chelmsford Report
(d) The Government of India Act, 1935

87. Consider the following statements :

1. The Charter Act of 1833 was enacted during the tenure of William Bentinck.
2. The Charter Act of 1833 instituted the post of Governor General of India.
3. The Governor of Bombay was appointed as the first Deputy Governor General of India through the Charter Act of 1833.
4. William Bentinck became the first Governor General of India through the Charter Act of 1833.

Which of the statements given above is/are ***not*** correct ?

(a) 1 and 2 only
(b) 1 and 3 only
(c) 3 and 4 only
(d) 3 only

88. In connection with the Indian Independence Act, 1947, consider the following events :

1. The British Government sent as its envoy Sir Stafford Cripps to India to resolve the Indian impasse.
2. The British Government appointed a three-member Cabinet Mission.
3. Clement Attlee became the new Prime Minister in Britain.
4. A Resolution for *Purna Swaraj* (Complete Independence) was adopted by the Congress.

Which one is the correct chronological order ?

(a) 1, 2, 4, 3
(b) 4, 3, 2, 1
(c) 4, 1, 2, 3
(d) 4, 1, 3, 2

89. In connection with the first session of the Constituent Assembly, consider the following facts :

1. The first session went on from 9th December to 23rd December, 1946.
2. On the first day of the session, Sachchidananda Sinha, the seniormost member of the Constituent Assembly, was elected the acting Chairman of the Assembly.
3. On 10th December, under the Chairmanship of Rajendra Prasad, a Rules Committee was formed to frame rules for conducting business in the Assembly.
4. On 13th December, Jawaharlal Nehru introduced in the Assembly the Objective Resolution, delineating the objectives of the proposed Constitution.

Which of the statements given above are correct ?

(a) 2, 3 and 4 only
(b) 1, 2 and 3 only
(c) 1, 2 and 4 only
(d) 1, 3 and 4 only

90. Consider the following Committees :

1. Balwant Rai Mehta Committee
2. Ashok Mehta Committee
3. Hanumantha Rao Committee
4. L.M. Singhvi Committee

Which Committees were directly related to the Panchayati Raj System ?

(a) 1, 2 and 3 only
(b) 2, 3 and 4 only
(c) 1, 3 and 4 only
(d) 1, 2 and 4 only

91. In connection with Consolidated Fund of India, consider the following statements :

1. No money out of this fund can be appropriated except in accordance with a parliamentary law.
2. All revenues received by the Government, all loans raised and all money received by the Government in repayment of loans forms the Consolidated Fund of India.
3. All money of the Consolidated Fund of India should be spent after proper approval of the Lok Sabha.
4. The Consolidated Fund of India comes under Article 267 of the Indian Constitution.

Which of the statements given above are correct ?

(a) 1, 2 and 3 only
(b) 2, 3 and 4 only
(c) 1 and 2 only
(d) 2 and 4 only

92. The Montague-Chelmsford Proposals were related to :

(a) Social Reforms

(b) Economic Reforms

(c) Constitutional Reforms

(d) Legal Reforms

93. In connection with the Attorney General of India, consider the following statements :

1. The Attorney General of India can take part in the proceedings of the Lok Sabha.
2. The Attorney General of India can become a member of a Committee of the Lok Sabha.
3. The Attorney General of India can deliver a speech in the Lok Sabha.
4. The Attorney General of India can cast his vote in the Lok Sabha.

Which of the statements given above is/are correct ?

(a) 1, 2 and 3 only

(b) 2, 3 and 4 only

(c) 3 and 4 only

(d) 3 only

94. What are the key highlights under the National Manufacturing Policy ?

1. Increase manufacturing share in GDP from 16% to 22% by 2022.
2. Create 150 million additional jobs in the manufacturing sector by 2022.
3. Enhancing appropriate skill sets among the rural migrants and urban poor for their early absorption in manufacturing.

Select the correct answer :

(a) 2 only

(b) 3 only

(c) 2 and 3 only

(d) 1 and 2 only

95. Consider the following statements about NITI Aayog :

1. It is to function as a vehicle of good governance.
2. It has to develop a holistic and inclusive development model for the economy integrating the needs of Centre, States and local bodies.
3. This body subsumes the National Development Council in its Governing Council which gives it more legitimacy.
4. It has three specialized wings namely research, conflict resolution and team India.

Which of the statements given above are correct ?

(a) 1, 2 and 3 only

(b) 1, 2 and 4 only

(c) 2, 3 and 4 only

(d) 1, 2, 3 and 4

96. Which of the following statements about 'zero-coupon bond' is correct ?

(a) A bond with zero coupon rates which is sold at a price lower than its face value and investors get face value price at maturity.

(b) A bond with zero interest rate but with highest liquidity value for which investors get other concessions like tax breaks.

(c) A special category of bonds used as 'express money' to finance immediate needs of the economy which carries zero interest but gives tax credits to investors in their income tax returns.

(d) A kind of bond which is generally issued by governments in the times of financial crises to the high income group citizens which carry no interest but investors get tax concessions for investing in it.

97. Which city has become India's first 'Water Plus' city in Swachh Survekshan, 2021 ?

(a) Indore

(b) Bhopal

(c) Pune

(d) Bengaluru

98. The Ministry of Housing and Urban Affairs (MoHUA) launched 'SonChiraiya', a brand and logo for product marketing of which of the following ?

(a) Urban Self-Help Groups

(b) Rural Self-Help Groups

(c) Cooperative Societies

(d) None of the above

99. Consider the following statements relating to Mahatma Gandhi National Rural Employment Guarantee (MGNREG) Act :

1. 100 days of mandatory employment should be provided to rural job seekers.
2. Equal wage rates should be paid to male and female workers.
3. One-third of the beneficiaries should be women.
4. Employment should be provided only to the people below the poverty line.

Which of the above statements are correct as per the MGNREG Act ?

(a) 1, 2 and 4 only

(b) 1, 2 and 3 only

(c) 1, 2, 3 and 4

(d) 1, 3 and 4 only

100. Match List I with List II and select the correct answer from the codes given below the lists :

	List I (Acts)		*List II (Aims)*
A.	MRTP	1.	Maintenance of foreign exchange
B.	FEMA	2.	Promotion of industrial peace
C.	Industrial Disputes	3.	Control of unfair trade practices
D.	Wealth Tax	4.	Reducing the concentration of economic power

Codes :

	A	**B**	**C**	**D**
(a)	1	2	3	4
(b)	3	4	2	1
(c)	2	4	1	3
(d)	3	1	2	4

101. According to the Union budget of India 2022 – 23, which of the following is/are correctly matched ?

	Deficit		*Target (% GDP)*
1.	Revenue deficit	—	3·6
2.	Fiscal deficit	—	6·4
3.	Primary deficit	—	2·4

(a) 1 and 3 only

(b) 2 and 3 only

(c) 1, 2 and 3

(d) 2 only

102. A geostationary satellite appears stationary relative to the Earth. Such a satellite appears stationary due to its zero relative velocity with respect to a place on the Earth. For such a satellite, the angular speed in terms of radians per hour is :

(a) π

(b) $\pi/2$

(c) $\pi/6$

(d) $\pi/12$

103. India successfully test-fired a new version of which supersonic cruise missile off the Odisha coast in January 2022 ?

(a) BrahMos

(b) Dhanush

(c) Prithvi

(d) Agni

104. An important observing campaign in the year 2022 – 23 is aiming to map the distribution of mysterious dark matter threading throughout the Universe, and understand the even more enigmatic dark energy driving it apart. Which of the following observatory/telescope will be involved in the observations ?

