PUNJAB PUBLIC SERVICE COMMISSION

Objective Type Test (June-2022) for Recruitment tothe post of Assistant Director/ Assistant Controller of Stores/Store Inspection Officer/Functional Manager in the Department of Industries and Commerce, Govt. of Punjab

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

Total Questions: 120
Time Allowed: 2 Hours

Candidate's Name _____

Father's Name _____

Date of Birth ☐☐ ☐☐ ☐☐☐☐

DD MM YYYY

OMR Response Sheet No. _____

Roll No. _____

Candidate's Signature (Please sign in the box)

Question Booklet Set
A
Booklet Series

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 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 26 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 no negative marking.

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.

1. A player stops a football weighing 0.5 kg which comes flying towards him with a velocity of 10 m/s. If the impact lasts for 1/50th sec. and the ball bounces back with a velocity of 15 m/s, then the average force involved is
   (a) 250 N
   (b) 1250 N
   (c) 500 N
   (d) 625 N

2. A block at rest explodes into three parts of the same mass. The momentum of the two parts are -2p î and p ĵ. The momentum of the third part will have a magnitude
   (a) p
   (b) p$\sqrt{3}$
   (c) p$\sqrt{5}$
   (d)zero

3. Mr. Ramesh Narayan pulls a chain of mass m and length L hanging vertically downwards from a roof top. The work done by him is
   (a) 1/2 Mg L
   (b) Mg L
   (c) 1/2 Mg L^2
   (d) Mg L^2

4. If the distance between the sun and the earth is increased by three times, then attraction between the two will
   (a) Remain constant
   (b) Decreased by 63%
   (c) Decreased by 83%
   (d) Decreased by 89%

5. A sheet of aluminium foil of negligible thickness is introduced between the plates of a capacitor. The capacitance of the capacitor:
   (a) increases
   (b) decreases
   (c) becomes infinite
   (d) remains unchanged

6. If the length and area of cross-section of a conductor are doubled, then its resistance is
   (a) Unchanged
   (b) Halved
   (c) Doubled
   (d) Quadrupled

7. A small lamp is hung at a height of 8m above the centre of a round table of diameter 16 m.The ratio of intensities of illumination at the centre and at a point on the circumference of the table will be
   (a) 1:1
   (b) 2:1
   (c) 2$\sqrt{2}$:1
   (d) 3:2

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8. To a bird in air, a fish in water appears to be at 30 cm from the surface. If the refractive index of water ($^{a}\mu_{w}$) is 4/3, then the true depth of the fish is
   (a) 30 cm
   (b) 45 cm
   (c) 40 cm
   (d) None of the above

9. Two sound waves are represented by y= a sin (ωt-kx) and y=a cos (ωt-kx); The phase difference between the two waves is
   (a) π / 2 (b) π / 4 (c) π (d) 3π /4

10. A closed end organ pipe and an open end organ pipe have their first overtone identical in frequency. Their lengths are in the ratio
   (a) 1:2 (b) 2:3 (c) 3:4 (d) 4:5

11. When a charged particle moves perpendicular to a magnetic field, then
   (a) speed of the particle is changed
   (b) speed of the particle remains unchanged
   (c) direction of the particle remains unchanged
   (d) acceleration of the particle remains unchanged

12. Electromagnets are made of soft iron because soft iron has
   (a) low retentivity and low coercive field
   (b) high retentivity and high coercive field
   (c) low retentivity and high coercive field
   (d) highretentivity and low coercive field

13. A superconductor exhibits perfect
   (a) ferrimagnetism
   (b) ferromagnetism
   (c) paramagnetism
   (d) diamagnetism

14. Which of the following is used to measure age of archeological sample?
   (a) $_{6}C^{14}$
   (b) $_{6}C^{12}$
   (c) $_{6}C^{13}$
   (d) Mixture of $_{6}C^{14}$, $_{6}C^{12}$

15. Temperature of 1 mole of a gas is increased by 1^{0}C at constant pressure. Work done is
   (a) R
   (b) 2R
   (c) 3R
   (d) R/2

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16. The order of average velocity (C_a),root mean square velocity (C) and most probable velocity (C_m) is
    (a) $C_m < C_a < C$
    (b) $C_m > C_a > C$
    (c) $C_m < C < C_a$
    (d) $C < C_a < C_m$

17. Which of the following spectral series of hydrogen atom is in the visible region?
    (a) Brackett
    (b) Paschen
    (c) Balmer
    (d) Lyman

18. Which of the following metal does not dissolve in hydrochloric acid under normal condition?
    (a) zinc
    (b) aluminium
    (c) copper
    (d) magnesium

19. Which of the following is better oxidising agent?
    (a) SnO_2
    (b) SiO_2
    (c) GeO_2
    (d) PbO_2

20. The correct order strength of Lewis acid of BF_3, BCl_3, BBr_3 and BI_3
    (a) $BF_3 > BCl_3 > BBr_3 > BI_3$
    (b) $BF_3 < BCl_3 < BBr_3 < BI_3$
    (c) $BF_3 > BCl_3 < BBr_3 < BI_3$
    (d) $BF_3 < BCl_3 > BBr_3 > BI_3$

21. Which of the following molecule is most reactive?
    (a) cycloheptane
    (b) clyclobutane
    (c) cyclopropane
    (d) cyclopentane

22. Which of the following is a better lubricant?
    (a) oleic acid
    (b) stearic acid
    (c) acetic acid
    (d) none of these

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23. Dynamite is nitro compound of
    (a) toluene
    (b) benzene
    (c) glycol
    (d) glycerol

24. Which of the following does not have sharp melting point ?
    (a) ice
    (b) glass
    (c) iron
    (d) gold

25. Haemoglobin of the blood forms carboxy haemoglobin with
    (a) CO_2
    (b) CO
    (c) SO_2
    (d) NO_2

26. Gas with least calorific value is
    (a) coal gas
    (b) water gas
    (c) producer gas
    (d) natural gas

27. Phenol-formaldehyde is commercially known as
    a) PVC
    b) elastomer
    c) Bakelite
    d) Nylon

28. Natural rubber is a polymer of
    (a) Propylene
    (b) isoprene
    (c) ethylene
    (d) propene

29. The sum of all natural numbers lying between 100 and 1000, which are multiples of 5 is
    (a) 94850
    (b) 98450
    (c) 95840
    (d) 94580

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30. The number of reflexive relations on a set containing n elements is

(a) 2^{n^2-n} (b) 2^{n^2+n}

(c) 2^{n^2-1} (d) 2^{n^2+1}

31. If $x = e^{y+e^{y+\ldots\infty}}$, $x > 0$, then $\frac{dy}{dx}$ is

(a) $\frac{x}{1+x}$ (b) $\frac{1}{x}$

(c) $\frac{1-x}{x}$ (d) $\frac{1+x}{x}$

32. A point on the parabola $y^2 = 18x$ at which the ordinate increases at twice the rate of the abscissa is

(a) $(2, 4)$ (b) $(2, -4)$

(c) $(-\frac{9}{8}, \frac{9}{2})$ (d) $(\frac{9}{8}, \frac{9}{2})$

33. If $y = 1 + \frac{x}{1!} + \frac{x^2}{2!} + \frac{x^3}{3!} + \ldots$, then the value of $\frac{dy}{dx}$ is

(a) 0 (b) 1

(c) x (d) y

34. Find the value of x for which the points $(1, 3)$, $(-2, 9)$ and $(x, -1)$ are collinear

(a) -1 (b) -3

(c) 1 (d) 3

35. The area of the triangle whose vertices are $(2, 3), (3, 5)$ and $(7, 5)$ is

(a) 2 units (b) 3 units

(c) 4 units (d) 7 units

36. Two lines $3x + 4y = 8$ and $px + qy = n$ are perpendicular. Which of the following is true?

(a) $3p + 4q = 0$ (b) $4p + 3q = 0$

(c) $2p + 4q = 0$ (d) $3p + 2q = 0$

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37. If the direction cosines of a line are $\frac{k}{3}, \frac{k}{3}, \frac{k}{3}$, then the value of k is

(a) $k > 0$ (b) $k = \pm 3$

(c) $k < 0$ (d) $k = \pm\sqrt{3}$

38. Let A be a matrix with order n and $A^3 - 3A^2 + 4A - 6I = 0$, where I is an unit matrix. If A^{-1} exists, then

(a) $A^{-1} = A - I$ (b) $A^{-1} = A + 6I$

(c) $A^{-1} = 3A - 6I$ (d) $A^{-1} = \frac{A^2 - 3A + 4I}{6}$

39. The system of equations $4x + 6y = 5,\ 8x + 12y = 10$ has

(a) unique solution (b) no solution

(c) infinitely many solutions (d) none of these

40. Which among the following does not belong to main types of integrals?

(a) Indefinite Integral (b) Proper Definite Integral

(c) Improper Definite Integral (d) Real Integral

41.The inverse of a symmetric matrix (if it exists) is

(a) A symmetric matrix (b) A skew symmetric matrix

(c) A diagonal matrix (d) A triangular matrix

42. The value of $(1+\omega)(1+\omega^2)(1+\omega^4)(1+\omega^8)$.....up to $2n$ factors is

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

43. If a fair die is tossed twice,then the probability of getting a 4,5 or 6 on the first toss and a 1,2,3 or 4 on the second toss is

(a) $\frac{1}{2}$ (b) 1 (c) $\frac{1}{3}$ (d) $\frac{1}{4}$

44.If $P(AB) = \frac{1}{4}, P(A'B') = \frac{1}{5}, P(A) = P(B) = p$ then the value of p is

(a) $\frac{1}{40}$ (b) $\frac{11}{40}$ (c) $\frac{21}{40}$ (d) $\frac{31}{40}$

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45. How many three digit natural numbers are there which when divided by 7 give remainder 5?

(a) 128 (b) 129 (c) 130 (d) None of these

46.**Referee**: I am sorry, but your last shot was out. When a tennis ball lands outside of the court boundaries without touching the line, then it is out.

Tennis Player: But my ball was not out. It seems that your calls are unfairly favouring the other player. If my last ball was out, then all of her shots that you called in over the past couple ofgames must have been out.

For the tennis player's argument to be logically correct, which of the following assumptions must be made?

(a) The referee is unfairly siding with her opponent
(b) Tennis is a game where it is impossible post facto to determine whether a ball landed out
(c) The referee was watching while the last point occurred
(d) Her last shot either hit the line or was within the court's boundaries

47. The last digit of $(2171)^7 + (2172)^9 + (2173)^{11} + (2174)^{13}$ is

(a) 2 (b) 4
(c) 6 (d) 8

48.For what value of k is $(x + 1)$ a factor of$x^3 + kx^2 - x + 2$?

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

49. In a school every student is assigned a unique identification number. A student is a football player if and only if the identification number is divisible by 4, whereas a student is a cricketer if and only if the identification number is divisible by 6. If every number from 1 to 100 is assigned to a student, then how many of them play cricket as well as football?

(a) 4
(b) 8
(c) 10
(d) 12

50. If 1 $ 2 means 2 is father of 1;1 # 2 means 2 is mother of 1; 1 L 2 means 2 is sister of 1; and 1 @ 2 means 2 is husband of 1; then which of the following indicates relationship " R is grandmother of P"?

(a) P L Q # M $ R
(b) P @ Q $ M # R
(c) P $ Q # M @ R
(d) None of these

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51. Six persons A, B, C, D, E and F are standing in a circle. B is between F and C, A is between E and D, F is to the left of D. Who is between A and F?

(a) B
(b) C
(c) D
(d) E

52. Select the pair from the option that has the same relationship as the original pair of words:
YAWN : BOREDOM

(a) Anger : Madness
(b) Smile : Amusement
(c) Dream : Sleep
(d) Impatience : Rebellion

53. Walking at 5km/hour, you reach the office from your house 15 minutes early and walking at 3km/hour, you are late by 9 minutes. The distance between your house and officeis

(a) 5km
(b) 2km
(c) 3km
(d) 6km

54. A line A is perpendicular to line B and parallel to line C. Line D is perpendicular to both lines E and F. If line A is perpendicular to line E which one of the following statement is correct?

(a) C,D and F are parallel
(b) A,D and C are parallel
(c) C is perpendicular to A
(d) B and E are parallel and perpendicular to F

55. Y is twice as old as X but twice younger than S. Z is half the age of X but is twice older than W. Who is the second oldest?

(a) X
(b) Z
(c) Y
(d) W

56. A wheel makes 4000 revolution in covering a distance of 60 km. Then the radius of the wheel is

(a) 8.10 m
(b) 4.65 m
(c) 2.39 m
(d) 3.25 m

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57. Find y in the following sequence

1, 4, 17, 86, 517, y

(a) 3620
(b) 1824
(c) 2018
(d) 2482

Directions (Question Nos.58 to 61): The following table shows the number of new students added to different engineering fields in a college and also the number of students graduated from these categories of engineering every year since the foundation of the College in 2015.

Year	Mechanical		Electronics		Computer		Civil		Production	
	New Joinees	Graduated	New Joinees	Graduated	New Joinees	Graduated	New Joinees	Graduated	New Joinees	Graduated
2015	760	-	1200	-	880	-	1160	-	820	-
2016	280	120	272	120	256	104	200	100	184	96
2017	179	92	240	128	240	120	224	104	152	88
2018	148	88	236	96	208	100	248	96	196	80
2019	160	72	256	100	192	112	272	88	224	120
2020	193	96	288	112	248	144	260	92	200	104

58. What is the difference between the total number of electronics engineers added to the College and the total number of Civil engineers added to the College during the years 2016 to 2020?

(a) 128
(b) 112
(c) 96
(d) 88

59. What was the total number of production engineering students in the College in year 2019?

(a) 1312
(b) 1192
(c) 968
(d) 1088

60. For which of the following field the percentage increase in the number of engineering students in the College from 2015 to 2020 was the maximum?

(a) Mechanical
(b) Electronics
(c) Computer
(d) Civil

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61. During the period between 2015 and 2020, the total number of computer students who graduated from the College is approximately what percent of total number of computer students who joined the College?

(a) 19%
(b) 21%
(c) 27%
(d) 29%

62. A sheet is in the shape of a rectangle with sides 10cm and 5cm. A part of the sheet in the shape of an isosceles right-angled triangle with hypotenuse $5\sqrt{2}$cm is cut from the rectangular sheet. What is the area of the remaining sheet?

