Total Printed Pages : 13]

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LA – 2014 SET CODE – II

B

Sr. No. 34656

Time : **90 Minutes**] Total Questions : **100** [Max. Marks : **100**

Candidate's Name _____ Date of Birth _____

Father's Name _____ Mother's Name _____

Roll No. (in figures) _____ (in words) _____

Date of Exam. _____

_____ _____

(Signature of the Candidate) (Signature of the Invigilator)

Candidates MUST read the following instructions carefully before starting the question paper.

प्रश्न-पत्र हल करने से पूर्व, अभ्यर्थीगण निम्नलिखित अनुदेशों को ध्यानपूर्वक पढ़ लें।

1. ***All questions are compulsory. All questions carry equal marks.***
   सभी प्रश्न अनिवार्य हैं। सभी प्रश्नों के अंक समान हैं।
2. *Before answering the questions, the candidates should ensure that they have been supplied complete question booklets. Complaints, if any, regarding misprinting etc. will not be entertained **15** minutes after the start of the test.*
   *प्रश्न-पत्र हल करने से पूर्व, अभ्यर्थीगण यह सुनिश्चित कर लें, कि उन्हें पूरी प्रश्न-पत्रिका मिली है तथा उसमें छपाई संबंधी आदि कोई त्रुटि नहीं है। परीक्षा शुरू होने के **15** मिनट बाद इस संदर्भ में कोई शिकायत नहीं सुनी जाएगी।*
3. In case there is any discrepancy in any question(s) in the Question Booklet, the same may be brought to the notice of the **Controller of Examinations** in writing ***within two hours*** after the test is over. No such complaint(s) will be entertained thereafter.
   यदि प्रश्न-पत्र में किसी प्रश्न से सम्बन्धित कोई त्रुटि हो तो उस बारे में लिखित सूचना/शिकायत परीक्षा समाप्त होने के ***दो घण्टे के अन्दर-अन्दर*** **परीक्षा नियंत्रक** की सूचना में लाई जाए। इसके उपरान्त ऐसी किसी भी सूचना/शिकायत पर कार्यवाही नहीं होगी।
4. The candidates ***must return*** the complete question booklet and the OMR Answer-Sheet to the Invigilator concerned before leaving the Examination Hall, failing which a case of use of unfair-means/misbehaviour will be registered against him/her, in addition to lodging of an FIR with the police. Further the answer-sheet of such candidate will not be evaluated.
   परीक्षा हॉल छोड़ने से पूर्व सभी अभ्यर्थीगण अपनी पूरी प्रश्न-पत्रिका व ओ० एम० आर० उत्तर-पत्र सम्बन्धित निरीक्षक को ***देकर ही*** जाएँ अन्यथा उनके विरुद्ध अनफेयर मीन्स/दुर्व्यवहार का केस बनाया जाएगा और साथ ही उनके विरुद्ध पुलिस में एफ० आई० आर० भी लिखवाई जाएगी। ऐसे केस में उस अभ्यर्थी के उत्तर-पत्र की जाँच भी नहीं करवायी जाएगी।
5. The candidates ***must not do any rough work or writing*** in the OMR Answer-Sheet. Rough work, if any, may be done in the question booklet itself.
   अभ्यर्थीगण ओ० एम० आर० उत्तर-पत्र पर ***कोई रफ कार्य न करें***। केवल प्रश्न-पत्रिका में ही रफ कार्य करें।
6. For every correct answer one mark will be credited. **There will be no negative marking**. In case you do not want to attempt any question, leave the space blank under the concerned Question No. in the OMR Answer-Sheet. Cutting, erasing, overwriting and more than one answer in the OMR Answer-Sheet will be treated as wrong answer.
   प्रत्येक ठीक उत्तर के लिए एक अंक दिया जाएगा। **नकारात्मक अंकन नहीं होगा।** यदि आप किसी प्रश्न का उत्तर नहीं देना चाहते तो उत्तर-पत्र के सम्बंधित खाने को खाली छोड़ दें। ओ० एम० आर० उत्तर-पत्र पर काट-पीट, मिटाना और एक से अधिक उत्तर गलत माना जाएगा।
7. ***Use only blue or black ball point pen in the OMR Answer-Sheet.***
   ओ० एम० आर० उत्तर-पत्र पर केवल नीले या काले बॉल पॉइंट पेन का ही प्रयोग करें।