(a) James Webb Space Telescope

(b) Vera C. Rubin Observatory, Chile

(c) Himalayan Chandra Telescope, India

(d) Keck Observatory, USA

105. For generating 'Golden Rice' two genes (encoding for phytoene synthase and beta-cyclase) were taken from a plant and one (encoding for phytoene desaturase) from a soil bacterium *Erwinia uredovora* for beta-carotene biosynthesis. The two plant genes were taken from which of the following plants ?

(a) Chickpea
(b) Wheat
(c) Daffodil
(d) Tomato

106. A Biotech firm Oxitec constructed genetically engineered mosquitoes *Aedes aegypti*, and got them released into the environment. Which of the following represents the main mandate of releasing genetically engineered mosquitoes into the environment ?

(a) To suppress the populations of various insects/pests which are responsible for causing diseases in a variety of crops including cotton, corn and others
(b) To control viral diseases like zika, dengue, chikungunya and yellow fever for which mosquitoes are the carriers
(c) To control malaria in human beings that is caused by mosquitoes, and responsible for high morbidity and mortality
(d) To control protozoan originated diseases in humans and livestock which cause substantial losses of lives

107. Which of the following is ***not*** a connective tissue ?

(a) Bone
(b) Cartilage
(c) Adipose tissue
(d) Muscular tissue

108. Aducanumab, marketed as Aduhelm, has recently been developed by Biogen Inc., a pharmaceutical giant, and has been approved by FDA (USA) for usage for which of the following ailments ?

(a) Brain Cancer
(b) AIDS
(c) Alzheimer's disease
(d) COVID-19

109. 'Camaraderie – Cohesion – Collaboration' is the theme of which of the following exercises ?

(a) MILAN 2023
(b) MILAN 2021
(c) MILAN 2022
(d) MILAN 2020

110. There is a power-rivalry in the Indian Ocean. In that context, what is the base island of China in the Indian Ocean ?

(a) Mauritius
(b) Marao Island
(c) Zanzibar
(d) Sri Lanka

111. Which of the following is the highest peacetime honour accorded to a soldier in India ?

(a) Ashoka Chakra

(b) Param Vishishth Seva Medal

(c) Ati Vishishth Seva Medal

(d) Shaurya Chakra

112. India's first *Technology and Innovation Support Centre (TISC)* is in :

(a) Punjab

(b) Gujarat

(c) Karnataka

(d) Tamil Nadu

113. Who has created Bitcoin ?

(a) Samsung

(b) Satoshi Nakamoto

(c) John McAfee

(d) Google

114. Which one of the following pairs is ***not*** correctly matched ?

	(Thermal Power Station)	*(Location)*
(a)	Anpara Thermal Power Station	— Uttar Pradesh
(b)	Bakreshwar Thermal Power Station	— West Bengal
(c)	Anta Thermal Power Station	— Rajasthan
(d)	Ennore Thermal Power Station	— Andhra Pradesh

115. The famous Majuli Island is located in :

(a) Assam

(b) West Bengal

(c) Andhra Pradesh

(d) Gujarat

116. Match List I with List II and select the correct answer from the codes given below the lists :

	List I (Pass)		*List II (Location)*
A.	Debsa	1.	Arunachal Pradesh
B.	Mana	2.	Sikkim
C.	Jelep La	3.	Himachal Pradesh
D.	Diphu	4.	Uttarakhand

Codes :

	A	**B**	**C**	**D**
(a)	1	2	3	4
(b)	2	1	3	4
(c)	3	4	2	1
(d)	4	3	2	1

117. Match List I with List II and select the correct answer from the codes given below the lists :

List I (*Tribal Groups*)	*List II* (*Zone / Location*)
A. Gujjar, Bhotia and Tharu	1. The North Zone of India
B. Naga, Garo, Khasi, Kuki and Chakma	2. The North-Eastern Zone of India
C. Santhal, Gond, Bhil and Kol	3. The Central Zone of India
D. Toda	4. The Southern Zone of India

Codes :

	A	**B**	**C**	**D**
(a)	4	3	1	2
(b)	3	4	2	1
(c)	1	3	4	2
(d)	1	2	3	4

118. Which one of the following mountain peaks is ***not*** located in the Kumaon Himalaya ?

(a) Nanda Devi

(b) Trisul

(c) Makalu

(d) Kedarnath

119. The deltas of Narmada and Tapi rivers of India are an example of :

(a) Estuarine delta

(b) Arcuate delta

(c) Truncated delta

(d) Blocked delta

120. Match List I with List II and select the correct answer from the codes given below the lists :

List I (*Local Winds*)	*List II* (*Region*)
A. Yamo	1. Siberia
B. Buran	2. Japan
C. Zonda	3. New Zealand
D. Nor'wester	4. Argentina

Codes :

	A	**B**	**C**	**D**
(a)	1	2	3	4
(b)	1	2	4	3
(c)	2	1	4	3
(d)	4	3	2	1

SPACE FOR ROUGH WORK

SPACE FOR ROUGH WORK

READ INSTRUCTIONS BEFORE FILLING ANY DETAILS OR ATTEMPTING TO ANSWER THE QUESTIONS.

Booklet Sr. No.

Question Booklet Set
D

Candidate's Name _____

Father's Name _____

Date of Birth : | | | | | | | | |
D D M M Y Y Y Y

OMR Response Sheet No. _____ **Roll No.** _____

Candidate's Signature :
(Please sign in the box)

Total Questions : **120**]
Time Allowed : **2** Hours]

INSTRUCTIONS

1. The candidate shall NOT open this booklet till the time he/she is told to do so by the Invigilation Staff. However, in the meantime, the candidate can read these instructions carefully and subsequently fill the appropriate columns given above in CAPITAL letters. The candidate may also fill the relevant boxes out of 1 to 9 of the Optical Mark Reader (OMR) response sheet, supplied separately.
2. Use only blue or black **ball point pen** to fill the relevant columns on this page as well as in the OMR sheet. Use of ink pen or any other pen is not allowed.
3. The candidate shall be liable for any adverse effect if the information given above is wrong or illegible or incomplete.
4. Each candidate is required to attempt 120 questions in 120 minutes, except for orthopedically/visually impaired candidates, who would be given 40 extra minutes, for marking correct responses on the OMR sheet.
5. The question paper booklet has **28** pages.
6. The candidates, when allowed to open the question paper booklet, must first check the entire booklet to confirm that the booklet has complete number of pages, the pages printed correctly and there are no blank pages. In case there is any such error in the question paper booklet then the candidate should IMMEDIATELY bring this fact to the notice of the Invigilation Staff and obtain a new booklet of the same series as given earlier.
7. The serial number of the new Question booklet if issued for some reason should be entered in the relevant column of the OMR. The Invigilation Staff must make necessary corrections in their record regarding the change in the serial no. of Question booklet.
8. The paper consists of total 300 Marks. Each question shall carry 2·5 marks. There are four options for each question and the candidate has to mark the MOST APPROPRIATE answer on the OMR response sheet.
9. There is negative marking (0·5 marks for each question) for questions wrongly answered by the candidate.
10. Use of Electronic/Manual Calculator is prohibited.
11. The candidate **MUST READ INSTRUCTIONS BEHIND THE OMR SHEET** before answering the questions and check that two carbon copies attached to the OMR sheet are intact.