(a) 25 sq.cm
(b) $25\sqrt{2}$ sq.cm
(c) 37.5 sq.cm
(d) It depends on where exactly it is cut from

63. Three machines, AA, BB and CC, can each produce a product P, independently, but with different efficiencies. AA alone can produce 40 units of P per day, AA and BB can together produce 65 units of P per day, BB and CC can together produce 80 units of P per day. How much can AA, BB and CC together produce per day?

(a) 120
(b) 145
(c) 105
(d) None of the above

64. The operation * is defined on English alphabets, and following are some examples, with "=" having the same meaning "is equal to" as for numbers.

A*D = 2, H*H = 8, and C*L = 6. Then

(a) J*J = E*T = D*Y
(b) J*J = E*T, but not equal to D*Y
(c) J*J = D*Y, but not equal to D*Y
(d) E*T = D*Y, but not equal to J*J

65. A negatively sloped demand curve means that _____

(a)the price elasticity of demand is negative
(b)demand is elastic
(c)demand is inelastic
(d)demand is unitary

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66. The major difference between an inventory management system and a logistics system is that the _____

(a) inventory management system is more concerned with supplier-retailer linkages
(b)inventory management system does not consider the impact of lost business due to stockouts
(c) inventory management system also includes purchasing and customer service considerations
(d)logistics system also includes purchasing and customer service considerations

67. The management approach, which draws together concepts, principles, techniques and knowledge from other fields and managerial approaches, is called as

(a) Systems approach

(b) Decision Theory approach

(c) Management Science approach

(d) Operational approach

68. Shiv and Sarah, newly weds, are considering the purchase of their first house. They are very involved with this purchase decision, particularly because they will be spending their entire savings on this purchase. They have been searching for information on the Internet and asking for opinions from friends and family. Which of the following decision-making approaches are they most likely employing?

(a) Experiential decision making

(b) Limited decision making

(c) Routine decision making

(d) Extended decision making

69. Natraj is a well-known store that sells writing material. The company faces strong competition from the electronic media. If the company thinks of itself merely as a paper company instead of a company that delivers the benefits users want, it could be taking a short-sighted view of its business. That is, Natraj could suffer from _____.

(a) brain drain
(b)cognitive dissonance
(c)marketing disconnect
(d)marketing myopia

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70. According to the Customer Relationship Management (CRM) orientation:
(a)a strong, or high-quality, relationship is typified by a consumer who buys different brands of a product each time a need for that product arises
(b)customers who switch providers each time they make a purchase tend to be more profitable than loyal customers due to their wide range of purchases
(c) the most profitable customers are those who search for information about a product online and then buy it in a brick-and-mortar store
(d) customers form relationships with companies as opposed to companies conducting individual transactions with customers

71. The phenomenon of 'Groupshift' usually means decisions
(a)are made by groups rather than individuals
(b)contain greater risk
(c)are made more quickly
(d)prove less effective

72. If behavioral studies had been successful, we would _____, whereas if trait research were correct, we would _____
(a)teach people certain behaviors; each people certain traits;
(b)train leaders ; select the right person for the job
(c)change jobs to suit people; change people to suit jobs
(d)hire either men or women; only hire women

73. You have an employee who has worked with you regularly for ten years. You both have enough experience working with each other to know what to expect of each other. This is an example of:
(a) identification-based trust
(b) deterrence-based trust
(c) knowledge-based trust
(d) consistency-based trust

74. One of the phrases 'Plan-Do-Check-Act' is probably connected with management's interest in:
(a) Lean approach
(b) Mass Customization
(c) TQM
(d) Reengineering

75. Micro, Small and Medium Enterprises Development Act, 2006 is related to

(a) Industrial Policy
(b) Investment Limit
(c) Business Opportunities
(d) None of these

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76. Making profit by taking advantage of different prices prevailing in different markets is referred as
(a) Hedging
(b) Speculation
(c) Arbitrage
(d) Gambling

77. What is full form of OEM?
(a) Original Equipment Manufacturer
(b) Oriental Equipment Manufacturer
(c) Original Emergency Manufacturer
(d) Original Equipment Machine

78. Which pharma company has developed India's first mRNA vaccine?
(a) GennovaBiopharmaceuticals
(b) Serum Institute
(c) CiplaPharma
(d) Ranbaxy

79. Which among the following diseases is not caused by a virus ?
(a) Chickenpox
(b) Hepatitis
(c) Cholera
(d) Dengue

80. Which among the following causes 'Dumdum Fever' or Kala Azar?
(a) Bacteria
(b) Fungi
(c) protozoa
(d) Virus

81. Melissa Woods was recently hired as the campaign manager at an environmental organization. She has a degree in environmental sustainability and possesses substantial knowledge about the issue of global warming. She has the knowledge to lead the public relations team of the organization. However, a few months later, the board of directors of the organization expressed dissatisfaction with Melissa's performance and asked her to resign. Which of the following, if true, best explains this situation?

(a) Melissa had no prior experience in research and development
(b) Melissa had weak interpersonal and networking skills to run the project
(c) Melissa focused on the results her team achieved rather than how they achieved those results
(d) Melissa is not up-to-date about the feasibility of using different modes of renewable energy

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82. Which of the following best defines organizational behavior?

(a) It involves the study of groups of people coming together for collective bargaining
(b) It involves the study of what people do in a company and how it affects the company's output
(c) It involves analyzing different people in an industry with independent profit-centered motives
(d) It involves developing exclusively the knowledge of managers and senior -level employees

83. With reference to the Prime Minister's Employment Generation Programme (PMEGP) choose the correct option:

1. It is a centrally sponsored scheme which aims at employment generation
2. Khadi and Village Industries Commission (KVIC) is the implementing agency for Prime Minister Employment Generation Programme (PMEGP) at the National Level

(a) Only (i)
(b) Only (ii)
(c) Both (i) and (ii)
(d) Neither (i) nor (ii)

84. Consider the following salient features of Prime Minister's Employment Generation Programme (PMEGP):

1. It is a credit linked subsidy Scheme
2. It has been launched by merging 2 schemes: Prime Minister RojgarYojana (PMRY) and Rural Employment Generation Programme (REGP)
3. Per capita investment must not be higher than ₹ 2 lakh in Plain Areas, and ₹ 2.5 lakh in Hilly Areas

Which of the statements given above are correct?

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

85. Consider the following statements about Khadi and Village Industries Commission (KVIC):

1. Khadi and Village Industries Commission (KVIC) is a statutory body under the KVIC Act of 1956 to promote Micro, Small and Medium Enterprises (MSMEs) in rural and remote areas.
2. KVIC plans to promote, organizes, and implements programmes for the development of Khadi and other village industries in rural areas nationwide.
3. It functions under the Ministry of MSME.
4. Scheme of Fund Regeneration of Traditional Industries (SFURTI) is one of the major schemes of KVIC

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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

86. A Scheme for Promotion of Innovation, Rural Industries and Entrepreneurship (ASPIRE) was launched to
(a) set up incubation centers to accelerate entrepreneurship and also to promote start-ups for innovation in agro-industry
(b) provide sustained employment for traditional industry artisans and rural entrepreneurs
(c) plan, promote, organise and implement programmes for the development of Khadi and other village industries in the rural areas
(d) facilitate potters to get bank loans under PradhanMantriShishu Mudra Yojana

87. Which of the following isnot a component of ASPIRE Scheme?
(a) Livelihood Business Incubation (LBI)
(b) Technology Business Incubation (TBI)
(c) Start-up Promotion through Small Industries Development Bank of India (SIDBI)
(d) Entrepreneurship Development Programme (EDP)

88. In which year did the Government of Punjab launch the Industrial and Business Development Policy to promote industrial development and nurture the growth of the start-up ecosystem in the state?
(a) 2017
(b) 2015
(c) 2012
(d) 2018

89. Who designed the logo of Make in India?
(a) Interband
(b) Kennedy &Wieden
(c) Wolff Olins
(d) VyasGiannetti Creative

90. Consider the following statements about Make in India:
1. The aim of Make in India is creation of appropriate skill sets among rural migrants and the urban poor for inclusive growth.
2. Department of Promotion of Industry and Internal Trade under Ministry of Commerce and Industry is the nodal agency for its implementation.
3. It was launched on September 25, 2018.
4. Make in India is a national programme designed to transform India into a global manufacturing hub.

Which of the statements given above are correct?
(a) 1 and 4 Only
(b) 1, 2 and 3 Only
(c) 1,2 and 4 Only
(d) 1, 2 and 3 only

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91. Which French company under the 'Make in India' banner will make 800 high horsepower electric locomotives in factory atMadhepura, Bihar?
    (a) Rafale
    (b) Alstom
    (c) CNES
    (d) None of the above

92. Which of the followingis not true about Punjab Bureau of Investment Promotion (Invest Punjab)?
    (a) Punjab Bureau of Investment Promotion has been established in 2015 by the Government of Punjab.
    (b) The Bureau was established wherein the concurrent powers of key departments were bought under a single roof for granting statutory clearances.
    (c) As the nodal agency, Invest Punjab has been entrusted with the responsibility to facilitate trade and investment opportunities and creating value for the investors in the State of Punjab.
    (d) Punjab Bureau of Investment Promotion has been established to promote infrastructure in the State of Punjab.

93. Consider the following about PradhanMantriKaushalVikasYojana (PMKVY) 3.0
    1. This Yojana has been launched for the tenure 2020-21
    2. This Yojana has been launched in 28 States/UTs covering 717 districts across the country
    3. This Yojana is also celebrated as World Youth Skills Day
    4. This is the third phase of the PMKVY since its launch in the year 2015

Which of the following is/are not applicable about PradhanMantriKaushalVikasYojana (PMKVY) 3.0?
    (a) 1 only
    (b) 3 only
    (c) Both 2 and 3
    (d) Both 3 and 4

94. Consider the following statements about the Ministry of Electronics and Information Technology:
    1. The Ministry of Electronics and Information Technology was previously known as "The Department of Information Technology".
    2. The Department of Information Technology was renamed to The Department of Electronics and Information Technology in 2012.
    3. In 2018, the Ministry of Electronics and Information Technology was bifurcated from the Ministry of Communications and Information Technology.
    4. The Ministry of Electronics and Information Technology is an executive agency of the Union Government of the Republic of 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

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95. What is the punishment for hacking computers?
(a) Three-year imprisonment or ₹ 10 lakh penalty or both
(b) Three-year imprisonment or ₹ 5 lakh penalty or both
(c) Three-year imprisonment or ₹ 2 lakh penalty or both
(d) Life imprisonment

96. Who invented food processing?
(a) Nicolas Appert
(b) NusliWadia
(c) Peter Brabeck-Letmathe
(d) Thomas Jefferson

97. Under the "One District, One Product (ODOP) initiative" of the Ministry of Commerce and Industry, which item was recently flagged off from Budgam district of Jammu and Kashmir to Bengaluru, Karnataka
(a) Apples
(b) Walnuts
(c) Pears
(d) Cherry

98. Which of the following is not true?
(a) Basmati rice has gained international recognition
(b) Wine industry is gaining support in India, especially Maharashtra
(c) Dairy industry in India is the largest in the world
(d) None of the above

99. Consider the following pairs:
1. Indian Veterinary Research Institute — Bareilly
2. National Sugar Institute (NSI) — Kanpur
3. Central Food Technological Research Institute —Banglore

Which of the above statements is/are correct?
(a) 1 and 2 only
(b) 3 only
(c) 2 and 3 only
(d) 1, 2 and 3

100. With respect to the upstream and downstream industries in Food Processing Units, consider the following observations:

(i) While farmers are parts of upstream industry, collection centres are part of downstream industry
(ii) Initial processing of food material is done in downstream industries

Select the correct option from the codes given below:
(a) Only (i)
(b) Only (ii)
(c) Both (i) and (ii)
(d) Neither (i) nor (ii)

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101. Which one of the following is the prescribed investment limit for medium enterprises in the manufacturing sector as per the Micro, Small and Medium Enterprises Development Act 2006?
(a) More than ₹ 10 lakhs and less than ₹ 2 crores
(b) More than ₹ 2 crores and less than ₹ 5 crores
(c) More than ₹ 5 crores and less than ₹ 10 crores
(d) More than ₹ 10 crores

102. As per the revised classification applicable w.e.f. July 1, 2020, the annual turnover of small enterprise will not be more than
(a) ₹ 50 crores
(b) ₹ 15 crores
(c) ₹ 20 crores
(d) ₹ 16 crores

103. Consider the following statements:
1. Karve Committee is related to the Micro, Small and Medium Enterprises (MSME) Sector
2. Village and Small-scale Industries Committee is also called the Karve Committee
3. The Micro, Small and Medium Enterprises (MSME) are classified into two enterprises as per the Micro, Small and Medium Enterprises Development (MSMED) Act, 2006

Which of the above statements is/are incorrect?