SEAL

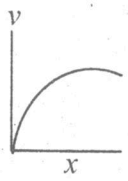
1. Torr is the unit of :

(1) pressure (2) length (3) temperature (4) volume

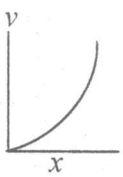
2. At what temperature, the scales C and F give the same reading ?

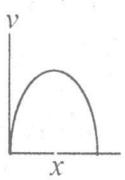
(1) 40° (2) 20° (3) – 40° (4) 10°

3. A lead shot of 1 mm diameter falls through a long column of glycerin. The variation in velocity with distance will be :

(1) 

(2) 

(3) 

(4) 

4. What does a function $f(t) = \sin \omega t + \cos \omega t$ represents :

(1) Zig Zag motion (2) Simple Harmonic motion

(3) Motion in a straight line (4) None of the above

5. 1 Micron is equal to :

(1) 10^{-6} m (2) 10^{-6} cm (3) 10^{-4} m (4) 10 cm

6. The number of ordered pairs of integers (x, y) satisfying the equation $x^2 + 8x + y^2 = 4$ is :

(1) 8 (2) 6 (3) 4 (4) 2

7. The number of distinct terms in the expansion of $(1 + 6x + 12x^2 + 8x^3)^7$ is :

(1) 8 (2) 19 (3) 22 (4) 28

8. Sum to 5 terms of the series $\tan^{-1}\left(\frac{1}{7}\right) + \tan^{-1}\left(\frac{1}{13}\right) + \tan^{-1}\left(\frac{1}{21}\right) + \ldots\ldots\ldots$ is :

(1) $\tan^{-1}\left(\frac{4}{13}\right)$ (2) $\tan^{-1}\left(\frac{1}{3}\right)$ (3) $\tan^{-1}\left(\frac{5}{7}\right)$ (4) $\tan^{-1}\left(\frac{6}{17}\right)$

9. The number of lines that can be drawn through the point (4, – 5) at a distance 12 from the point (– 2, 3) is :

(1) 0 (2) 1 (3) 2 (4) infinite

10. In an ellipse, the distance between the foci is 8 and the minor axis is 6, then the eccentricity is :

(1) $\frac{1}{\sqrt{5}}$ (2) $\frac{3}{5}$ (3) $\frac{1}{2}$ (4) $\frac{4}{5}$

Directions Q. Nos. 11 to 15 : In each of the following questions, find the most suitable word to fill in the blank :

11. The ..... of private limited companies is in the hands of its directors.

(1) administration (2) democracy (3) policy (4) autocracy

12. Duryodhana was the main ..... of the Pandavas.

(1) enmity (2) adversary (3) effrontery (4) adversity

13. The Christmas tree was ..... with stars and other decorative items.

(1) adorned (2) adored (3) endowed (4) enticed

14. Slaves were freed from ..... only after they died.

(1) ablution (2) pilferage (3) agreement (4) bondage

15. To use a sporting ..... , middle age is like half - time at a hockey match.

(1) device (2) antonym (3) analogy (4) synonym

16. During pneumonia which of the following gets accumulated in lung tissue ?

(1) Blood (2) RBC (3) Plasma (4) Fluid WBC

17. The muscles in the eye associated with pupil are ..... .

(1) Unstriated and voluntary (2) Unstriated and involuntary

(3) Striated and involuntary (4) Striated and voluntary

18. Where does fertilization usually take place ?
(1) Vagina (2) Uterus (3) Oviduct (4) Cervix

19. Net yield of aerobic respiration during Krebs' cycle per glucose molecule is :
(1) 2 ATP molecules (2) 7 ATP molecules
(3) 16 ATP molecules (4) 32 ATP molecules