SECTION A

1. A tank has three pipes — Pipe X, Pipe Y and Pipe Z attached. Pipe X and Pipe Z alone can fill the tank completely in 4 hours and 8 hours respectively. Pipe Y can empty the tank in 6 hours. Initially the tank is empty. The three pipes are operated in the following sequence. In the first hour, only Pipe X is opened. In the second hour, Pipes X and Y are opened. In the third hour, only Pipe Y is opened. In the fourth hour, Pipes Y and Z are opened. In the fifth hour, only Pipe Z is opened. This cycle of 5 hours is repeated. After how many hours will the tank be completely filled for the first time ?

(a) 16 hours

(b) 20 hours

(c) 3·5 hours

(d) The tank will never be filled

2. Sunil, Param and Vikas drive at 20 km/hr, 50 km/hr and 80 km/hr respectively. Sunil starts from Point A for Point B. Param starts from Point A, 2 hours after Sunil starts and Vikas leaves some time after Param from Point A. Both Param and Vikas overtake Sunil at the same instant. How many hours after Sunil does Vikas leave Point A ?

(a) 4·5 hours

(b) 4·0 hours

(c) 3·5 hours

(d) 2·5 hours

3. Rekha made a new year's resolution to exercise. On January 1, at 7 AM, she went for a jog from her home to the nearby park and back, returning at 7:32 AM. On January 2, at 7 AM, she went jogging to the park, but this time she walked back. Consequently, she returned home at 7:40 AM. On January 3 too, she set out at 7 AM, but this time she walked both ways. At what time did she return home (assuming her jogging speed and her walking speed are fixed) ?

(a) Between 7:41 AM and 7:45 AM

(b) Between 7:53 AM and 7:57 AM

(c) Between 7:49 AM and 7:53 AM

(d) Between 7:45 AM and 7:49 AM

4. On buying a pen, the shopkeeper gives three refills free. On buying a pen and six refills, the shopkeeper gives additional four refills free. If the equivalent discount is the same in both cases, then how many refills will be equal in value to a pen ?

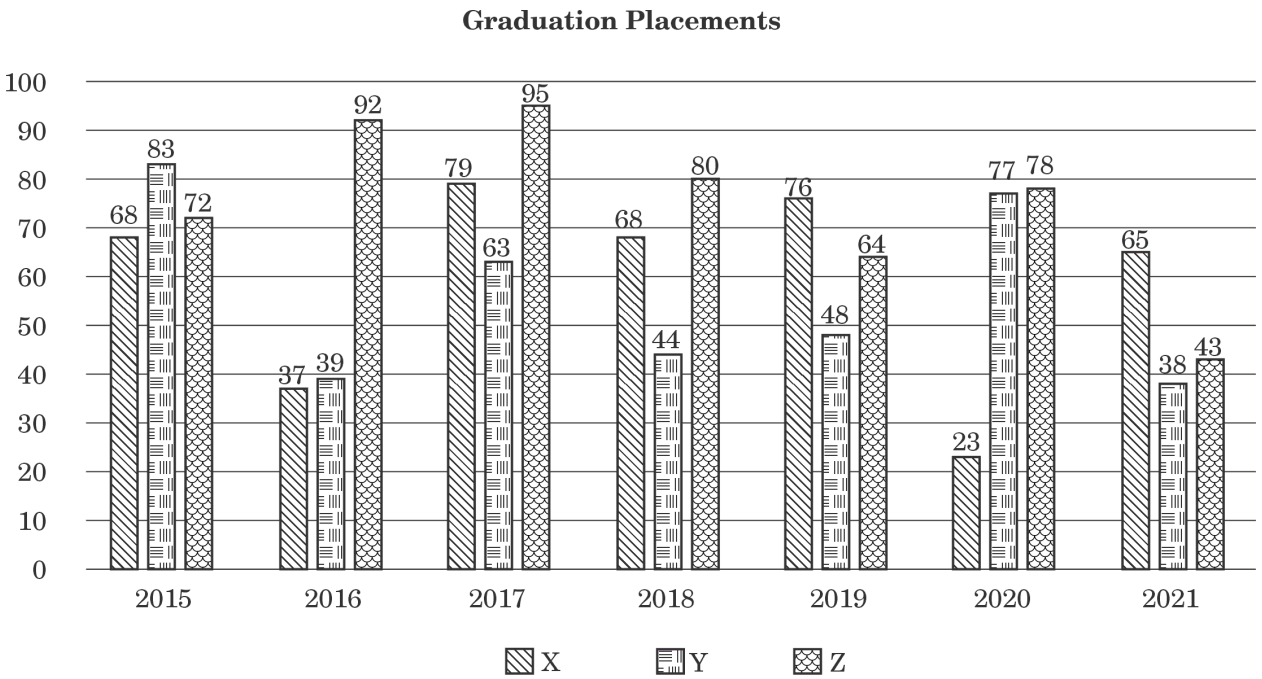
(a) 18

(b) 24

(c) 15

(d) 20

Directions (Questions no. 5 to 7) : *Read the graph given below and answer the questions. The following graph represents percentage of graduated students placed from the three engineering colleges X, Y and Z over the period of time.*



5. What is the difference in average placement percentage of colleges X and Y ?

(a) 2·92%

(b) 3·42%

(c) 4·12%

(d) 4·32%

6. If in 2019, colleges X, Y and Z had 150, 250 and 350 students graduating respectively, then what is the total number of students that got placed ?

(a) 356

(b) 458

(c) 424

(d) 288

7. If the college Y, had 200, 200, 300, 150, 300, 200 and 250 students graduating in the years 2015 to 2021 respectively, then what is the total number of students unplaced from college Y in these 7 years ?

(a) 708

(b) 528

(c) 646

(d) 829

Directions (Questions no. 8 to 12) : *Based on the following information, answer the given questions.*

In a one-day workshop, the following five researchers are invited : G, H, J, K and L. Each of the researchers will deliver a lecture of one hour. The five lectures need to be scheduled in five consecutive hours. The schedule for the lectures is also constrained by the following conditions :

H cannot deliver a lecture in any of the first three hours.

L must take the lecture in any of the hours before the lecture of H.

J must take the lecture in any of the hours before the lecture of G.

G must take the lecture in any of the hours before the lecture of K.

8. Which of the following can be the order from first to fifth, in which five researchers deliver their lectures ?

(a) G, K, L, J, H

(b) J, G, K, H, L

(c) J, G, K, L, H

(d) J, K, G, L, H

9. If K delivers the lecture in the fourth hour, then which of the following must be true ?

(a) G delivers the lecture in the third hour

(b) H delivers the lecture in the fifth hour

(c) J delivers the lecture in the first hour

(d) L delivers the lecture in the third hour

10. If J does not deliver the lecture in the first hour, then which of the following must be true ?

(a) G does not deliver the lecture in the third hour

(b) H does not deliver the lecture in the fourth hour

(c) J delivers the lecture in the second hour

(d) K does not deliver the lecture in the fifth hour

11. If H does not deliver the fifth lecture, then which of the following must be true ?

(a) G delivers the second lecture

(b) J delivers the first lecture

(c) L delivers the fifth lecture

(d) K delivers the fifth lecture

12. If G delivers the third lecture, then which of the following is true ?

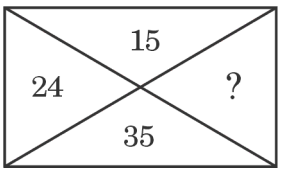
(a) L is only one of the five researchers who can take the first lecture

(b) J is only one of the five researchers who can take the second lecture

(c) Any one of exactly three of the five researchers can take the second lecture

(d) Either one of exactly two of the five researchers can take the fifth lecture

13. In the following diagram, which number will replace the question mark ?



(a) 72

(b) 63

(c) 49

(d) 48

14. The height of a right angled triangle is increased by 20% and base is decreased by 10%. The change in the area of the triangle is :

(a) 10% increase

(b) 12% decrease

(c) 8% increase

(d) 8% decrease

15. A watch slows by 3 seconds in 4 minutes. If the clock shows the right time at 8 AM, then what time will it show at 11 PM on the same day ?