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

104. The Primary Financial Institution for promoting, developing and financing Micro, Small and Medium Enterprise (MSME) sector is:

(a) Small Industries Development Bank of India (SIDBI)
(b) Industrial Development Bank of India (IDBI)
(c) Industrial Finance Corporation of India (IFCI)
(d) Industrial Credit and Investment Corporation of India (ICICI)

105. Which of the following is not a primary chemical?
(a) Alcohol
(b) Acetone
(c) Acetic acid
(d) Benzene

106. Which of the following is the simplest aromatic hydrocarbon?
(a) nitrobenzene
(b) cyclohexane
(c) cumene
(d) benzene

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107. The prestigious Golden Peacock Environment Management Award for the year 2020 has been awarded to:

(a)Steel Authority of India Limited (SAIL)
(b)Gas Authority of India Limited (GAIL)
(c) Oil and Natural Gas Corporation Limited (ONGC)
(d) Power Grid Corporation of India Limited (PGCI)

108. Under which compound name is the liquid petroleum gas (LPG) sold?

(a) Urea
(b) Ethylene
(c) Benzoyl peroxide
(d) Butane

109. In which state the National Institute of Secondary Steel Technology (NISST) is set up?

(a) Punjab
(b) Madhya Pradesh
(c) Tamil Nadu
(d) Jharkhand

110. Which state is the largest producer of natural gas in India?

(a) Assam
(b) Gujarat
(c) Rajasthan
(d) Tamil Nadu

111. Which ministry is implementing Samarth Scheme for Capacity Building?

(a) Ministry of Textiles
(b) Ministry of steel
(c) Ministry of Social Justice and Empowerment.
(d) Ministry of Youth Affairs and Sports

112. Which of the following are examples of 'Sunrise Industries'?

1. Automobile industry
2. Fitness, wellness and health industry
3. Hospitality industry
4. Textile industry

Select the correct option:

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

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113. Which one of the following is not an industrial corridor as per the policy initiatives?
(a) Amritsar - Kolkota
(b) Delhi - Mumbai
(c) Kolkata – Guwahati
(d) Chennai – Bengaluru

114. The fundamental criteria to identify industrial sickness is
1. continuous direct loss of income for one year or more
2. highlabour-turnover ratio
3. increase in debt-to-equity ratio
4. reduction in net property assets

Choose the correct option from the following:
(a) 1 and 2 only
(b) 2 and 3 only
(c) 3 and 4 only
(d) 1 and 3 only

115. SAMPADA scheme is related to
(a) Empowering women through microfinance
(b) Agricultural credit to small farmers
(c) Agro-food processing industry
(d) Providing loans for development of textile industries

116. In 2021, which of the following industries are reserved exclusively for the public sector?

(a) Atomic energy generation
(b) Defence equipment
(c) Railway transport
(d) All of the above

117. India with which of the following countries has signed MOC to strengthen cooperation in steel sector?

(a) Japan
(b) UAE
(c) Russia
(d) USA

118. Which city is called the “Manchester of Rajasthan”?

(a) Kota
(b) Pali
(c) Bhilwara
(d) Alwar

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119. Whichof the following art form of Punjab is believed to be auspicious, a symbol of happiness, prosperity and Suhag of a married woman?

(a) Phulkari
(b) BaghKashidakari
(c) Kashida
(d) Banni and Heer Bharat

120. Which is the Indian state with the highest number of power-looms?

(a) Gujarat
(b) Madhya Pradesh
(c) Maharashtra
(d) Tamil Nadu

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PUNJAB PUBLIC SERVICE COMMISSION

Objective Type Test (June-2022) for Recruitment tothe post of Assistant Director/ Assistant Controller of Stores/Store Inspection Officer/Functional Managerin the Department of Industries and Commerce, Govt. of Punjab

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

Total Questions: 120
Time Allowed: 2 Hours

Candidate's Name _____

Father's Name _____

Date of Birth ☐☐ ☐☐ ☐☐☐☐

DD MM YYYY

OMR Response Sheet No. _____

Roll No. _____

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

Question Booklet Set
B
Booklet Series

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 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 26 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 no negative marking.

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.

1. With reference to the Prime Minister's Employment Generation Programme (PMEGP) choose the correct option:
    1. It is a centrally sponsored scheme which aims at employment generation
    2. Khadi and Village Industries Commission (KVIC) is the implementing agency for Prime Minister Employment Generation Programme (PMEGP) at the National Level

    (a) Only (i)
    (b) Only (ii)
    (c) Both (i) and (ii)
    (d) Neither (i) nor (ii)

2. Consider the following salient features of Prime Minister's Employment Generation Programme (PMEGP):
    1. It is a credit linked subsidy Scheme
    2. It has been launched by merging 2 schemes: Prime Minister RojgarYojana (PMRY) and Rural Employment Generation Programme (REGP)
    3. Per capita investment must not be higher than ₹ 2 lakh in Plain Areas, and ₹ 2.5 lakh in Hilly Areas

    Which of the statements given above are correct?

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

3. Consider the following statements about Khadi and Village Industries Commission (KVIC):

    1. Khadi and Village Industries Commission (KVIC) is a statutory body under the KVIC Act of 1956 to promote Micro, Small and Medium Enterprises (MSMEs) in rural and remote areas.
    2. KVIC plans to promote, organizes, and implements programmes for the development of Khadi and other village industries in rural areas nationwide.
    3. It functions under the Ministry of MSME.
    4. Scheme of Fund Regeneration of Traditional Industries (SFURTI) is one of the major schemes of KVIC

    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

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4. A Scheme for Promotion of Innovation, Rural Industries and Entrepreneurship (ASPIRE) was launched to
   (a) set up incubation centers to accelerate entrepreneurship and also to promote start-ups for innovation in agro-industry
   (b) provide sustained employment for traditional industry artisans and rural entrepreneurs
   (c) plan, promote, organise and implement programmes for the development of Khadi and other village industries in the rural areas
   (d) facilitate potters to get bank loans under PradhanMantriShishu Mudra Yojana

5. Which of the following isnot a component of ASPIRE Scheme?
   (a) Livelihood Business Incubation (LBI)
   (b) Technology Business Incubation (TBI)
   (c) Start-up Promotion through Small Industries Development Bank of India (SIDBI)
   (d) Entrepreneurship Development Programme (EDP)

6. In which year did the Government of Punjab launch the Industrial and Business Development Policy to promote industrial development and nurture the growth of the start-up ecosystem in the state?
   (a) 2017
   (b) 2015
   (c) 2012
   (d) 2018

7. Who designed the logo of Make in India?
   (a) Interband
   (b) Kennedy &Wieden
   (c) Wolff Olins
   (d) VyasGiannetti Creative

8. Consider the following statements about Make in India:
   1. The aim of Make in India is creation of appropriate skill sets among rural migrants and the urban poor for inclusive growth.
   2. Department of Promotion of Industry and Internal Trade under Ministry of Commerce and Industry is the nodal agency for its implementation.
   3. It was launched on September 25, 2018.
   4. Make in India is a national programme designed to transform India into a global manufacturing hub.

   Which of the statements given above are correct?

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

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9. Which French company under the ‘Make in India’ banner will make 800 high horsepower electric locomotives in factory atMadhepura, Bihar?
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10. Which of the followingis not true about Punjab Bureau of Investment Promotion (Invest Punjab)?
   (a) Punjab Bureau of Investment Promotion has been established in 2015 by the Government of Punjab.
   (b) The Bureau was established wherein the concurrent powers of key departments were bought under a single roof for granting statutory clearances.
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   1. This Yojana has been launched for the tenure 2020-21
   2. This Yojana has been launched in 28 States/UTs covering 717 districts across the country
   3. This Yojana is also celebrated as World Youth Skills Day
   4. This is the third phase of the PMKVY since its launch in the year 2015

Which of the following is/are not applicable about PradhanMantriKaushalVikasYojana (PMKVY) 3.0?
   (a) 1 only
   (b) 3 only
   (c) Both 2 and 3
   (d) Both 3 and 4

12. Consider the following statements about the Ministry of Electronics and Information Technology:
   1. The Ministry of Electronics and Information Technology was previously known as "The Department of Information Technology".
   2. The Department of Information Technology was renamed to The Department of Electronics and Information Technology in 2012.
   3. In 2018, the Ministry of Electronics and Information Technology was bifurcated from the Ministry of Communications and Information Technology.
   4. The Ministry of Electronics and Information Technology is an executive agency of the Union Government of the Republic of 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

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13. What is the punishment for hacking computers?
    (a) Three-year imprisonment or ₹ 10 lakh penalty or both
    (b) Three-year imprisonment or ₹ 5 lakh penalty or both
    (c) Three-year imprisonment or ₹ 2 lakh penalty or both
    (d) Life imprisonment

14. Who invented food processing?
    (a) Nicolas Appert
    (b) NusliWadia
    (c) Peter Brabeck-Letmathe
    (d) Thomas Jefferson

15. Under the "One District, One Product (ODOP) initiative" of the Ministry of Commerce and Industry, which item was recently flagged off from Budgam district of Jammu and Kashmir to Bengaluru, Karnataka
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16. Which of the following is not true?
    (a) Basmati rice has gained international recognition
    (b) Wine industry is gaining support in India, especially Maharashtra
    (c) Dairy industry in India is the largest in the world
    (d) None of the above

17. Consider the following pairs:
    1. Indian Veterinary Research Institute — Bareilly
    2. National Sugar Institute (NSI) — Kanpur
    3. Central Food Technological Research Institute —Banglore

Which of the above statements is/are correct?
    (a) 1 and 2 only
    (b) 3 only
    (c) 2 and 3 only
    (d) 1, 2 and 3

18. With respect to the upstream and downstream industries in Food Processing Units, consider the following observations:

    (i) While farmers are parts of upstream industry, collection centres are part of downstream industry
    (ii) Initial processing of food material is done in downstream industries

Select the correct option from the codes given below:
    (a) Only (i)
    (b) Only (ii)
    (c) Both (i) and (ii)
    (d) Neither (i) nor (ii)

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19. Which one of the following is the prescribed investment limit for medium enterprises in the manufacturing sector as per the Micro, Small and Medium Enterprises Development Act 2006?
    (a) More than ₹ 10 lakhs and less than ₹ 2 crores
    (b) More than ₹ 2 crores and less than ₹ 5 crores
    (c) More than ₹ 5 crores and less than ₹ 10 crores
    (d) More than ₹ 10 crores

20. As per the revised classification applicable w.e.f. July 1, 2020, the annual turnover of small enterprise will not be more than
    (a) ₹ 50 crores
    (b) ₹ 15 crores
    (c) ₹ 20 crores
    (d) ₹ 16 crores

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    1. Karve Committee is related to the Micro, Small and Medium Enterprises (MSME) Sector
    2. Village and Small-scale Industries Committee is also called the Karve Committee
    3. The Micro, Small and Medium Enterprises (MSME) are classified into two enterprises as per the Micro, Small and Medium Enterprises Development (MSMED) Act, 2006

    Which of the above statements is/are incorrect?

    (a) 1 only
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22. The Primary Financial Institution for promoting, developing and financing Micro, Small and Medium Enterprise (MSME) sector is:

    (a) Small Industries Development Bank of India (SIDBI)
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23. Which of the following is not a primary chemical?
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    (c) Acetic acid
    (d) Benzene

24. Which of the following is the simplest aromatic hydrocarbon?
    (a) nitrobenzene
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25. The prestigious Golden Peacock Environment Management Award for the year 2020 has been awarded to:

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(b) Ethylene
(c) Benzoyl peroxide
(d) Butane

27. In which state the National Institute of Secondary Steel Technology (NISST) is set up?

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(b) Madhya Pradesh
(c) Tamil Nadu
(d) Jharkhand

28. Which state is the largest producer of natural gas in India?

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(b) Gujarat
(c) Rajasthan
(d) Tamil Nadu

29. Which ministry is implementing Samarth Scheme for Capacity Building?

(a) Ministry of Textiles
(b) Ministry of steel
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(d) Ministry of Youth Affairs and Sports

30. Which of the following are examples of 'Sunrise Industries'?

1. Automobile industry
2. Fitness, wellness and health industry
3. Hospitality industry
4. Textile industry

Select the correct option:

(a) 1 and 4 only
(b) 2 and 3 only
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31. Which one of the following is not an industrial corridor as per the policy initiatives?
(a) Amritsar - Kolkota
(b) Delhi - Mumbai
(c) Kolkata – Guwahati
(d) Chennai – Bengaluru

32. The fundamental criteria to identify industrial sickness is
1. continuous direct loss of income for one year or more
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Choose the correct option from the following:
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(c) Russia
(d) USA

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(c) Bhilwara
(d) Alwar

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37. Whichof the following art form of Punjab is believed to be auspicious, a symbol of happiness, prosperity and Suhag of a married woman?

(a) Phulkari
(b) BaghKashidakari
(c) Kashida
(d) Banni and Heer Bharat

38. Which is the Indian state with the highest number of power-looms?

(a) Gujarat
(b) Madhya Pradesh
(c) Maharashtra
(d) Tamil Nadu

39. A player stops a football weighing 0.5 kg which comes flying towards him with a velocity of 10 m/s. If the impact lasts for 1/50th sec. and the ball bounces back with a velocity of 15 m/s, then the average force involved is

(a) 250 N
(b) 1250 N
(c) 500 N
(d) 625 N

40. A block at rest explodes into three parts of the same mass. The momentum of the two parts are -2p î and p ĵ. The momentum of the third part will have a magnitude

(a) p
(b) $p\sqrt{3}$
(c) $p\sqrt{5}$
(d)zero

41. Mr. Ramesh Narayan pulls a chain of mass m and length L hanging vertically downwards from a roof top. The work done by him is

(a) 1/2 Mg L
(b) Mg L
(c) 1/2 Mg L^2
(d) Mg L^2

42. If the distance between the sun and the earth is increased by three times, then attraction between the two will

(a) Remain constant
(b) Decreased by 63%
(c) Decreased by 83%
(d) Decreased by 89%

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43. A sheet of aluminium foil of negligible thickness is introduced between the plates of a capacitor. The capacitance of the capacitor:
    (a) increases
    (b) decreases
    (c) becomes infinite
    (d) remains unchanged

44. If the length and area of cross-section of a conductor are doubled, then its resistance is
    (a) Unchanged
    (b) Halved
    (c) Doubled
    (d) Quadrupled

45. A small lamp is hung at a height of 8m above the centre of a round table of diameter 16 m.The ratio of intensities of illumination at the centre and at a point on the circumference of the table will be
    (a) 1:1
    (b) 2:1
    (c) $2\sqrt{2}$:1
    (d) 3:2

46. To a bird in air, a fish in water appears to be at 30 cm from the surface. If the refractive index of water ($^{a}\mu_{w}$) is 4/3, then the true depth of the fish is
    (a) 30 cm
    (b) 45 cm
    (c) 40 cm
    (d) None of the above

47. Two sound waves are represented by y= a sin (ωt-kx) and y=a cos (ωt-kx); The phase difference between the two waves is
    (a) $\pi / 2$ (b) $\pi / 4$ (c) π (d) $3\pi /4$

48. A closed end organ pipe and an open end organ pipe have their first overtone identical in frequency. Their lengths are in the ratio
    (a) 1:2 (b) 2:3 (c) 3:4 (d) 4:5

49. When a charged particle moves perpendicular to a magnetic field, then
    (a) speed of the particle is changed
    (b) speed of the particle remains unchanged
    (c) direction of the particle remains unchanged
    (d) acceleration of the particle remains unchanged

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50. Electromagnets are made of soft iron because soft iron has

(a) low retentivity and low coercive field
(b) high retentivity and high coercive field
(c) low retentivity and high coercive field
(d) highretentivity and low coercive field

51. A superconductor exhibits perfect

(a) ferrimagnetism
(b) ferromagnetism
(c) paramagnetism
(d) diamagnetism

52. Which of the following is used to measure age of archeological sample?

(a) ${}_6C^{14}$
(b) ${}_6C^{12}$
(c) ${}_6C^{13}$
(d) Mixture of ${}_6C^{14}$, ${}_6C^{12}$

53. Temperature of 1 mole of a gas is increased by 1^0C at constant pressure. Work done is

(a) R
(b) 2R
(c) 3R
(d) R/2

54. The order of average velocity (C_a),root mean square velocity (C) and most probable velocity (C_m) is

(a) $C_m < C_a < C$
(b) $C_m > C_a > C$
(c) $C_m < C < C_a$
(d) $C < C_a < C_m$

55. Which of the following spectral series of hydrogen atom is in the visible region?

(a) Brackett
(b) Paschen
(c) Balmer
(d) Lyman

56. Which of the following metal does not dissolve in hydrochloric acid under normal condition?

(a) zinc
(b) aluminium
(c) copper
(d) magnesium

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57. Which of the following is better oxidising agent?
    (a) SnO_2
    (b) SiO_2
    (c) GeO_2
    (d) PbO_2

58. The correct order strength of Lewis acid of BF_3, BCl_3, BBr_3 and BI_3
    (a) $BF_3 > BCl_3 > BBr_3 > BI_3$
    (b) $BF_3 < BCl_3 < BBr_3 < BI_3$
    (c) $BF_3 > BCl_3 < BBr_3 < BI_3$
    (d) $BF_3 < BCl_3 > BBr_3 > BI_3$

59. Which of the following molecule is most reactive?
    (a) cycloheptane
    (b) clyclobutane
    (c) cyclopropane
    (d) cyclopentane

60. Which of the following is a better lubricant?
    (a) oleic acid
    (b) stearic acid
    (c) acetic acid
    (d) none of these

61. Dynamite is nitro compound of
    (a) toluene
    (b) benzene
    (c) glycol
    (d) glycerol

62. Which of the following does not have sharp melting point?
    (a) ice
    (b) glass
    (c) iron
    (d) gold

63. Haemoglobin of the blood forms carboxy haemoglobin with
    (a) CO_2
    (b) CO
    (c) SO_2
    (d) NO_2

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64. Gas with least calorific value is
(a) coal gas
(b) water gas
(c) producer gas
(d) natural gas

65. Phenol-formaldehyde is commercially known as
a) PVC
b) elastomer
c) Bakelite
d) Nylon

66. Natural rubber is a polymer of
(a) Propylene
(b) isoprene
(c) ethylene
(d) propene

67. The sum of all natural numbers lying between 100 and 1000, which are multiples of 5 is
(a) 94850
(b) 98450
(c) 95840
(d) 94580

68. The number of reflexive relations on a set containing n elements is

(a) 2^{n^2-n} (b) 2^{n^2+n}

(c) 2^{n^2-1} (d) 2^{n^2+1}

69. If $x = e^{y+e^{y+\ldots\infty}}$, $x > 0$, then $\frac{dy}{dx}$ is

(a) $\frac{x}{1+x}$ (b) $\frac{1}{x}$

(c) $\frac{1-x}{x}$ (d) $\frac{1+x}{x}$

70. A point on the parabola $y^2 = 18x$ at which the ordinate increases at twice the rate of the abscissa is

(a) $(2, 4)$ (b) $(2, -4)$

(c) $(-\frac{9}{8}, \frac{9}{2})$ (d) $(\frac{9}{8}, \frac{9}{2})$

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71. If $y = 1 + \frac{x}{1!} + \frac{x^2}{2!} + \frac{x^3}{3!} + ...$, then the value of $\frac{dy}{dx}$ is

(a) 0 (b) 1

(c) x (d) y

72. Find the value of x for which the points $(1, 3)$, $(-2, 9)$ and $(x, -1)$ are collinear

(a) -1 (b) -3

(c) 1 (d) 3

73. The area of the triangle whose vertices are $(2, 3), (3, 5)$ and $(7, 5)$ is

(a) 2 units (b) 3 units

(c) 4 units (d) 7 units

74. Two lines $3x + 4y = 8$ and $px + qy = n$ are perpendicular. Which of the following is true?

(a) $3p + 4q = 0$ (b) $4p + 3q = 0$

(c) $2p + 4q = 0$ (d) $3p + 2q = 0$

75. If the direction cosines of a line are $\frac{k}{3}, \frac{k}{3}, \frac{k}{3}$, then the value of k is

(a) $k > 0$ (b) $k = \pm 3$

(c) $k < 0$ (d) $k = \pm\sqrt{3}$

76. Let A be a matrix with order n and $A^3 - 3A^2 + 4A - 6I = 0$, where I is an unit matrix. If A^{-1} exists, then

(a) $A^{-1} = A - I$ (b) $A^{-1} = A + 6I$

(c) $A^{-1} = 3A - 6I$ (d) $A^{-1} = \frac{A^2 - 3A + 4I}{6}$

77. The system of equations $4x + 6y = 5,\ 8x + 12y = 10$ has

(a) unique solution (b) no solution

(c) infinitely many solutions (d) none of these

78. Which among the following does not belong to main types of integrals?

(a) Indefinite Integral (b) Proper Definite Integral

(c) Improper Definite Integral (d) Real Integral

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79.The inverse of a symmetric matrix (if it exists) is

(a) A symmetric matrix (b) A skew symmetric matrix

(c) A diagonal matrix (d) A triangular matrix

80. The value of $(1+\omega)(1+\omega^2)(1+\omega^4)(1+\omega^8).....$ up to $2n$ factors is

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

81. If a fair die is tossed twice,then the probability of getting a 4,5 or 6 on the first toss and a 1,2,3 or 4 on the second toss is

(a) $\frac{1}{2}$ (b) 1 (c) $\frac{1}{3}$ (d) $\frac{1}{4}$

82.If $P(AB)=\frac{1}{4}, P(A'B')=\frac{1}{5}, P(A)=P(B)=p$ then the value of p is

(a) $\frac{1}{40}$ (b) $\frac{11}{40}$ (c) $\frac{21}{40}$ (d) $\frac{31}{40}$

83. How many three digit natural numbers are there which when divided by 7 give remainder 5?

(a) 128 (b) 129 (c) 130 (d) None of these

84.**Referee**: I am sorry, but your last shot was out. When a tennis ball lands outside of the court boundaries without touching the line, then it is out.

Tennis Player: But my ball was not out. It seems that your calls are unfairly favouring the other player. If my last ball was out, then all of her shots that you called in over the past couple ofgames must have been out.

For the tennis player's argument to be logically correct, which of the following assumptions must be made?

(a) The referee is unfairly siding with her opponent

(b) Tennis is a game where it is impossible post facto to determine whether a ball landed out

(c) The referee was watching while the last point occurred

(d) Her last shot either hit the line or was within the court's boundaries

85. The last digit of $(2171)^7 + (2172)^9 + (2173)^{11} + (2174)^{13}$ is

(a) 2 (b) 4

(c) 6 (d) 8

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86.For what value of k is $(x + 1)$ a factor of$x^3 + kx^2 - x + 2$?

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

87. In a school every student is assigned a unique identification number. A student is a football player if and only if the identification number is divisible by 4, whereas a student is a cricketer if and only if the identification number is divisible by 6. If every number from 1 to 100 is assigned to a student, then how many of them play cricket as well as football?

(a) 4

(b) 8
(c) 10
(d) 12

88. If 1 $ 2 means 2 is father of 1;1 # 2 means 2 is mother of 1; 1 L 2 means 2 is sister of 1; and 1 @ 2 means 2 is husband of 1; then which of the following indicates relationship " R is grandmother of P"?

(a) P L Q # M $ R

(b) P @ Q $ M # R
(c) P $ Q # M @ R
(d) None of these

89. Six persons A, B, C, D, E and F are standing in a circle. B is between F and C, A is between E and D, F is to the left of D. Who is between A and F?

(a) B

(b) C
(c) D
(d) E

90. Select the pair from the option that has the same relationship as the original pair of words:
YAWN : BOREDOM

(a) Anger : Madness
(b) Smile : Amusement
(c) Dream : Sleep
(d) Impatience : Rebellion

91. Walking at 5km/hour, you reach the office from your house 15 minutes early and walking at 3km/hour, you are late by 9 minutes. The distance between your house and officeis

(a) 5km
(b) 2km
(c) 3km
(d) 6km

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92. A line A is perpendicular to line B and parallel to line C. Line D is perpendicular to both lines E and F. If line A is perpendicular to line E which one of the following statement is correct?

(a) C,D and F are parallel
(b) A,D and C are parallel
(c) C is perpendicular to A
(d) B and E are parallel and perpendicular to F

93. Y is twice as old as X but twice younger than S. Z is half the age of X but is twice older than W. Who is the second oldest?

(a) X
(b) Z
(c) Y
(d) W

94. A wheel makes 4000 revolution in covering a distance of 60 km. Then the radius of the wheel is

(a) 8.10 m
(b) 4.65 m
(c) 2.39 m
(d) 3.25 m

95. Find y in the following sequence
1, 4, 17, 86, 517, y
(a) 3620
(b) 1824
(c) 2018
(d) 2482

96. A sheet is in the shape of a rectangle with sides 10cm and 5cm. A part of the sheet in the shape of an isosceles right-angled triangle with hypotenuse $5\sqrt{2}$cm is cut from the rectangular sheet. What is the area of the remaining sheet?

(a) 25 sq.cm
(b) $25\sqrt{2}$ sq.cm
(c) 37.5 sq.cm
(d) It depends on where exactly it is cut from

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Directions (Question Nos.97 to 100): The following table shows the number of new students added to different engineering fields in a college and also the number of students graduated from these categories of engineering every year since the foundation of the College in 2015.

Year	Mechanical		Electronics		Computer		Civil		Production	
	New Joinees	Graduated	New Joinees	Graduated	New Joinees	Graduated	New Joinees	Graduated	New Joinees	Graduated
2015	760	-	1200	-	880	-	1160	-	820	-
2016	280	120	272	120	256	104	200	100	184	96
2017	179	92	240	128	240	120	224	104	152	88
2018	148	88	236	96	208	100	248	96	196	80
2019	160	72	256	100	192	112	272	88	224	120
2020	193	96	288	112	248	144	260	92	200	104

97. What is the difference between the total number of electronics engineers added to the College and the total number of Civil engineers added to the College during the years 2016 to 2020?
    (a) 128
    (b) 112
    (c) 96
    (d) 88

98. What was the total number of production engineering students in the College in year 2019?
    (a) 1312
    (b) 1192
    (c) 968
    (d) 1088

99. For which of the following field the percentage increase in the number of engineering students in the College from 2015 to 2020 was the maximum?
    (a) Mechanical
    (b) Electronics
    (c) Computer
    (d) Civil

100. During the period between 2015 and 2020, the total number of computer students who graduated from the College is approximately what percent of total number of computer students who joined the College?
    (a) 19%
    (b) 21%
    (c) 27%
    (d) 29%

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101. Three machines, AA, BB and CC, can each produce a product P, independently, but with different efficiencies. AA alone can produce 40 units of P per day, AA and BB can together produce 65 units of P per day, BB and CC can together produce 80 units of P per day. How much can AA, BB and CC together produce per day?

(a) 120
(b) 145
(c) 105
(d) None of the above

102. The operation * is defined on English alphabets, and following are some examples, with "=" having the same meaning "is equal to" as for numbers.

A*D = 2, H*H = 8, and C*L = 6. Then

(a) J*J = E*T = D*Y
(b) J*J = E*T, but not equal to D*Y
(c) J*J = D*Y, but not equal to D*Y
(d) E*T = D*Y, but not equal to J*J

103. A negatively sloped demand curve means that _____

(a)the price elasticity of demand is negative
(b)demand is elastic
(c)demand is inelastic
(d)demand is unitary

104. The major difference between an inventory management system and a logistics system is that the _____

(a) inventory management system is more concerned with supplier-retailer linkages
(b)inventory management system does not consider the impact of lost business due to stockouts
(c) inventory management system also includes purchasing and customer service considerations
(d)logistics system also includes purchasing and customer service considerations

105. The management approach, which draws together concepts, principles, techniques and knowledge from other fields and managerial approaches, is called as

(a) Systems approach
(b) Decision Theory approach
(c) Management Science approach
(d) Operational approach

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106. Shiv and Sarah, newly weds, are considering the purchase of their first house. They are very involved with this purchase decision, particularly because they will be spending their entire savings on this purchase. They have been searching for information on the Internet and asking for opinions from friends and family. Which of the following decision-making approaches are they most likely employing?

(a) Experiential decision making
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(c) Routine decision making
(d) Extended decision making

107. Natraj is a well-known store that sells writing material. The company faces strong competition from the electronic media. If the company thinks of itself merely as a paper company instead of a company that delivers the benefits users want, it could be taking a short-sighted view of its business. That is, Natraj could suffer from _____.

(a) brain drain
(b)cognitive dissonance
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(d)marketing myopia

108. According to the Customer Relationship Management (CRM) orientation:

(a)a strong, or high-quality, relationship is typified by a consumer who buys different brands of a product each time a need for that product arises
(b)customers who switch providers each time they make a purchase tend to be more profitable than loyal customers due to their wide range of purchases
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(a)are made by groups rather than individuals
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111. You have an employee who has worked with you regularly for ten years. You both have enough experience working with each other to know what to expect of each other. This is an example of:

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115. What is full form of OEM?

(a) Original Equipment Manufacturer
(b) Oriental Equipment Manufacturer
(c) Original Emergency Manufacturer
(d) Original Equipment Machine

116. Which pharma company has developed India's first mRNA vaccine?

(a) GennovaBiopharmaceuticals
(b) Serum Institute
(c) CiplaPharma
(d) Ranbaxy

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117. Which among the following diseases is not caused by a virus ?