(a) 11:11:15

(b) 10:48:45

(c) 10:48:15

(d) 10:49:45

16. Three friends Raj, Sameer and Vijay are standing in a queue. There are 5 people between Raj and Sameer and 8 people between Sameer and Vijay. If there are 3 people ahead of Vijay and 19 people behind Raj, then what could be the minimum number of persons in the queue ?

(a) 37

(b) 27

(c) 26

(d) 28

17. Maria tells her daughter, "I was of your present age when you were born." If Maria is 58 years old now, then what was the age of her daughter 10 years back ?

(a) 15 years

(b) 19 years

(c) 21 years

(d) None of these

Directions (Questions no. 18 to 21) :

In a group of 200 people, 75 persons can play cricket or football but not hockey. 65 persons can play hockey or football but not cricket. 20 persons can play both football and hockey. 15 persons can play both cricket and football. 15 persons can play both hockey and cricket. 50 persons can play hockey and 5 persons can play all three games.

18. How many persons play exactly one game ?

(a) 85
(b) 35
(c) 30
(d) 145

19. How many persons do ***not*** play any game ?

(a) 65
(b) 45
(c) 75
(d) 35

20. How many persons play exactly two games ?

(a) 30
(b) 35
(c) 40
(d) 45

21. How many persons can only play football ?

(a) 20
(b) 25
(c) 15
(d) 30

22. In a group of children, there are 5 girls and 7 boys. In how many ways can 6 children with equal number of boys and girls be selected for a play ?

(a) 200
(b) 250
(c) 300
(d) 350

23. Four persons P, Q, R and S are working in the same company. The sum of the incomes of P and Q is more than that of R and S together. The sum of the incomes of P and R is the same as the sum of the incomes of Q and S. Moreover, P earns half as much as the sum of the incomes of Q and S. Which one of the following persons has the highest income ?

(a) P
(b) Q
(c) R
(d) S

24. A student is practising some math problems. In the first hour he solves 3 problems, in the second hour he solves 5 problems, in the third hour he solves 7 problems and so on. What is the total number of problems solved by him in 10 hours ?

(a) 110
(b) 120
(c) 135
(d) None of these

25. The cost price of an article X is 200% more than that of Y, and 75% less than that of Z. The selling price of the article X is 500% more than that of Z. If the profit on article X is twice that on Y, and is twice the loss on Z, then what is the ratio of profit on article Y to its cost price ?

(a) 69 : 8
(b) 29 : 4
(c) 81 : 8
(d) 63 : 4

26. Abhishek invests ₹ 10,000 at a simple interest of 6% per annum for y years. The interest is paid annually, of which Abhishek spends half and keeps the remaining in cash, in a box labelled B at home. To begin with, B had no money in it, and nothing else, except half of these interest incomes is added to the box. No money is removed from B. After y years, if the cash in B is ₹ 2,400, then y =

(a) 4 years

(b) 6 years

(c) 8 years

(d) 12 years

27. A rectangular floor of dimensions $10' \times 8'$ ($120'' \times 96''$) has to be tiled using the same type of square tiles. Square tiles are available in various dimensions $1''$, $2''$, $3''$, $4''$, ..., $48''$. What is the size of the largest square tile that can be used to tile the floor completely, without breaking any tile ?

(a) $32''$

(b) $24''$

(c) $12''$

(d) $8''$

28. The number of leap years from 1801 to 2000 are :

(a) 50

(b) 48

(c) 47

(d) None of these

29. If R.A.C.E = –4.13.11.9 and C.O.L.U.M.N = 11.–1.2.–7.1.0, then B.R.A.C.K.E.T =

(a) 12.–4.13.11.4.9.–5

(b) 12.–4.13.11.3.9.–5

(c) 12.–4.13.11.4.9.–6

(d) 12.–4.13.11.3.9.–6

30. What is the missing number in the following sequence ?

7, 22, 44, ?, 158

(a) 84

(b) 88

(c) 96

(d) 114

31. Four friends P, Q, R and S live in the same locality. The house of Q is in the east of P's house but in the north of R's house. The house of R is in the west of S's house. S's house is in which direction of P's house ?

(a) South-east

(b) North-west

(c) North-east

(d) Data is inadequate

32. Ms. Neelam likes to let her students choose who their partners will be for study during the course; however, no pair of students may work together more than seven class periods in a row. Anish and Boman have studied together seven class periods in a row. Cathy and Dodo have worked together three class periods in a row. Cathy does not want to work with Anish. Who should be assigned to work with Boman ?

(a) Neelam

(b) Anish

(c) Dodo

(d) Cathy

33. After completing a particular work, Sumeet and Suresh together earn ₹ 4,340. However, the earnings are to be divided in the proportion of work done by each of them. After the share is distributed, it is found that 8/15 of Sumeet's earnings is equal to 2/5 of Suresh's earnings. How much did Suresh earn (in ₹) ?

(a) 1,860

(b) 2,480

(c) 1,736

(d) 2,604

34. The angle between the minute hand and hour hand of a clock at 8:20 is :

(a) 120°

(b) 130°

(c) 140°

(d) 110°

35. A bag contains 5 red, 4 green, 6 blue and 3 yellow balls. Two balls are drawn at random. What is the probability that none of the balls drawn is blue ?

(a) 132/306

(b) 12/18

(c) 132/324

(d) 164/324

36. Ryan runs at a speed of 40 m/minute. Rohit follows him after an interval of 5 minutes and runs at a speed of 50 m/minute. Rohit's dog runs at a speed of 60 m/minute and starts along with Rohit. The dog reaches Ryan and then comes back to Rohit and continues to do so till Rohit reaches Ryan. What is the total distance covered by the dog in metres ?

(a) 720

(b) 600

(c) 960

(d) 1200

37. Two trains A and B are running in the opposite directions. Train A crosses a man standing on the platform in 27 seconds, while train B crosses the same man in 17 seconds. If they cross each other in 23 seconds, then the ratio of speed of train A to that of train B is :

(a) 3 : 2

(b) 1 : 4

(c) 2 : 3

(d) 2 : 5

38. The number of positive integers not exceeding 100 and divisible by 3 or 5 is :

(a) 53

(b) 35

(c) 47

(d) 40

39. In a basket, the ratio of Oranges, Guavas and Jackfruits is 2 : 3 : 5. Ram ate 60% of the fruits in the basket. 40% of the Guavas are remaining in the basket. At least what percentage of Jackfruits did Ram eat ?

(a) 44%

(b) 48%

(c) 36%

(d) 32%

40. A six-digit number ABCDEF is reversed to get a new number FEDCBA. The two numbers are added to get the answer 48X374 (where X is a digit, not necessarily distinct from A, B, C, D, E and F). Find the value of X.