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(b) Hepatitis

(c) Cholera

(d) Dengue

118. Which among the following causes 'Dumdum Fever' or Kala Azar?

(a) Bacteria

(b) Fungi

(c) protozoa

(d) Virus

119. Melissa Woods was recently hired as the campaign manager at an environmental organization. She has a degree in environmental sustainability and possesses substantial knowledge about the issue of global warming. She has the knowledge to lead the public relations team of the organization. However, a few months later, the board of directors of the organization expressed dissatisfaction with Melissa's performance and asked her to resign. Which of the following, if true, best explains this situation?

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(a) It involves the study of groups of people coming together for collective bargaining
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PUNJAB PUBLIC SERVICE COMMISSION

Objective Type Test (June-2022) for Recruitment tothe post of Assistant Director/ Assistant Controller of Stores/Store Inspection Officer/Functional Manager in the Department of Industries and Commerce, Govt. of Punjab

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

Total Questions: 120
Time Allowed: 2 Hours

Candidate's Name _____

Father's Name _____

Date of Birth ☐☐ ☐☐ ☐☐☐☐

DD MM YYYY

OMR Response Sheet No. _____

Roll No. _____

Candidate's Signature (Please sign in the box)

Question Booklet Set
C
Booklet Series

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 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 26pages.

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 no negative marking.

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.

1. A negatively sloped demand curve means that _____

(a) the price elasticity of demand is negative
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2. The major difference between an inventory management system and a logistics system is that the _____

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19. With reference to the Prime Minister's Employment Generation Programme (PMEGP) choose the correct option:
    1. It is a centrally sponsored scheme which aims at employment generation
    2. Khadi and Village Industries Commission (KVIC) is the implementing agency for Prime Minister Employment Generation Programme (PMEGP) at the National Level
        (a) Only (i)
        (b) Only (ii)
        (c) Both (i) and (ii)
        (d) Neither (i) nor (ii)

20. Consider the following salient features of Prime Minister's Employment Generation Programme (PMEGP):
    1. It is a credit linked subsidy Scheme
    2. It has been launched by merging 2 schemes: Prime Minister RojgarYojana (PMRY) and Rural Employment Generation Programme (REGP)
    3. Per capita investment must not be higher than ₹ 2 lakh in Plain Areas, and ₹ 2.5 lakh in Hilly Areas

    Which of the statements given above are correct?
        (a) 1 and 2 only
        (b) 1 and 3 only
        (c) 2 and 3 only
        (d) 1,2 and 3

21. Consider the following statements about Khadi and Village Industries Commission (KVIC):
    1. Khadi and Village Industries Commission (KVIC) is a statutory body under the KVIC Act of 1956 to promote Micro, Small and Medium Enterprises (MSMEs) in rural and remote areas.
    2. KVIC plans to promote, organizes, and implements programmes for the development of Khadi and other village industries in rural areas nationwide.
    3. It functions under the Ministry of MSME.
    4. Scheme of Fund Regeneration of Traditional Industries (SFURTI) is one of the major schemes of KVIC

    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

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22. A Scheme for Promotion of Innovation, Rural Industries and Entrepreneurship (ASPIRE) was launched to

(a) set up incubation centers to accelerate entrepreneurship and also to promote start-ups for innovation in agro-industry
(b) provide sustained employment for traditional industry artisans and rural entrepreneurs
(c) plan, promote, organise and implement programmes for the development of Khadi and other village industries in the rural areas
(d) facilitate potters to get bank loans under PradhanMantriShishu Mudra Yojana

23. Which of the following isnot a component of ASPIRE Scheme?

(a) Livelihood Business Incubation (LBI)
(b) Technology Business Incubation (TBI)
(c) Start-up Promotion through Small Industries Development Bank of India (SIDBI)
(d) Entrepreneurship Development Programme (EDP)

24. In which year did the Government of Punjab launch the Industrial and Business Development Policy to promote industrial development and nurture the growth of the start-up ecosystem in the state?

(a) 2017
(b) 2015
(c) 2012
(d) 2018

25. Who designed the logo of Make in India?
(a) Interband
(b) Kennedy &Wieden
(c) Wolff Olins
(d) VyasGiannetti Creative

26. Consider the following statements about Make in India:
1. The aim of Make in India is creation of appropriate skill sets among rural migrants and the urban poor for inclusive growth.
2. Department of Promotion of Industry and Internal Trade under Ministry of Commerce and Industry is the nodal agency for its implementation.
3. It was launched on September 25, 2018.
4. Make in India is a national programme designed to transform India into a global manufacturing hub.

Which of the statements given above are correct?
(a) 1 and 4 Only
(b) 1, 2 and 3 Only
(c) 1,2 and 4 Only
(d) 1, 2 and 3 only

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27. Which French company under the 'Make in India' banner will make 800 high horsepower electric locomotives in factory atMadhepura, Bihar?
    (a) Rafale
    (b) Alstom
    (c) CNES
    (d) None of the above

28. Which of the followingis not true about Punjab Bureau of Investment Promotion (Invest Punjab)?
    (a) Punjab Bureau of Investment Promotion has been established in 2015 by the Government of Punjab.
    (b) The Bureau was established wherein the concurrent powers of key departments were bought under a single roof for granting statutory clearances.
    (c) As the nodal agency, Invest Punjab has been entrusted with the responsibility to facilitate trade and investment opportunities and creating value for the investors in the State of Punjab.
    (d) Punjab Bureau of Investment Promotion has been established to promote infrastructure in the State of Punjab.

29. Consider the following about PradhanMantriKaushalVikasYojana (PMKVY) 3.0
    1. This Yojana has been launched for the tenure 2020-21
    2. This Yojana has been launched in 28 States/UTs covering 717 districts across the country
    3. This Yojana is also celebrated as World Youth Skills Day
    4. This is the third phase of the PMKVY since its launch in the year 2015

Which of the following is/are not applicable about PradhanMantriKaushalVikasYojana (PMKVY) 3.0?
    (a) 1 only
    (b) 3 only
    (c) Both 2 and 3
    (d) Both 3 and 4

30. Consider the following statements about the Ministry of Electronics and Information Technology:
    1. The Ministry of Electronics and Information Technology was previously known as "The Department of Information Technology".
    2. The Department of Information Technology was renamed to The Department of Electronics and Information Technology in 2012.
    3. In 2018, the Ministry of Electronics and Information Technology was bifurcated from the Ministry of Communications and Information Technology.
    4. The Ministry of Electronics and Information Technology is an executive agency of the Union Government of the Republic of 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

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31. What is the punishment for hacking computers?
    (a) Three-year imprisonment or ₹ 10 lakh penalty or both
    (b) Three-year imprisonment or ₹ 5 lakh penalty or both
    (c) Three-year imprisonment or ₹ 2 lakh penalty or both
    (d) Life imprisonment

32. Who invented food processing?
    (a) Nicolas Appert
    (b) NusliWadia
    (c) Peter Brabeck-Letmathe
    (d) Thomas Jefferson

33. Under the "One District, One Product (ODOP) initiative" of the Ministry of Commerce and Industry, which item was recently flagged off from Budgam district of Jammu and Kashmir to Bengaluru, Karnataka
    (a) Apples
    (b) Walnuts
    (c) Pears
    (d) Cherry

34. Which of the following is not true?
    (a) Basmati rice has gained international recognition
    (b) Wine industry is gaining support in India, especially Maharashtra
    (c) Dairy industry in India is the largest in the world
    (d) None of the above

35. Consider the following pairs:
    1. Indian Veterinary Research Institute — Bareilly
    2. National Sugar Institute (NSI) — Kanpur
    3. Central Food Technological Research Institute —Banglore

Which of the above statements is/are correct?
    (a) 1 and 2 only
    (b) 3 only
    (c) 2 and 3 only
    (d) 1, 2 and 3

36. With respect to the upstream and downstream industries in Food Processing Units, consider the following observations:

    (i) While farmers are parts of upstream industry, collection centres are part of downstream industry
    (ii) Initial processing of food material is done in downstream industries

Select the correct option from the codes given below:
    (a) Only (i)
    (b) Only (ii)
    (c) Both (i) and (ii)
    (d) Neither (i) nor (ii)

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37. Which one of the following is the prescribed investment limit for medium enterprises in the manufacturing sector as per the Micro, Small and Medium Enterprises Development Act 2006?
(a) More than ₹ 10 lakhs and less than ₹ 2 crores
(b) More than ₹ 2 crores and less than ₹ 5 crores
(c) More than ₹ 5 crores and less than ₹ 10 crores
(d) More than ₹ 10 crores

38. As per the revised classification applicable w.e.f. July 1, 2020, the annual turnover of small enterprise will not be more than
(a) ₹ 50 crores
(b) ₹ 15 crores
(c) ₹ 20 crores
(d) ₹ 16 crores

39. Consider the following statements:
1. Karve Committee is related to the Micro, Small and Medium Enterprises (MSME) Sector
2. Village and Small-scale Industries Committee is also called the Karve Committee
3. The Micro, Small and Medium Enterprises (MSME) are classified into two enterprises as per the Micro, Small and Medium Enterprises Development (MSMED) Act, 2006

Which of the above statements is/are incorrect?

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

40. The Primary Financial Institution for promoting, developing and financing Micro, Small and Medium Enterprise (MSME) sector is:

(a) Small Industries Development Bank of India (SIDBI)
(b) Industrial Development Bank of India (IDBI)
(c) Industrial Finance Corporation of India (IFCI)
(d) Industrial Credit and Investment Corporation of India (ICICI)

41. Which of the following is not a primary chemical?
(a) Alcohol
(b) Acetone
(c) Acetic acid
(d) Benzene

42. Which of the following is the simplest aromatic hydrocarbon?
(a) nitrobenzene
(b) cyclohexane
(c) cumene
(d) benzene

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43. The prestigious Golden Peacock Environment Management Award for the year 2020 has been awarded to:

(a)Steel Authority of India Limited (SAIL)
(b)Gas Authority of India Limited (GAIL)
(c) Oil and Natural Gas Corporation Limited (ONGC)
(d) Power Grid Corporation of India Limited (PGCI)

44. Under which compound name is the liquid petroleum gas (LPG) sold?

(a) Urea
(b) Ethylene
(c) Benzoyl peroxide
(d) Butane

45. In which state the National Institute of Secondary Steel Technology (NISST) is set up?

(a) Punjab
(b) Madhya Pradesh
(c) Tamil Nadu
(d) Jharkhand

46. Which state is the largest producer of natural gas in India?

(a) Assam
(b) Gujarat
(c) Rajasthan
(d) Tamil Nadu

47. Which ministry is implementing Samarth Scheme for Capacity Building?

(a) Ministry of Textiles
(b) Ministry of steel
(c) Ministry of Social Justice and Empowerment.
(d) Ministry of Youth Affairs and Sports

48. Which of the following are examples of 'Sunrise Industries'?

1. Automobile industry
2. Fitness, wellness and health industry
3. Hospitality industry
4. Textile industry

Select the correct option:

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

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49. Which one of the following is not an industrial corridor as per the policy initiatives?
(a) Amritsar - Kolkota
(b) Delhi - Mumbai
(c) Kolkata – Guwahati
(d) Chennai – Bengaluru

50. The fundamental criteria to identify industrial sickness is
1. continuous direct loss of income for one year or more
2. highlabour-turnover ratio
3. increase in debt-to-equity ratio
4. reduction in net property assets

Choose the correct option from the following:
(a) 1 and 2 only
(b) 2 and 3 only
(c) 3 and 4 only
(d) 1 and 3 only

51. SAMPADA scheme is related to
(a) Empowering women through microfinance
(b) Agricultural credit to small farmers
(c) Agro-food processing industry
(d) Providing loans for development of textile industries

52. In 2021, which of the following industries are reserved exclusively for the public sector?
(a) Atomic energy generation
(b) Defence equipment
(c) Railway transport
(d) All of the above

53. India with which of the following countries has signed MOC to strengthen cooperation in steel sector?
(a) Japan
(b) UAE
(c) Russia
(d) USA

54. Which city is called the “Manchester of Rajasthan”?
(a) Kota
(b) Pali
(c) Bhilwara
(d) Alwar

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55. Whichof the following art form of Punjab is believed to be auspicious, a symbol of happiness, prosperity and Suhag of a married woman?

(a) Phulkari
(b) BaghKashidakari
(c) Kashida
(d) Banni and Heer Bharat

56. Which is the Indian state with the highest number of power-looms?

(a) Gujarat
(b) Madhya Pradesh
(c) Maharashtra
(d) Tamil Nadu

57. A player stops a football weighing 0.5 kg which comes flying towards him with a velocity of 10 m/s. If the impact lasts for 1/50th sec. and the ball bounces back with a velocity of 15 m/s, then the average force involved is

(a) 250 N
(b) 1250 N
(c) 500 N
(d) 625 N

58. A block at rest explodes into three parts of the same mass. The momentum of the two parts are -2p $\hat{i}$ and p $\hat{j}$. The momentum of the third part will have a magnitude

(a) p
(b) $p\sqrt{3}$
(c) $p\sqrt{5}$
(d)zero

59. Mr. Ramesh Narayan pulls a chain of mass m and length L hanging vertically downwards from a roof top. The work done by him is

(a) 1/2 Mg L
(b) Mg L
(c) 1/2 Mg L^2
(d) Mg L^2

60. If the distance between the sun and the earth is increased by three times, then attraction between the two will

(a) Remain constant
(b) Decreased by 63%
(c) Decreased by 83%
(d) Decreased by 89%

61. A sheet of aluminium foil of negligible thickness is introduced between the plates of a capacitor. The capacitance of the capacitor:

(a) increases
(b) decreases
(c) becomes infinite
(d) remains unchanged

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62. If the length and area of cross-section of a conductor are doubled, then its resistance is
    (a) Unchanged
    (b) Halved
    (c) Doubled
    (d) Quadrupled

63. A small lamp is hung at a height of 8m above the centre of a round table of diameter 16 m.The ratio of intensities of illumination at the centre and at a point on the circumference of the table will be
    (a) 1:1
    (b) 2:1
    (c) $2\sqrt{2}$:1
    (d) 3:2

64. To a bird in air, a fish in water appears to be at 30 cm from the surface. If the refractive index of water ($^{a}\mu_{w}$) is 4/3, then the true depth of the fish is
    (a) 30 cm
    (b) 45 cm
    (c) 40 cm
    (d) None of the above

65. Two sound waves are represented by y= a sin (ωt-kx) and y=a cos (ωt-kx); The phase difference between the two waves is
    (a) π / 2 (b) π / 4 (c) π (d) 3π /4