(a) 7

(b) 6

(c) 5

(d) 4

SECTION B

41. Given below are two statements : one is labelled as **Assertion (A)** and the other is labelled as **Reason (R)** :

Assertion (A) :

Dioxins bio accumulate and are toxic at extremely low levels.

Reason (R) :

Dioxins are created mainly by burning plastics and medical waste containing chlorine.

In the light of the above statements, choose the most appropriate answer from the options given below :

(a) Both Assertion (A) and Reason (R) are correct and Reason (R) is the correct explanation of Assertion (A).

(b) Both Assertion (A) and Reason (R) are correct, but Reason (R) is ***not*** the correct explanation of Assertion (A).

(c) Assertion (A) is correct, but Reason (R) is not correct.

(d) Assertion (A) is not correct, but Reason (R) is correct.

42. Given below are two statements : one is labelled as **Assertion (A)** and the other is labelled as **Reason (R)** :

Assertion (A) :

Ocean currents are sometimes referred to as the "heat pumps" or "thermal conveyers" of the planet.

Reason (R) :

Ocean currents are responsible for about 40% of the heat exchanged between the tropics and the polar regions.

In the light of the above statements, choose the most appropriate answer from the options given below :

(a) Both Assertion (A) and Reason (R) are correct and Reason (R) is the correct explanation of Assertion (A).

(b) Both Assertion (A) and Reason (R) are correct, but Reason (R) is ***not*** the correct explanation of Assertion (A).

(c) Assertion (A) is correct, but Reason (R) is not correct.

(d) Assertion (A) is not correct, but Reason (R) is correct.

43. Which of the following statements correctly describe biomes ?

1. Biomes are categorized by the most common growth forms of plants distributed across large geographic areas.

2. The categorization of biomes also takes taxonomic relationships among organisms into account.

3. Biomes categorization relies on similarities in the morphological responses of organisms to the physical environment.

4. A biome includes similar biotic assemblages on distant continents, indicating similar responses to similar climate conditions in different locations.

In the light of the above statements, choose the most appropriate answer from the options given below :

(a) 1, 2, 3 and 4

(b) 1, 2 and 4 only

(c) 1, 3 and 4 only

(d) 2, 3 and 4 only

44. Which of the following statements are part of India's strategy to combat climate change that was declared at the 26th Conference of Parties (COP26) ?

1. Develop non-fossil energy capacity to 500 gigawatt and meet 50% of its energy requirements from renewable energy by 2030.

2. Reduce the total projected carbon emissions by one billion tonnes from now onwards till 2030.

3. Reduce the carbon intensity of its economy by less than 45 per cent by 2030.

4. Achieve the target of Net-Zero by 2070.

Choose the most appropriate answer from the options given below :

(a) 1, 2 and 4 only

(b) 1, 3 and 4 only

(c) 2, 3 and 4 only

(d) 1, 2, 3 and 4

45. When they come in contact with the target contaminant, Nanoparticles can detoxify or immobilize contaminants via a pump-and-treat process or in situ application. Which of the following statements are appropriately associated with nanoparticle application for the remediation of contaminants ?

1. Nanoparticles, due to their extremely small size, can penetrate into small pores in the soil or sediment.

2. By Brownian motion, nanoparticles move freely in soil to target sites.

3. Nanoparticles either degrade the targeted complex molecule or adsorb to the contaminant to immobilize it.

4. Nanoparticles can remain suspended in soil water for a very short period only and react with target molecules in situ processes.

In the light of the above statements, choose the most appropriate answer from the options given below :

(a) 1, 2, 3 and 4

(b) 1, 2 and 3 only

(c) 1, 2 and 4 only

(d) 2, 3 and 4 only

46. Match List I with List II and select the correct answer from the codes given below the lists :

	List I (Layers of atmosphere)	*List II (Characteristics)*
A.	Mesosphere	1. Reflects outgoing radio waves back to the Earth without the use of satellites, Auroras occur here
B.	Troposphere	2. Steady winds but no turbulence, commercial jets fly here
C.	Thermosphere	3. Meteors burn due to friction from air molecules
D.	Stratosphere	4. Temperature decreases with increasing altitude

Choose the most appropriate answer from the options given below :

	A	**B**	**C**	**D**
(a)	4	3	1	2
(b)	3	2	1	4
(c)	3	4	2	1
(d)	3	4	1	2

47. Which of the following is ***not*** an extinct species ?

(a) Olive Ridley sea turtle

(b) Dusky seaside sparrow

(c) Hawaii ʻōʻō

(d) Great auk

48. Consider the following statements :

1. During March 21 to September 22, the Northern Hemisphere tilts towards the Sun, while the Southern Hemisphere tilts away from the Sun.
2. During September 22 to March 21, Northern Hemisphere tilts away from the Sun, while the Southern Hemisphere tilts towards the Sun.
3. The Earth's inclination on its axis is 23·5 degrees from the equator.

Identify the correct statement/s.

(a) 3 only

(b) 1, 2 and 3

(c) 2 only

(d) Both 1 and 2

49. Which of the following diseases are transmitted by polluted water ?

1. Diphtheria
2. Poliomyelitis
3. Typhoid
4. Infectious hepatitis

Choose the most appropriate answer from the options given below :

(a) 1, 3 and 4 only

(b) 1, 2 and 4 only

(c) 2, 3 and 4 only

(d) 1, 2, 3 and 4

50. Arrange the chronologies of the following events :

1. The Indian Councils Act
2. The Indian Universities Act
3. Criminal Law Amendment Bill
4. Partition of Bengal

Codes :

(a) 1, 2, 4, 3

(b) 3, 4, 2, 1

(c) 4, 3, 1, 2

(d) 2, 4, 3, 1

51. The Gandhi-Irwin Pact was signed on March 5, 1931. Which were the provisions of the pact ?

1. Civil Disobedience prisoners not guilty of violence to be released.
2. Immovable properties confiscated by the Government to be returned.
3. Remittance of fines not already realized.
4. The Indian National Congress might continue the Civil Disobedience Movement.

Which of the above mentioned provisions are correct ?

(a) 1 and 2 only

(b) 2 and 3 only

(c) 1, 3 and 4 only

(d) 1 and 3 only

52. Which is the correct chronology of the excavation of sites in the Indus Valley Civilization ?

1. Mohenjo-Daro
2. Chanhudaro
3. Harappa
4. Lothal

Select the correct answer from the following :

(a) 3, 1, 2, 4

(b) 1, 3, 2, 4

(c) 2, 1, 3, 4

(d) 3, 4, 2, 1

53. Vardhamana Mahavira at the age of 28 began his quest for truth and practised for 12 years, and at the end of austerities he was known as :

(a) Kaivalya

(b) Maha Gosala

(c) Siddhartha

(d) Ghora Angirasa

54. Gunadya has written a work known as :

(a) Kathamanjari

(b) Brihatkatha

(c) Panchatantra

(d) Gathasaptashati

55. Match List I with List II and select the correct answer from the codes given below the lists :

List I (Writer)	*List II (Manuscript)*
A. Bhai Santokh Singh Ji	1. Bansawalinama
B. Kesar Singh Chibber	2. Sikhan Di Bhagat Mala
C. Sainapati	3. Gurpartap Suraj Granth
D. Bhai Mani Singh Ji	4. Sri Gur Sobha

Codes :

	A	**B**	**C**	**D**
(a)	2	1	4	3
(b)	3	1	4	2
(c)	1	3	2	4
(d)	4	1	3	2

56. Match List I with List II and select the correct answer from the codes given below the lists :

List I	*List II*
A. Jallianwala Bagh Massacre	1. 1914
B. Komagata Maru	2. 1921
C. Jaito Morcha	3. 1919
D. Nankana Sahib Massacre	4. 1924

Codes :

	A	**B**	**C**	**D**
(a)	3	1	4	2
(b)	3	1	2	4
(c)	1	3	4	2
(d)	2	4	3	1

57. Which Government of India Act established the Punjab Legislative Council in Punjab ?

(a) The Government of India Act, 1935

(b) The Government of India Act, 1909

(c) The Government of India Act, 1919

(d) The Indian Councils Act, 1892

58. Match List I with List II and select the correct answer from the codes given below the lists :

List I (Sikh Gurus)	*List II (Guru's Writings)*
A. Guru Gobind Singh Ji	1. Anand Sahib
B. Guru Nanak Dev Ji	2. Adi Granth
C. Guru Arjan Dev Ji	3. Bachitar Natak
D. Guru Amar Das Ji	4. Asa Di Var

Codes :

	A	**B**	**C**	**D**
(a)	2	4	1	3
(b)	3	4	2	1
(c)	4	1	3	2
(d)	1	2	4	3

59. Match List I with List II and select the correct answer from the codes given below the lists :

List I (Sikh Misals)	*List II (Misal Leaders)*
A. Bhangi Misal	1. Nawab Kapur Singh
B. Kanhaiya Misal	2. Hari Singh
C. Faizalpuria Misal	3. Gulab Singh
D. Dallewalia Misal	4. Jai Singh

Codes :

	A	**B**	**C**	**D**
(a)	4	2	1	3
(b)	1	3	2	4
(c)	2	4	1	3
(d)	2	1	3	4

60. The Masand system was abolished by :

(a) Guru Arjan Dev Ji

(b) Guru Tegh Bahadur Ji

(c) Guru Hargobind Ji

(d) Guru Gobind Singh Ji

61. After the decline of Napoleon, two French officers who joined Maharaja Ranjit Singh's service in 1822 were :

(a) Duke of Wellington and Marshal Blücher

(b) Captain Allard and Jean-Baptiste Ventura

(c) Louis-Nicolas Davout and Jean Lafitte

(d) Marcellin Marbot and Jean Danjou

62. Who was the founder of 'Nyaya' – the system of logic ?

(a) Pururava

(b) Gautama

(c) Arjuna

(d) Vishwamitra

63. Consider the following statements :

1. Maulavi Ahmadullah Shah was one of the central figures in the Revolt of 1857 in Awadh and Rohilkhand.
2. He is said to have diplomatically avoided Sir Colin Campbell twice in pitched battle.
3. British officers and military commanders have praised his military qualities.
4. V.D. Savarkar has criticised the heroism of Maulavi Ahmadullah.

Which of the statements given above are correct ?

(a) 1, 2 and 3 only
(b) 1, 2 and 4 only
(c) 1, 3 and 4 only
(d) 2, 3 and 4 only

64. Arrange the following treaties and agreements in a chronological order :

1. India-US Nuclear Deal
2. Indo-Soviet Friendship Treaty
3. Tashkent Agreement
4. Shimla Agreement

Select the correct answer from the codes given below :

Codes :

(a) 3, 2, 4, 1
(b) 2, 3, 1, 4
(c) 1, 4, 2, 3
(d) 4, 1, 3, 2

65. With reference to the powers of the President of India, consider the following statements :

1. The President shall have the power to promulgate ordinance only when the Parliament is not in session and the ordinance ceases to have effect when the Parliament reassembles.
2. The ordinance-making power of the President is a parallel power of legislation irrespective of whether the Parliament is in session or not.

Which of the statements given above is/are correct ?

(a) 1 only
(b) 2 only
(c) Both 1 and 2
(d) Neither 1 nor 2

66. Which one of the following Acts/Reports created the Federal Court in India ?

(a) The Government of India Act, 1909
(b) The Government of India Act, 1919
(c) The Montague-Chelmsford Report
(d) The Government of India Act, 1935

67. Consider the following statements :

1. The Charter Act of 1833 was enacted during the tenure of William Bentinck.
2. The Charter Act of 1833 instituted the post of Governor General of India.
3. The Governor of Bombay was appointed as the first Deputy Governor General of India through the Charter Act of 1833.
4. William Bentinck became the first Governor General of India through the Charter Act of 1833.

Which of the statements given above is/are ***not*** correct ?

(a) 1 and 2 only
(b) 1 and 3 only
(c) 3 and 4 only
(d) 3 only

68. In connection with the Indian Independence Act, 1947, consider the following events :

1. The British Government sent as its envoy Sir Stafford Cripps to India to resolve the Indian impasse.
2. The British Government appointed a three-member Cabinet Mission.
3. Clement Attlee became the new Prime Minister in Britain.
4. A Resolution for *Purna Swaraj* (Complete Independence) was adopted by the Congress.

Which one is the correct chronological order ?

(a) 1, 2, 4, 3
(b) 4, 3, 2, 1
(c) 4, 1, 2, 3
(d) 4, 1, 3, 2

69. In connection with the first session of the Constituent Assembly, consider the following facts :

1. The first session went on from 9th December to 23rd December, 1946.
2. On the first day of the session, Sachchidananda Sinha, the seniormost member of the Constituent Assembly, was elected the acting Chairman of the Assembly.
3. On 10th December, under the Chairmanship of Rajendra Prasad, a Rules Committee was formed to frame rules for conducting business in the Assembly.
4. On 13th December, Jawaharlal Nehru introduced in the Assembly the Objective Resolution, delineating the objectives of the proposed Constitution.

Which of the statements given above are correct ?

(a) 2, 3 and 4 only
(b) 1, 2 and 3 only
(c) 1, 2 and 4 only
(d) 1, 3 and 4 only

70. Consider the following Committees :

1. Balwant Rai Mehta Committee
2. Ashok Mehta Committee
3. Hanumantha Rao Committee
4. L.M. Singhvi Committee

Which Committees were directly related to the Panchayati Raj System ?

(a) 1, 2 and 3 only
(b) 2, 3 and 4 only
(c) 1, 3 and 4 only
(d) 1, 2 and 4 only

71. In connection with Consolidated Fund of India, consider the following statements :

1. No money out of this fund can be appropriated except in accordance with a parliamentary law.
2. All revenues received by the Government, all loans raised and all money received by the Government in repayment of loans forms the Consolidated Fund of India.
3. All money of the Consolidated Fund of India should be spent after proper approval of the Lok Sabha.
4. The Consolidated Fund of India comes under Article 267 of the Indian Constitution.

Which of the statements given above are correct ?

(a) 1, 2 and 3 only
(b) 2, 3 and 4 only
(c) 1 and 2 only
(d) 2 and 4 only

72. The Montague-Chelmsford Proposals were related to :

(a) Social Reforms

(b) Economic Reforms

(c) Constitutional Reforms

(d) Legal Reforms

73. In connection with the Attorney General of India, consider the following statements :

1. The Attorney General of India can take part in the proceedings of the Lok Sabha.
2. The Attorney General of India can become a member of a Committee of the Lok Sabha.
3. The Attorney General of India can deliver a speech in the Lok Sabha.
4. The Attorney General of India can cast his vote in the Lok Sabha.

Which of the statements given above is/are correct ?