66. A closed end organ pipe and an open end organ pipe have their first overtone identical in frequency. Their lengths are in the ratio
    (a) 1:2 (b) 2:3 (c) 3:4 (d) 4:5

67. When a charged particle moves perpendicular to a magnetic field, then
    (a) speed of the particle is changed
    (b) speed of the particle remains unchanged
    (c) direction of the particle remains unchanged
    (d) acceleration of the particle remains unchanged

68. Electromagnets are made of soft iron because soft iron has
    (a) low retentivity and low coercive field
    (b) high retentivity and high coercive field
    (c) low retentivity and high coercive field
    (d) highretentivity and low coercive field

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69. A superconductor exhibits perfect

(a) ferrimagnetism
(b) ferromagnetism
(c) paramagnetism
(d) diamagnetism

70. Which of the following is used to measure age of archeological sample?

(a) ${}_6C^{14}$
(b) ${}_6C^{12}$
(c) ${}_6C^{13}$
(d) Mixture of ${}_6C^{14}$, ${}_6C^{12}$

71. Temperature of 1 mole of a gas is increased by 1^0C at constant pressure. Work done is

(a) R
(b) 2R
(c) 3R
(d) R/2

72. The order of average velocity (C_a),root mean square velocity (C) and most probable velocity (C_m) is

(a) $C_m < C_a < C$
(b) $C_m > C_a > C$
(c) $C_m < C < C_a$
(d) $C < C_a < C_m$

73. Which of the following spectral series of hydrogen atom is in the visible region?

(a) Brackett
(b) Paschen
(c) Balmer
(d) Lyman

74. Which of the following metal does not dissolve in hydrochloric acid under normal condition?

(a) zinc
(b) aluminium
(c) copper
(d) magnesium

75. Which of the following is better oxidising agent?

(a) SnO_2
(b) SiO_2
(c) GeO_2
(d) PbO_2

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76. The correct order strength of Lewis acid of BF_3, BCl_3, BBr_3 and BI_3
    (a) $BF_3 > BCl_3 > BBr_3 > BI_3$
    (b) $BF_3 < BCl_3 < BBr_3 < BI_3$
    (c) $BF_3 > BCl_3 < BBr_3 < BI_3$
    (d) $BF_3 < BCl_3 > BBr_3 > BI_3$

77. Which of the following molecule is most reactive?
    (a) cycloheptane
    (b) clyclobutane
    (c) cyclopropane
    (d) cyclopentane

78. Which of the following is a better lubricant?
    (a) oleic acid
    (b) stearic acid
    (c) acetic acid
    (d) none of these

79. Dynamite is nitro compound of
    (a) toluene
    (b) benzene
    (c) glycol
    (d) glycerol

80. Which of the following does not have sharp melting point ?
    (a) ice
    (b) glass
    (c) iron
    (d) gold

81. Haemoglobin of the blood forms carboxy haemoglobin with
    (a) CO_2
    (b) CO
    (c) SO_2
    (d) NO_2

82. Gas with least calorific value is
    (a) coal gas
    (b) water gas
    (c) producer gas
    (d) natural gas

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83. Phenol-formaldehyde is commercially known as
   a) PVC
   b) elastomer
   c) Bakelite
   d) Nylon

84. Natural rubber is a polymer of
   (a) Propylene
   (b) isoprene
   (c) ethylene
   (d) propene

85. The sum of all natural numbers lying between 100 and 1000, which are multiples of 5 is
   (a) 94850
   (b) 98450
   (c) 95840
   (d) 94580

86. The number of reflexive relations on a set containing n elements is

   (a) 2^{n^2-n} (b) 2^{n^2+n}

   (c) 2^{n^2-1} (d) 2^{n^2+1}

87. If $x = e^{y+e^{y+\cdots\infty}}$, $x > 0$, then $\frac{dy}{dx}$ is

   (a) $\frac{x}{1+x}$ (b) $\frac{1}{x}$

   (c) $\frac{1-x}{x}$ (d) $\frac{1+x}{x}$

88. A point on the parabola $y^2 = 18x$ at which the ordinate increases at twice the rate of the abscissa is

   (a) $(2, 4)$ (b) $(2, -4)$

   (c) $(-\frac{9}{8}, \frac{9}{2})$ (d) $(\frac{9}{8}, \frac{9}{2})$

89. If $y = 1 + \frac{x}{1!} + \frac{x^2}{2!} + \frac{x^3}{3!} + \ldots$, then the value of $\frac{dy}{dx}$ is

   (a) 0 (b) 1

   (c) x (d) y

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90. Find the value of x for which the points $(1, 3)$, $(-2, 9)$ and $(x, -1)$ are collinear

(a) -1 (b) -3

(c) 1 (d) 3

91. The area of the triangle whose vertices are $(2, 3), (3, 5)$ and $(7, 5)$ is

(a) 2 units (b) 3 units

(c) 4 units (d) 7 units

92. Two lines $3x + 4y = 8$ and $\mathrm{p\,x + q\,y = n}$ are perpendicular. Which of the following is true?

(a) $3p + 4q = 0$ (b) $4p + 3q = 0$

(c) $2p + 4q = 0$ (d) $3p + 2q = 0$

93. If the direction cosines of a line are $\frac{k}{3}, \frac{k}{3}, \frac{k}{3}$, then the value of k is

(a) $\mathrm{k} > 0$ (b) $k = \pm 3$

(c) $\mathrm{k} < 0$ (d) $k = \pm\sqrt{3}$

94. Let A be a matrix with order n and $A^3 - 3A^2 + 4A - 6I = 0$, where I is an unit matrix. If A^{-1} exists, then

(a) $A^{-1} = A - I$ (b) $A^{-1} = A + 6I$

(c) $A^{-1} = 3A - 6I$ (d) $A^{-1} = \frac{A^2 - 3A + 4I}{6}$

95. The system of equations $4x + 6y = 5,\ 8x + 12y = 10$ has

(a) unique solution (b) no solution

(c) infinitely many solutions (d) none of these

96. Which among the following does not belong to main types of integrals?

(a) Indefinite Integral (b) Proper Definite Integral

(c) Improper Definite Integral (d) Real Integral

97. The inverse of a symmetric matrix (if it exists) is

(a) A symmetric matrix (b) A skew symmetric matrix

(c) A diagonal matrix (d) A triangular matrix

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98. The value of $(1+\omega)(1+\omega^2)(1+\omega^4)(1+\omega^8).....$ up to $2n$ factors is

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

99. If a fair die is tossed twice,then the probability of getting a 4,5 or 6 on the first toss and a 1,2,3 or 4 on the second toss is

(a) $\frac{1}{2}$ (b) 1 (c) $\frac{1}{3}$ (d) $\frac{1}{4}$

100.If $P(AB)=\frac{1}{4}, P(A'B')=\frac{1}{5}, P(A)=P(B)=p$ then the value of p is

(a) $\frac{1}{40}$ (b) $\frac{11}{40}$ (c) $\frac{21}{40}$ (d) $\frac{31}{40}$

101. How many three digit natural numbers are there which when divided by 7 give remainder 5?

(a) 128 (b) 129 (c) 130 (d) None of these

102.**Referee**: I am sorry, but your last shot was out. When a tennis ball lands outside of the court boundaries without touching the line, then it is out.

Tennis Player: But my ball was not out. It seems that your calls are unfairly favouring the other player. If my last ball was out, then all of her shots that you called in over the past couple ofgames must have been out.

For the tennis player's argument to be logically correct, which of the following assumptions must be made?

(a) The referee is unfairly siding with her opponent
(b) Tennis is a game where it is impossible post facto to determine whether a ball landed out
(c) The referee was watching while the last point occurred
(d) Her last shot either hit the line or was within the court's boundaries

103. The last digit of $(2171)^7 + (2172)^9 + (2173)^{11} + (2174)^{13}$ is

(a) 2 (b) 4
(c) 6 (d) 8

104.For what value of k is $(x + 1)$ a factor of$x^3 + kx^2 - x + 2$?

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

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105. In a school every student is assigned a unique identification number. A student is a football player if and only if the identification number is divisible by 4, whereas a student is a cricketer if and only if the identification number is divisible by 6. If every number from 1 to 100 is assigned to a student, then how many of them play cricket as well as football?

(a) 4
(b) 8
(c) 10
(d) 12

106. If 1 $ 2 means 2 is father of 1;1 # 2 means 2 is mother of 1; 1 L 2 means 2 is sister of 1; and 1 @ 2 means 2 is husband of 1; then which of the following indicates relationship " R is grandmother of P"?

(a) P L Q # M $ R
(b) P @ Q $ M # R
(c) P $ Q # M @ R
(d) None of these

107. Six persons A, B, C, D, E and F are standing in a circle. B is between F and C, A is between E and D, F is to the left of D. Who is between A and F?

(a) B
(b) C
(c) D
(d) E

108. Select the pair from the option that has the same relationship as the original pair of words: YAWN : BOREDOM

(a) Anger : Madness
(b) Smile : Amusement
(c) Dream : Sleep
(d) Impatience : Rebellion

109. Walking at 5km/hour, you reach the office from your house 15 minutes early and walking at 3km/hour, you are late by 9 minutes. The distance between your house and officeis

(a) 5km
(b) 2km
(c) 3km
(d) 6km

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110. A line A is perpendicular to line B and parallel to line C. Line D is perpendicular to both lines E and F. If line A is perpendicular to line E which one of the following statement is correct?

(a) C,D and F are parallel
(b) A,D and C are parallel
(c) C is perpendicular to A
(d) B and E are parallel and perpendicular to F

111. Y is twice as old as X but twice younger than S. Z is half the age of X but is twice older than W. Who is the second oldest?

(a) X
(b) Z
(c) Y
(d) W

112. A wheel makes 4000 revolution in covering a distance of 60 km. Then the radius of the wheel is

(a) 8.10 m
(b) 4.65 m
(c) 2.39 m
(d) 3.25 m

113. Find y in the following sequence

1, 4, 17, 86, 517, y

(a) 3620
(b) 1824
(c) 2018
(d) 2482

Directions (Question Nos.114 to 117): The following table shows the number of new students added to different engineering fields in a college and also the number of students graduated from these categories of engineering every year since the foundation of the College in 2015.

Year	Mechanical		Electronics		Computer		Civil		Production	
	New Joinees	Graduated	New Joinees	Graduated	New Joinees	Graduated	New Joinees	Graduated	New Joinees	Graduated
2015	760	-	1200	-	880	-	1160	-	820	-
2016	280	120	272	120	256	104	200	100	184	96
2017	179	92	240	128	240	120	224	104	152	88
2018	148	88	236	96	208	100	248	96	196	80
2019	160	72	256	100	192	112	272	88	224	120
2020	193	96	288	112	248	144	260	92	200	104

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114. What is the difference between the total number of electronics engineers added to the College and the total number of Civil engineers added to the College during the years 2016 to 2020?
   (a) 128
   (b) 112
   (c) 96
   (d) 88

115. What was the total number of production engineering students in the College in year 2019?
   (a) 1312
   (b) 1192
   (c) 968
   (d) 1088

116. For which of the following field the percentage increase in the number of engineering students in the College from 2015 to 2020 was the maximum?
   (a) Mechanical
   (b) Electronics
   (c) Computer
   (d) Civil

117. During the period between 2015 and 2020, the total number of computer students who graduated from the College is approximately what percent of total number of computer students who joined the College?
   (a) 19%
   (b) 21%
   (c) 27%
   (d) 29%

118. A sheet is in the shape of a rectangle with sides 10cm and 5cm. A part of the sheet in the shape of an isosceles right-angled triangle with hypotenuse $5\sqrt{2}$cm is cut from the rectangular sheet. What is the area of the remaining sheet?

   (a) 25 sq.cm
   (b) $25\sqrt{2}$ sq.cm
   (c) 37.5 sq.cm
   (d) It depends on where exactly it is cut from

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119. Three machines, AA, BB and CC, can each produce a product P, independently, but with different efficiencies. AA alone can produce 40 units of P per day, AA and BB can together produce 65 units of P per day, BB and CC can together produce 80 units of P per day. How much can AA, BB and CC together produce per day?

(a) 120
(b) 145
(c) 105
(d) None of the above

120. The operation * is defined on English alphabets, and following are some examples, with "=" having the same meaning "is equal to" as for numbers.

A*D = 2, H*H = 8, and C*L = 6. Then

(a) J*J = E*T = D*Y
(b) J*J = E*T, but not equal to D*Y
(c) J*J = D*Y, but not equal to D*Y
(d) E*T = D*Y, but not equal to J*J

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PUNJAB PUBLIC SERVICE COMMISSION

Objective Type Test (June-2022) for Recruitment tothe post of Assistant Director/ Assistant Controller of Stores/Store Inspection Officer/Functional Manager in the Department of Industries and Commerce, Govt. of Punjab

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

Total Questions: 120
Time Allowed: 2 Hours

Candidate's Name _____

Father's Name _____

Date of Birth ☐☐ ☐☐ ☐☐☐☐

DD MM YYYY

OMR Response Sheet No. _____

Roll No. _____

Candidate's Signature (Please sign in the box)

Question Booklet Set
D
Booklet Series

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 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 26 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 no negative marking.

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.

1. How many three digit natural numbers are there which when divided by 7 give remainder 5?

(a) 128 (b) 129 (c) 130 (d) None of these

2.**Referee**: I am sorry, but your last shot was out. When a tennis ball lands outside of the court boundaries without touching the line, then it is out.

Tennis Player: But my ball was not out. It seems that your calls are unfairly favouring the other player. If my last ball was out, then all of her shots that you called in over the past couple ofgames must have been out.

For the tennis player's argument to be logically correct, which of the following assumptions must be made?

(a) The referee is unfairly siding with her opponent
(b) Tennis is a game where it is impossible post facto to determine whether a ball landed out
(c) The referee was watching while the last point occurred
(d) Her last shot either hit the line or was within the court's boundaries

3. The last digit of $(2171)^7 + (2172)^9 + (2173)^{11} + (2174)^{13}$ is

(a) 2 (b) 4
(c) 6 (d) 8

4.For what value of k is $(x + 1)$ a factor of$x^3 + kx^2 - x + 2$?