(a) 1, 2 and 3 only

(b) 2, 3 and 4 only

(c) 3 and 4 only

(d) 3 only

74. What are the key highlights under the National Manufacturing Policy ?

1. Increase manufacturing share in GDP from 16% to 22% by 2022.
2. Create 150 million additional jobs in the manufacturing sector by 2022.
3. Enhancing appropriate skill sets among the rural migrants and urban poor for their early absorption in manufacturing.

Select the correct answer :

(a) 2 only

(b) 3 only

(c) 2 and 3 only

(d) 1 and 2 only

75. Consider the following statements about NITI Aayog :

1. It is to function as a vehicle of good governance.
2. It has to develop a holistic and inclusive development model for the economy integrating the needs of Centre, States and local bodies.
3. This body subsumes the National Development Council in its Governing Council which gives it more legitimacy.
4. It has three specialized wings namely research, conflict resolution and team India.

Which of the statements given above are correct ?

(a) 1, 2 and 3 only

(b) 1, 2 and 4 only

(c) 2, 3 and 4 only

(d) 1, 2, 3 and 4

76. Which of the following statements about 'zero-coupon bond' is correct ?

(a) A bond with zero coupon rates which is sold at a price lower than its face value and investors get face value price at maturity.

(b) A bond with zero interest rate but with highest liquidity value for which investors get other concessions like tax breaks.

(c) A special category of bonds used as 'express money' to finance immediate needs of the economy which carries zero interest but gives tax credits to investors in their income tax returns.

(d) A kind of bond which is generally issued by governments in the times of financial crises to the high income group citizens which carry no interest but investors get tax concessions for investing in it.

77. Which city has become India's first 'Water Plus' city in Swachh Survekshan, 2021 ?

(a) Indore

(b) Bhopal

(c) Pune

(d) Bengaluru

78. The Ministry of Housing and Urban Affairs (MoHUA) launched 'SonChiraiya', a brand and logo for product marketing of which of the following ?

(a) Urban Self-Help Groups

(b) Rural Self-Help Groups

(c) Cooperative Societies

(d) None of the above

79. Consider the following statements relating to Mahatma Gandhi National Rural Employment Guarantee (MGNREG) Act :

1. 100 days of mandatory employment should be provided to rural job seekers.
2. Equal wage rates should be paid to male and female workers.
3. One-third of the beneficiaries should be women.
4. Employment should be provided only to the people below the poverty line.

Which of the above statements are correct as per the MGNREG Act ?

(a) 1, 2 and 4 only

(b) 1, 2 and 3 only

(c) 1, 2, 3 and 4

(d) 1, 3 and 4 only

80. Match List I with List II and select the correct answer from the codes given below the lists :

	List I (Acts)		*List II (Aims)*
A.	MRTP	1.	Maintenance of foreign exchange
B.	FEMA	2.	Promotion of industrial peace
C.	Industrial Disputes	3.	Control of unfair trade practices
D.	Wealth Tax	4.	Reducing the concentration of economic power

Codes :

	A	**B**	**C**	**D**
(a)	1	2	3	4
(b)	3	4	2	1
(c)	2	4	1	3
(d)	3	1	2	4

81. According to the Union budget of India 2022 – 23, which of the following is/are correctly matched ?

	Deficit		*Target (% GDP)*
1.	Revenue deficit	—	3·6
2.	Fiscal deficit	—	6·4
3.	Primary deficit	—	2·4

(a) 1 and 3 only

(b) 2 and 3 only

(c) 1, 2 and 3

(d) 2 only

82. A geostationary satellite appears stationary relative to the Earth. Such a satellite appears stationary due to its zero relative velocity with respect to a place on the Earth. For such a satellite, the angular speed in terms of radians per hour is :

(a) π

(b) $\pi/2$

(c) $\pi/6$

(d) $\pi/12$

83. India successfully test-fired a new version of which supersonic cruise missile off the Odisha coast in January 2022 ?

(a) BrahMos

(b) Dhanush

(c) Prithvi

(d) Agni

84. An important observing campaign in the year 2022 – 23 is aiming to map the distribution of mysterious dark matter threading throughout the Universe, and understand the even more enigmatic dark energy driving it apart. Which of the following observatory/telescope will be involved in the observations ?

(a) James Webb Space Telescope

(b) Vera C. Rubin Observatory, Chile

(c) Himalayan Chandra Telescope, India

(d) Keck Observatory, USA

85. For generating 'Golden Rice' two genes (encoding for phytoene synthase and beta-cyclase) were taken from a plant and one (encoding for phytoene desaturase) from a soil bacterium *Erwinia uredovora* for beta-carotene biosynthesis. The two plant genes were taken from which of the following plants ?

(a) Chickpea
(b) Wheat
(c) Daffodil
(d) Tomato

86. A Biotech firm Oxitec constructed genetically engineered mosquitoes *Aedes aegypti*, and got them released into the environment. Which of the following represents the main mandate of releasing genetically engineered mosquitoes into the environment ?

(a) To suppress the populations of various insects/pests which are responsible for causing diseases in a variety of crops including cotton, corn and others
(b) To control viral diseases like zika, dengue, chikungunya and yellow fever for which mosquitoes are the carriers
(c) To control malaria in human beings that is caused by mosquitoes, and responsible for high morbidity and mortality
(d) To control protozoan originated diseases in humans and livestock which cause substantial losses of lives

87. Which of the following is ***not*** a connective tissue ?

(a) Bone
(b) Cartilage
(c) Adipose tissue
(d) Muscular tissue

88. Aducanumab, marketed as Aduhelm, has recently been developed by Biogen Inc., a pharmaceutical giant, and has been approved by FDA (USA) for usage for which of the following ailments ?

(a) Brain Cancer
(b) AIDS
(c) Alzheimer's disease
(d) COVID-19

89. 'Camaraderie – Cohesion – Collaboration' is the theme of which of the following exercises ?

(a) MILAN 2023
(b) MILAN 2021
(c) MILAN 2022
(d) MILAN 2020

90. There is a power-rivalry in the Indian Ocean. In that context, what is the base island of China in the Indian Ocean ?

(a) Mauritius
(b) Marao Island
(c) Zanzibar
(d) Sri Lanka

91. Which of the following is the highest peacetime honour accorded to a soldier in India ?

(a) Ashoka Chakra

(b) Param Vishishth Seva Medal

(c) Ati Vishishth Seva Medal

(d) Shaurya Chakra

92. India's first *Technology and Innovation Support Centre (TISC)* is in :

(a) Punjab

(b) Gujarat

(c) Karnataka

(d) Tamil Nadu

93. Who has created Bitcoin ?

(a) Samsung

(b) Satoshi Nakamoto

(c) John McAfee

(d) Google

94. Which one of the following pairs is ***not*** correctly matched ?

	(Thermal Power Station)	*(Location)*
(a)	Anpara Thermal Power Station	— Uttar Pradesh
(b)	Bakreshwar Thermal Power Station	— West Bengal
(c)	Anta Thermal Power Station	— Rajasthan
(d)	Ennore Thermal Power Station	— Andhra Pradesh

95. The famous Majuli Island is located in :

(a) Assam

(b) West Bengal

(c) Andhra Pradesh

(d) Gujarat

96. Match List I with List II and select the correct answer from the codes given below the lists :

	List I (Pass)		*List II (Location)*
A.	Debsa	1.	Arunachal Pradesh
B.	Mana	2.	Sikkim
C.	Jelep La	3.	Himachal Pradesh
D.	Diphu	4.	Uttarakhand

Codes :

	A	**B**	**C**	**D**
(a)	1	2	3	4
(b)	2	1	3	4
(c)	3	4	2	1
(d)	4	3	2	1

97. Match List I with List II and select the correct answer from the codes given below the lists :

List I (*Tribal Groups*)	*List II* (*Zone / Location*)
A. Gujjar, Bhotia and Tharu	1. The North Zone of India
B. Naga, Garo, Khasi, Kuki and Chakma	2. The North-Eastern Zone of India
C. Santhal, Gond, Bhil and Kol	3. The Central Zone of India
D. Toda	4. The Southern Zone of India

Codes :

	A	**B**	**C**	**D**
(a)	4	3	1	2
(b)	3	4	2	1
(c)	1	3	4	2
(d)	1	2	3	4

98. Which one of the following mountain peaks is ***not*** located in the Kumaon Himalaya ?

(a) Nanda Devi

(b) Trisul

(c) Makalu

(d) Kedarnath

99. The deltas of Narmada and Tapi rivers of India are an example of :

(a) Estuarine delta

(b) Arcuate delta

(c) Truncated delta

(d) Blocked delta

100. Match List I with List II and select the correct answer from the codes given below the lists :

List I (*Local Winds*)	*List II* (*Region*)
A. Yamo	1. Siberia
B. Buran	2. Japan
C. Zonda	3. New Zealand
D. Nor'wester	4. Argentina

Codes :

	A	**B**	**C**	**D**
(a)	1	2	3	4
(b)	1	2	4	3
(c)	2	1	4	3
(d)	4	3	2	1

101. Match List I with List II and select the correct answer from the codes given below the lists :

	List I *(Name of the Bird Sanctuaries)*	*List II* *(Location)*
A.	Nal Sarovar Bird Sanctuary	1. Tamil Nadu
B.	Vedanthangal Bird Sanctuary	2. Gujarat
C.	Kumarakom Bird Sanctuary	3. Kerala
D.	Salim Ali Bird Sanctuary	4. Goa

Codes :

	A	**B**	**C**	**D**
(a)	1	2	3	4
(b)	2	1	3	4
(c)	3	4	2	1
(d)	4	3	2	1

102. Match List I with List II and select the correct answer from the codes given below the lists :

	List I *(Steel Plant)*	*List II* *(Location)*
A.	IISCO Steel Plant, Burnpur	1. Jharkhand
B.	Visvesvaraya Steel Plant, Bhadravati	2. West Bengal
C.	Bhilai Steel Plant	3. Karnataka
D.	Bokaro Steel Plant	4. Chhattisgarh

Codes :

	A	**B**	**C**	**D**
(a)	2	3	4	1
(b)	1	3	2	4
(c)	3	4	1	2
(d)	4	2	3	1

103. 'Vivad se Viswas' Scheme of the Ministry of Finance is related to :

(a) Trade related dispute settlement

(b) FDI related dispute settlement

(c) Industrial dispute settlement

(d) Direct tax dispute settlement

104. Consider the following statements :

1. The Rashtriya Khel Protsahan Puruskar is a sports honour of the Republic of India. The award was started in 2009 under national sports awards of the Ministry of Youth Affairs and Sports.
2. The award is given in four categories viz. Identification and nurturing of budding and young talent, Encouragement to sports through corporate social responsibility, Employment of sportspersons and sports welfare measures, and Sports for development.
3. Entities who received Rashtriya Khel Protsahan Puraskar, 2021 are Railway Sports Promotion Board and Gagan Narang Sports Promotion Foundation.

Which of the above statements are correct ?

(a) 1 and 2 only

(b) 2 and 3 only

(c) 1 and 3 only

(d) 1, 2 and 3

105. The Badminton World Federation has allotted the BWF World Championships to India for the year :

(a) 2024

(b) 2025

(c) 2026

(d) 2027

106. Which app has been developed by the Government of India to give users familiarity with common expressions of daily conversation in 22 Scheduled Indian languages ?

(a) Multibhashi

(b) Pratilipi

(c) Bhasha Sangam

(d) Bhasha Learner

107. Dosti Trilateral Exercise is conducted between which of the following ?

1. Sri Lanka
2. India
3. Bangladesh
4. Maldives

Codes :

(a) 1, 2 and 4 only

(b) 2, 3 and 4 only

(c) 1, 3 and 4 only

(d) 1, 2 and 3 only

108. Build Back Better World (B3W) initiative is announced by which of the following ?

(a) G20

(b) G7

(c) ASEAN

(d) BRICS

109. India's first cryptogamic garden was inaugurated in :

(a) Dehradun

(b) Chandigarh

(c) Bengaluru

(d) None of the above

110. Which of the following are the initiatives taken by the government to reduce air pollution ?

1. UJALA Scheme
2. International Solar Alliance
3. SVAMITVA Scheme
4. National Action Plan on Climate Change

Codes :

(a) 1, 3 and 4 only

(b) 1, 2 and 4 only

(c) 1 and 4 only

(d) 2 and 4 only

111. The first Living Robots capable of reproducing are :

(a) Xenobots

(b) Xerobots

(c) Shalu

(d) Sofia

112. What is Param Ganga ?

(a) Telescope

(b) Satellite

(c) Supercomputer

(d) Superfast train

113. SpaceX, recently made history by launching the world's first all-civilian crewed space flight.

The name of the flight was :

(a) Aspiration 14

(b) Inspiration 4

(c) Exception New Crew 5

(d) SpaceX Adventure 3

114. Which of the following statements are true about "Raisina Dialogue" ?

1. It is India's flagship conference on foreign policy.
2. It's seventh edition was launched in April 2022.
3. It started in the year 2017 to cover geoeconomics and geopolitics issues.

Choose the most appropriate answer from the options given below :

(a) Only statements 1 and 3 are true
(b) Only statements 2 and 3 are true
(c) Only statements 1 and 2 are true
(d) All statements 1, 2 and 3 are true

115. Who became the first deaf actor to win an Academy Award for a supporting role in the film CODA at the recently concluded 94^{th} Academy Awards ceremony ?

(a) Will Smith
(b) Troy Kotsur
(c) Jessica Chastain
(d) King Richard

116. In 2022, following an oil spill that spilled 6,000 barrels of crude oil into the sea, which country declared a 90-day "environmental emergency" in damaged coastal territories ?

(a) Pakistan
(b) Mauritius
(c) Peru
(d) India

117. Janjatiya Gaurav Divas is celebrated to mark the birth anniversary of :

(a) Tilka Manjhi
(b) Birsa Munda
(c) Tirot Sing
(d) Rajmohini Devi

118. Which Indian economist has been chosen to receive the Malcolm Adiseshiah Award in 2022 ?

(a) Jayati Ghosh
(b) Abhijit Banerjee
(c) Prabhat Patnaik
(d) Jean Drèze

119. According to the National Commission on Population's recent report on population projections, India is expected to achieve a sex ratio of 957 : 1000 by which year ?

(a) 2030
(b) 2032
(c) 2034
(d) 2036

120. Which of the following world's regions are considered the "hottest hotspots of biodiversity" ?

1. Madagascar and the Indian Ocean Islands
2. The Philippines
3. NW Himalaya
4. The Atlantic Forest

Choose the most appropriate answer from the options given below :

(a) 1, 2 and 3 only
(b) 2, 3 and 4 only
(c) 1, 2 and 4 only
(d) 1, 3 and 4 only

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