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

5. In a school every student is assigned a unique identification number. A student is a football player if and only if the identification number is divisible by 4, whereas a student is a cricketer if and only if the identification number is divisible by 6. If every number from 1 to 100 is assigned to a student, then how many of them play cricket as well as football?

(a) 4
(b) 8
(c) 10
(d) 12

6. If 1 $ 2 means 2 is father of 1;1 # 2 means 2 is mother of 1; 1 L 2 means 2 is sister of 1; and 1 @ 2 means 2 is husband of 1; then which of the following indicates relationship " R is grandmother of P"?
(a) P L Q # M $ R
(b) P @ Q $ M # R
(c) P $ Q # M @ R
(d) None of these

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7. Six persons A, B, C, D, E and F are standing in a circle. B is between F and C, A is between E and D, F is to the left of D. Who is between A and F?

(a) B
(b) C
(c) D
(d) E

8. Select the pair from the option that has the same relationship as the original pair of words:
YAWN : BOREDOM

(a) Anger : Madness
(b) Smile : Amusement
(c) Dream : Sleep
(d) Impatience : Rebellion

9. Walking at 5km/hour, you reach the office from your house 15 minutes early and walking at 3km/hour, you are late by 9 minutes. The distance between your house and officeis

(a) 5km
(b) 2km
(c) 3km
(d) 6km

10. A line A is perpendicular to line B and parallel to line C. Line D is perpendicular to both lines E and F. If line A is perpendicular to line E which one of the following statement is correct?

(a) C,D and F are parallel
(b) A,D and C are parallel
(c) C is perpendicular to A
(d) B and E are parallel and perpendicular to F

11. Y is twice as old as X but twice younger than S. Z is half the age of X but is twice older than W. Who is the second oldest?

(a) X
(b) Z
(c) Y
(d) W

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12. A wheel makes 4000 revolution in covering a distance of 60 km. Then the radius of the wheel is
    (a) 8.10 m
    (b) 4.65 m
    (c) 2.39 m
    (d) 3.25 m

13. Find y in the following sequence
    1, 4, 17, 86, 517, y
    (a) 3620
    (b) 1824
    (c) 2018
    (d) 2482

Directions (Question Nos.14 to 17): The following table shows the number of new students added to different engineering fields in a college and also the number of students graduated from these categories of engineering every year since the foundation of the College in 2015.

Year	Mechanical		Electronics		Computer		Civil		Production	
	New Joinees	Graduated	New Joinees	Graduated	New Joinees	Graduated	New Joinees	Graduated	New Joinees	Graduated
2015	760	-	1200	-	880	-	1160	-	820	-
2016	280	120	272	120	256	104	200	100	184	96
2017	179	92	240	128	240	120	224	104	152	88
2018	148	88	236	96	208	100	248	96	196	80
2019	160	72	256	100	192	112	272	88	224	120
2020	193	96	288	112	248	144	260	92	200	104

14. What is the difference between the total number of electronics engineers added to the College and the total number of Civil engineers added to the College during the years 2016 to 2020?
    (a) 128
    (b) 112
    (c) 96
    (d) 88

15. What was the total number of production engineering students in the College in year 2019?
    (a) 1312
    (b) 1192
    (c) 968
    (d) 1088

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16. For which of the following field the percentage increase in the number of engineering students in the College from 2015 to 2020 was the maximum?
    (a) Mechanical
    (b) Electronics
    (c) Computer
    (d) Civil

17. During the period between 2015 and 2020, the total number of computer students who graduated from the College is approximately what percent of total number of computer students who joined the College?
    (a) 19%
    (b) 21%
    (c) 27%
    (d) 29%

18. A sheet is in the shape of a rectangle with sides 10cm and 5cm. A part of the sheet in the shape of an isosceles right-angled triangle with hypotenuse $5\sqrt{2}$cm is cut from the rectangular sheet. What is the area of the remaining sheet?

    (a) 25 sq.cm
    (b) $25\sqrt{2}$ sq.cm
    (c) 37.5 sq.cm
    (d) It depends on where exactly it is cut from

19. Three machines, AA, BB and CC, can each produce a product P, independently, but with different efficiencies. AA alone can produce 40 units of P per day, AA and BB can together produce 65 units of P per day, BB and CC can together produce 80 units of P per day. How much can AA, BB and CC together produce per day?
    (a) 120
    (b) 145
    (c) 105
    (d) None of the above

20. The operation * is defined on English alphabets, and following are some examples, with "=" having the same meaning "is equal to" as for numbers.
    A*D = 2, H*H = 8, and C*L = 6. Then

    (a) J*J = E*T = D*Y
    (b) J*J = E*T, but not equal to D*Y
    (c) J*J = D*Y, but not equal to D*Y
    (d) E*T = D*Y, but not equal to J*J

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21. A negatively sloped demand curve means that _____

(a) the price elasticity of demand is negative
(b) demand is elastic
(c) demand is inelastic
(d) demand is unitary

22. The major difference between an inventory management system and a logistics system is that the _____

(a) inventory management system is more concerned with supplier-retailer linkages
(b) inventory management system does not consider the impact of lost business due to stockouts
(c) inventory management system also includes purchasing and customer service considerations
(d) logistics system also includes purchasing and customer service considerations

23. The management approach, which draws together concepts, principles, techniques and knowledge from other fields and managerial approaches, is called as

(a) Systems approach
(b) Decision Theory approach
(c) Management Science approach
(d) Operational approach

24. Shiv and Sarah, newly weds, are considering the purchase of their first house. They are very involved with this purchase decision, particularly because they will be spending their entire savings on this purchase. They have been searching for information on the Internet and asking for opinions from friends and family. Which of the following decision-making approaches are they most likely employing?

(a) Experiential decision making
(b) Limited decision making
(c) Routine decision making
(d) Extended decision making

25. Natraj is a well-known store that sells writing material. The company faces strong competition from the electronic media. If the company thinks of itself merely as a paper company instead of a company that delivers the benefits users want, it could be taking a short-sighted view of its business. That is, Natraj could suffer from _____.

(a) brain drain
(b) cognitive dissonance
(c) marketing disconnect
(d) marketing myopia

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26. According to the Customer Relationship Management (CRM) orientation:

(a) a strong, or high-quality, relationship is typified by a consumer who buys different brands of a product each time a need for that product arises
(b) customers who switch providers each time they make a purchase tend to be more profitable than loyal customers due to their wide range of purchases
(c) the most profitable customers are those who search for information about a product online and then buy it in a brick-and-mortar store
(d) customers form relationships with companies as opposed to companies conducting individual transactions with customers

27. The phenomenon of 'Groupshift' usually means decisions

(a) are made by groups rather than individuals
(b) contain greater risk
(c) are made more quickly
(d) prove less effective

28. If behavioral studies had been successful, we would _____, whereas if trait research were correct, we would _____

(a) teach people certain behaviors; each people certain traits;
(b) train leaders ; select the right person for the job
(c) change jobs to suit people; change people to suit jobs
(d) hire either men or women; only hire women

29. You have an employee who has worked with you regularly for ten years. You both have enough experience working with each other to know what to expect of each other. This is an example of:

(a) identification-based trust
(b) deterrence-based trust
(c) knowledge-based trust
(d) consistency-based trust

30. One of the phrases 'Plan-Do-Check-Act' is probably connected with management's interest in:

(a) Lean approach
(b) Mass Customization
(c) TQM
(d) Reengineering

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31. Micro, Small and Medium Enterprises Development Act, 2006 is related to

(a) Industrial Policy
(b) Investment Limit
(c) Business Opportunities
(d) None of these

32. Making profit by taking advantage of different prices prevailing in different markets is referred as

(a) Hedging
(b) Speculation
(c) Arbitrage
(d) Gambling

33. What is full form of OEM?

(a) Original Equipment Manufacturer
(b) Oriental Equipment Manufacturer
(c) Original Emergency Manufacturer
(d) Original Equipment Machine

34. Which pharma company has developed India's first mRNA vaccine?

(a) GennovaBiopharmaceuticals
(b) Serum Institute
(c) CiplaPharma
(d) Ranbaxy

35. Which among the following diseases is not caused by a virus ?

(a) Chickenpox
(b) Hepatitis
(c) Cholera
(d) Dengue

36. Which among the following causes 'Dumdum Fever' or Kala Azar?

(a) Bacteria
(b) Fungi
(c) protozoa
(d) Virus

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37. Melissa Woods was recently hired as the campaign manager at an environmental organization. She has a degree in environmental sustainability and possesses substantial knowledge about the issue of global warming. She has the knowledge to lead the public relations team of the organization. However, a few months later, the board of directors of the organization expressed dissatisfaction with Melissa's performance and asked her to resign. Which of the following, if true, best explains this situation?

(a) Melissa had no prior experience in research and development
(b) Melissa had weak interpersonal and networking skills to run the project
(c) Melissa focused on the results her team achieved rather than how they achieved those results
(d) Melissa is not up-to-date about the feasibility of using different modes of renewable energy

38. Which of the following best defines organizational behavior?

(a) It involves the study of groups of people coming together for collective bargaining
(b) It involves the study of what people do in a company and how it affects the company's output
(c) It involves analyzing different people in an industry with independent profit-centered motives
(d) It involves developing exclusively the knowledge of managers and senior -level employees

39. With reference to the Prime Minister's Employment Generation Programme (PMEGP) choose the correct option:
1. It is a centrally sponsored scheme which aims at employment generation
2. Khadi and Village Industries Commission (KVIC) is the implementing agency for Prime Minister Employment Generation Programme (PMEGP) at the National Level
   (a) Only (i)
   (b) Only (ii)
   (c) Both (i) and (ii)
   (d) Neither (i) nor (ii)

40. Consider the following salient features of Prime Minister's Employment Generation Programme (PMEGP):
1. It is a credit linked subsidy Scheme
2. It has been launched by merging 2 schemes: Prime Minister RojgarYojana (PMRY) and Rural Employment Generation Programme (REGP)
3. Per capita investment must not be higher than ₹ 2 lakh in Plain Areas, and ₹ 2.5 lakh in Hilly Areas

Which of the statements given above are correct?

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

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41. Consider the following statements about Khadi and Village Industries Commission (KVIC):

1. Khadi and Village Industries Commission (KVIC) is a statutory body under the KVIC Act of 1956 to promote Micro, Small and Medium Enterprises (MSMEs) in rural and remote areas.
2. KVIC plans to promote, organizes, and implements programmes for the development of Khadi and other village industries in rural areas nationwide.
3. It functions under the Ministry of MSME.
4. Scheme of Fund Regeneration of Traditional Industries (SFURTI) is one of the major schemes of KVIC

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

42. A Scheme for Promotion of Innovation, Rural Industries and Entrepreneurship (ASPIRE) was launched to
(a) set up incubation centers to accelerate entrepreneurship and also to promote start-ups for innovation in agro-industry
(b) provide sustained employment for traditional industry artisans and rural entrepreneurs
(c) plan, promote, organise and implement programmes for the development of Khadi and other village industries in the rural areas
(d) facilitate potters to get bank loans under PradhanMantriShishu Mudra Yojana

43. Which of the following isnot a component of ASPIRE Scheme?
(a) Livelihood Business Incubation (LBI)
(b) Technology Business Incubation (TBI)
(c) Start-up Promotion through Small Industries Development Bank of India (SIDBI)
(d) Entrepreneurship Development Programme (EDP)

44. In which year did the Government of Punjab launch the Industrial and Business Development Policy to promote industrial development and nurture the growth of the start-up ecosystem in the state?
(a) 2017
(b) 2015
(c) 2012
(d) 2018

45. Who designed the logo of Make in India?
(a) Interband
(b) Kennedy &Wieden
(c) Wolff Olins
(d) VyasGiannetti Creative

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46. Consider the following statements about Make in India:

1. The aim of Make in India is creation of appropriate skill sets among rural migrants and the urban poor for inclusive growth.
2. Department of Promotion of Industry and Internal Trade under Ministry of Commerce and Industry is the nodal agency for its implementation.
3. It was launched on September 25, 2018.
4. Make in India is a national programme designed to transform India into a global manufacturing hub.

Which of the statements given above are correct?

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

47. Which French company under the 'Make in India' banner will make 800 high horsepower electric locomotives in factory atMadhepura, Bihar?

(a) Rafale
(b) Alstom
(c) CNES
(d) None of the above

48. Which of the followingis not true about Punjab Bureau of Investment Promotion (Invest Punjab)?

(a) Punjab Bureau of Investment Promotion has been established in 2015 by the Government of Punjab.
(b) The Bureau was established wherein the concurrent powers of key departments were bought under a single roof for granting statutory clearances.
(c) As the nodal agency, Invest Punjab has been entrusted with the responsibility to facilitate trade and investment opportunities and creating value for the investors in the State of Punjab.
(d) Punjab Bureau of Investment Promotion has been established to promote infrastructure in the State of Punjab.

49. Consider the following about PradhanMantriKaushalVikasYojana (PMKVY) 3.0

1. This Yojana has been launched for the tenure 2020-21
2. This Yojana has been launched in 28 States/UTs covering 717 districts across the country
3. This Yojana is also celebrated as World Youth Skills Day
4. This is the third phase of the PMKVY since its launch in the year 2015

Which of the following is/are not applicable about PradhanMantriKaushalVikasYojana (PMKVY) 3.0?

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

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50. Consider the following statements about the Ministry of Electronics and Information Technology:

1. The Ministry of Electronics and Information Technology was previously known as "The Department of Information Technology".
2. The Department of Information Technology was renamed to The Department of Electronics and Information Technology in 2012.
3. In 2018, the Ministry of Electronics and Information Technology was bifurcated from the Ministry of Communications and Information Technology.
4. The Ministry of Electronics and Information Technology is an executive agency of the Union Government of the Republic of 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

51. What is the punishment for hacking computers?

(a) Three-year imprisonment or ₹ 10 lakh penalty or both
(b) Three-year imprisonment or ₹ 5 lakh penalty or both
(c) Three-year imprisonment or ₹ 2 lakh penalty or both
(d) Life imprisonment

52. Who invented food processing?

(a) Nicolas Appert
(b) NusliWadia
(c) Peter Brabeck-Letmathe
(d) Thomas Jefferson

53. Under the “One District, One Product (ODOP) initiative” of the Ministry of Commerce and Industry, which item was recently flagged off from Budgam district of Jammu and Kashmir to Bengaluru, Karnataka

(a) Apples
(b) Walnuts
(c) Pears
(d) Cherry

54. Which of the following is not true?

(a) Basmati rice has gained international recognition
(b) Wine industry is gaining support in India, especially Maharashtra
(c) Dairy industry in India is the largest in the world
(d) None of the above

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55. Consider the following pairs:

1. Indian Veterinary Research Institute — Bareilly
2. National Sugar Institute (NSI) — Kanpur
3. Central Food Technological Research Institute —Banglore

Which of the above statements is/are correct?

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

56. With respect to the upstream and downstream industries in Food Processing Units, consider the following observations:

(i) While farmers are parts of upstream industry, collection centres are part of downstream industry
(ii) Initial processing of food material is done in downstream industries

Select the correct option from the codes given below:

(a) Only (i)
(b) Only (ii)
(c) Both (i) and (ii)
(d) Neither (i) nor (ii)

57. Which one of the following is the prescribed investment limit for medium enterprises in the manufacturing sector as per the Micro, Small and Medium Enterprises Development Act 2006?

(a) More than ₹ 10 lakhs and less than ₹ 2 crores
(b) More than ₹ 2 crores and less than ₹ 5 crores
(c) More than ₹ 5 crores and less than ₹ 10 crores
(d) More than ₹ 10 crores

58. As per the revised classification applicable w.e.f. July 1, 2020, the annual turnover of small enterprise will not be more than

(a) ₹ 50 crores
(b) ₹ 15 crores
(c) ₹ 20 crores
(d) ₹ 16 crores

59. Consider the following statements:

1. Karve Committee is related to the Micro, Small and Medium Enterprises (MSME) Sector
2. Village and Small-scale Industries Committee is also called the Karve Committee
3. The Micro, Small and Medium Enterprises (MSME) are classified into two enterprises as per the Micro, Small and Medium Enterprises Development (MSMED) Act, 2006

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Which of the above statements is/are incorrect?
(a) 1 only
(b) 3 only
(c) 2 and 3 only
(d) 1 and 3 only

60. The Primary Financial Institution for promoting, developing and financing Micro, Small and Medium Enterprise (MSME) sector is:

(a) Small Industries Development Bank of India (SIDBI)
(b) Industrial Development Bank of India (IDBI)
(c) Industrial Finance Corporation of India (IFCI)
(d) Industrial Credit and Investment Corporation of India (ICICI)

61. Which of the following is not a primary chemical?
(a) Alcohol
(b) Acetone
(c) Acetic acid
(d) Benzene

62. Which of the following is the simplest aromatic hydrocarbon?
(a) nitrobenzene
(b) cyclohexane
(c) cumene
(d) benzene

63. The prestigious Golden Peacock Environment Management Award for the year 2020 has been awarded to:
(a)Steel Authority of India Limited (SAIL)
(b)Gas Authority of India Limited (GAIL)
(c) Oil and Natural Gas Corporation Limited (ONGC)
(d) Power Grid Corporation of India Limited (PGCI)

64. Under which compound name is the liquid petroleum gas (LPG) sold?
(a) Urea
(b) Ethylene
(c) Benzoyl peroxide
(d) Butane

65. In which state the National Institute of Secondary Steel Technology (NISST) is set up?
(a) Punjab
(b) Madhya Pradesh
(c) Tamil Nadu
(d) Jharkhand

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66. Which state is the largest producer of natural gas in India?
(a) Assam
(b) Gujarat
(c) Rajasthan
(d) Tamil Nadu

67. Which ministry is implementing Samarth Scheme for Capacity Building?
(a) Ministry of Textiles
(b) Ministry of steel
(c) Ministry of Social Justice and Empowerment.
(d) Ministry of Youth Affairs and Sports

68. Which of the following are examples of 'Sunrise Industries'?
1. Automobile industry
2. Fitness, wellness and health industry
3. Hospitality industry
4. Textile industry

Select the correct option:
(a) 1 and 4 only
(b) 2 and 3 only
(c) 1 and 2 only
(d) All the above

69. Which one of the following is not an industrial corridor as per the policy initiatives?
(a) Amritsar - Kolkota
(b) Delhi - Mumbai
(c) Kolkata – Guwahati
(d) Chennai – Bengaluru

70. The fundamental criteria to identify industrial sickness is
1. continuous direct loss of income for one year or more
2. highlabour-turnover ratio
3. increase in debt-to-equity ratio
4. reduction in net property assets

Choose the correct option from the following:
(a) 1 and 2 only
(b) 2 and 3 only
(c) 3 and 4 only
(d) 1 and 3 only

71. SAMPADA scheme is related to
(a) Empowering women through microfinance
(b) Agricultural credit to small farmers
(c) Agro-food processing industry
(d) Providing loans for development of textile industries

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72. In 2021, which of the following industries are reserved exclusively for the public sector?
(a) Atomic energy generation
(b) Defence equipment
(c) Railway transport
(d) All of the above

73. India with which of the following countries has signed MOC to strengthen cooperation in steel sector?
(a) Japan
(b) UAE
(c) Russia
(d) USA

74. Which city is called the "Manchester of Rajasthan"?
(a) Kota
(b) Pali
(c) Bhilwara
(d) Alwar

75. Whichof the following art form of Punjab is believed to be auspicious, a symbol of happiness, prosperity and Suhag of a married woman?
(a) Phulkari
(b) BaghKashidakari
(c) Kashida
(d) Banni and Heer Bharat

76. Which is the Indian state with the highest number of power-looms?
(a) Gujarat
(b) Madhya Pradesh
(c) Maharashtra
(d) Tamil Nadu

77. A player stops a football weighing 0.5 kg which comes flying towards him with a velocity of 10 m/s. If the impact lasts for 1/50th sec. and the ball bounces back with a velocity of 15 m/s, then the average force involved is
(a) 250 N
(b) 1250 N
(c) 500 N
(d) 625 N

78. A block at rest explodes into three parts of the same mass. The momentum of the two parts are $-2p\,\hat{i}$ and $p\,\hat{j}$. The momentum of the third part will have a magnitude
(a) p
(b) $p\sqrt{3}$
(c) $p\sqrt{5}$
(d)zero

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79. Mr. Ramesh Narayan pulls a chain of mass m and length L hanging vertically downwards from a roof top. The work done by him is
    (a) 1/2 Mg L
    (b) Mg L
    (c) 1/2 Mg L^2
    (d) Mg L^2

80. If the distance between the sun and the earth is increased by three times, then attraction between the two will
    (a) Remain constant
    (b) Decreased by 63%
    (c) Decreased by 83%
    (d) Decreased by 89%

81. A sheet of aluminium foil of negligible thickness is introduced between the plates of a capacitor. The capacitance of the capacitor:
    (a) increases
    (b) decreases
    (c) becomes infinite
    (d) remains unchanged

82. If the length and area of cross-section of a conductor are doubled, then its resistance is
    (a) Unchanged
    (b) Halved
    (c) Doubled
    (d) Quadrupled

83. A small lamp is hung at a height of 8m above the centre of a round table of diameter 16 m.The ratio of intensities of illumination at the centre and at a point on the circumference of the table will be
    (a) 1:1
    (b) 2:1
    (c) 2√2:1
    (d) 3:2

84. To a bird in air, a fish in water appears to be at 30 cm from the surface. If the refractive index of water ($^{a}\mu_{w}$) is 4/3, then the true depth of the fish is
    (a) 30 cm
    (b) 45 cm
    (c) 40 cm
    (d) None of the above

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85. Two sound waves are represented by y= a sin (ωt-kx) and y=a cos (ωt-kx); The phase difference between the two waves is

(a) π / 2 (b) π / 4 (c) π (d) 3π /4

86. A closed end organ pipe and an open end organ pipe have their first overtone identical in frequency. Their lengths are in the ratio

(a) 1:2 (b) 2:3 (c) 3:4 (d) 4:5

87. When a charged particle moves perpendicular to a magnetic field, then

(a) speed of the particle is changed
(b) speed of the particle remains unchanged
(c) direction of the particle remains unchanged
(d) acceleration of the particle remains unchanged

88. Electromagnets are made of soft iron because soft iron has

(a) low retentivity and low coercive field
(b) high retentivity and high coercive field
(c) low retentivity and high coercive field
(d) highretentivity and low coercive field

89. A superconductor exhibits perfect

(a) ferrimagnetism
(b) ferromagnetism
(c) paramagnetism
(d) diamagnetism

90. Which of the following is used to measure age of archeological sample?

(a) ${}_6C^{14}$
(b) ${}_6C^{12}$
(c) ${}_6C^{13}$
(d) Mixture of ${}_6C^{14}$, ${}_6C^{12}$

91. Temperature of 1 mole of a gas is increased by 1^0C at constant pressure. Work done is

(a) R
(b) 2R
(c) 3R
(d) R/2

92. The order of average velocity (C_a),root mean square velocity (C) and most probable velocity (C_m) is

(a) $C_m < C_a < C$
(b) $C_m > C_a > C$
(c) $C_m < C < C_a$
(d) $C < C_a < C_m$

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93. Which of the following spectral series of hydrogen atom is in the visible region?
(a) Brackett
(b) Paschen
(c) Balmer
(d) Lyman

94. Which of the following metal does not dissolve in hydrochloric acid under normal condition?
(a) zinc
(b) aluminium
(c) copper
(d) magnesium

95. Which of the following is better oxidising agent?
(a) SnO_2
(b) SiO_2
(c) GeO_2
(d) PbO_2

96. The correct order strength of Lewis acid of BF_3, BCl_3, BBr_3 and BI_3
(a) $BF_3 > BCl_3 > BBr_3 > BI_3$
(b) $BF_3 < BCl_3 < BBr_3 < BI_3$
(c) $BF_3 > BCl_3 < BBr_3 < BI_3$
(d) $BF_3 < BCl_3 > BBr_3 > BI_3$

97. Which of the following molecule is most reactive?
(a) cycloheptane
(b) clyclobutane
(c) cyclopropane
(d) cyclopentane

98. Which of the following is a better lubricant?
(a) oleic acid
(b) stearic acid
(c) acetic acid
(d) none of these

99. Dynamite is nitro compound of
(a) toluene
(b) benzene
(c) glycol
(d) glycerol

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100. Which of the following does not have sharp melting point ?
(a) ice
(b) glass
(c) iron
(d) gold

101. Haemoglobin of the blood forms carboxy haemoglobin with
(a) CO_2
(b) CO
(c) SO_2
(d) NO_2

102. Gas with least calorific value is
(a) coal gas
(b) water gas
(c) producer gas
(d) natural gas

103. Phenol-formaldehyde is commercially known as
a) PVC
b) elastomer
c) Bakelite
d) Nylon

104. Natural rubber is a polymer of
(a) Propylene
(b) isoprene
(c) ethylene
(d) propene

105. The sum of all natural numbers lying between 100 and 1000, which are multiples of 5 is
(a) 94850
(b) 98450
(c) 95840
(d) 94580

106. The number of reflexive relations on a set containing n elements is

(a) 2^{n^2-n} (b) 2^{n^2+n}

(c) 2^{n^2-1} (d) 2^{n^2+1}

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107. If $x = e^{y+e^{y+\ldots\infty}}$, $x > 0$, then $\frac{dy}{dx}$ is

(a) $\frac{x}{1+x}$ (b) $\frac{1}{x}$

(c) $\frac{1-x}{x}$ (d) $\frac{1+x}{x}$

108. A point on the parabola $y^2 = 18x$ at which the ordinate increases at twice the rate of the abscissa is

(a) $(2, 4)$ (b) $(2, -4)$

(c) $(-\frac{9}{8}, \frac{9}{2})$ (d) $(\frac{9}{8}, \frac{9}{2})$

109. If $y = 1 + \frac{x}{1!} + \frac{x^2}{2!} + \frac{x^3}{3!} + \ldots$, then the value of $\frac{dy}{dx}$ is

(a) 0 (b) 1

(c) x (d) y

110. Find the value of x for which the points $(1, 3)$, $(-2, 9)$ and $(x, -1)$ are collinear

(a) -1 (b) -3

(c) 1 (d) 3

111. The area of the triangle whose vertices are $(2, 3), (3, 5)$ and $(7, 5)$ is

(a) 2 units (b) 3 units

(c) 4 units (d) 7 units

112. Two lines $3x + 4y = 8$ and $px + qy = n$ are perpendicular. Which of the following is true?

(a) $3p + 4q = 0$ (b) $4p + 3q = 0$

(c) $2p + 4q = 0$ (d) $3p + 2q = 0$

113. If the direction cosines of a line are $\frac{k}{3}, \frac{k}{3}, \frac{k}{3}$, then the value of k is

(a) $k > 0$ (b) $k = \pm 3$

(c) $k < 0$ (d) $k = \pm\sqrt{3}$

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114. Let A be a matrix with order n and $A^3-3A^2+4A-6I=0$, where I is an unit matrix. If A^{-1} exists, then

(a) $A^{-1}=A-I$ (b) $A^{-1}=A+6I$

(c) $A^{-1}=3A-6I$ (d) $A^{-1}=\dfrac{A^2-3A+4I}{6}$

115. The system of equations $4x+6y=5,\ 8x+12y=10$ has

(a) unique solution (b) no solution

(c) infinitely many solutions (d) none of these

116. Which among the following does not belong to main types of integrals?

(a) Indefinite Integral (b) Proper Definite Integral

(c) Improper Definite Integral (d) Real Integral

117.The inverse of a symmetric matrix (if it exists) is

(a) A symmetric matrix (b) A skew symmetric matrix

(c) A diagonal matrix (d) A triangular matrix

118. The value of $(1+\omega)(1+\omega^2)(1+\omega^4)(1+\omega^8)$..... up to $2n$ factors is

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

119.If a fair die is tossed twice,then the probability of getting a 4,5 or 6 on the first toss and a 1,2,3 or 4 on the second toss is

(a) $\frac{1}{2}$ (b) 1 (c) $\frac{1}{3}$ (d) $\frac{1}{4}$

120.If $P(AB)=\frac{1}{4}, P(A'B')=\frac{1}{5}, P(A)=P(B)=p$ then the value of p is

(a) $\frac{1}{40}$ (b) $\frac{11}{40}$ (c) $\frac{21}{40}$ (d) $\frac{31}{40}$

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