20. The xylem in plants are responsible for :
(1) Transport of amino acids (2) Transport of food
(3) Transport of water (4) Transport of oxygen

21. Which of the oxides of Nitrogen is paramagnetic in gaseous state and diamagnetic in the liquid and solid states ?
(1) N_2O (2) NO (3) N_2O_3 (4) N_2O_5

22. The strongest oxidizing power amongst Halogens (X_2) is of :
(1) F_2 (2) Cl_2 (3) Br_2 (4) I_2

23. How many unpaired electrons are present in $K_3[Co(CN)_6]$ complex ?
(1) Zero (2) One (3) Two (4) Three

24. Which of the following organic compounds will ***not*** undergo Friedel-Crafts reaction ?
(1) Benzene (2) Toluene (3) Nitrobenzene (4) Naphthalene

25. Which of the following is a LYOPHILIC sol ?
(1) Aluminium hydroxide (2) Starch
(3) Ferric hydroxide (4) Arsenious sulphide

26. The weight of 11.2 litre of a gas at STP is 22.0 g, the gas is :
(1) O_2 (2) NO_2 (3) CO (4) N_2O

27. The maximum number of electrons in an orbital is two, the rule is called as :
(1) Hund's rule (2) Pauli's exclusion principle
(3) Aufbau principle (4) Heisenberg principle

28. Ionic radii of the ions decrease in the order :

(1) $Na^+ > Mg^{2+} > F^- > O^{2-}$ (2) $O^{2-} > F^- > Na^+ > Mg^{2+}$

(3) $F^- > O^{2-} > Na^+ > Mg^{2+}$ (4) $Mg^{2+} > Na^+ > F^- > O^{2-}$

29. An element has atomic number of 58. It belongs to which block of periodic table :

(1) s-block (2) p-block (3) d-block (4) f-block

30. The type of hybridization in chlorine trifluoride is :

(1) sp^3 (2) sp^3d (3) $d\,sp^3$ (4) sp^3d^2

31. Dimensional formula for power is :

(1) ML^2T^{-3} (2) ML^1T^{-2} (3) $ML^{-2}T^{-1}$ (4) ML^3T^2

32. The distance of planet Jupiter from the Sun is 5.2 times that of Earth. The period of revolution of Jupiter around the Sun is :

(1) 8 yrs. (2) 9 yrs. (3) 11.86 yrs. (4) 11 yrs.

33. If $\vec{A} \times \vec{B} = \vec{C}$, which of the following statement is ***not*** correct ?

(1) $\vec{C} \perp \vec{A}$ (2) $\vec{C} \perp \vec{B}$ (3) $\vec{C} \perp (\vec{A} \times \vec{B})$ (4) $\vec{C} \perp (\vec{A} + \vec{B})$

34. The length of second hand of a clock is 10 cm. The speed of tip of the hand is :

(1) $\frac{\pi}{2}$ cm/sec (2) $\frac{\pi}{3}$ cm/sec (3) $\frac{\pi}{6}$ cm/sec (4) $\frac{\pi}{4}$ cm/sec

35. The mass of the body will be zero at :

(1) pole (2) equator

(3) centre of the earth (4) None of the above

36. Distance between the two planes : $2x + 3y + 4z = 5$ and $4x + 6y + 8z = 12$ is :

(1) 0 (2) $\frac{1}{\sqrt{29}}$ (3) $\frac{2}{\sqrt{29}}$ (4) $\frac{3}{\sqrt{29}}$

37. The value of $\lim_{x \to 0} \left(\frac{\sin x}{x} \right)^{\frac{\sin x}{x - \sin x}}$ is :

(1) 0 (2) 1 (3) e (4) $\frac{1}{e}$

38. Contrapositive of the statement, "If a number is divisible by 49, then it is divisible by 7," is :

(1) If a number is not divisible by 7, it is not divisible by 49.

(2) If a number is not divisible by 7, it is divisible by 49.

(3) If a number is not divisible by 49, it is not divisible by 7.

(4) If a number is not divisible by 49, it is divisible by 7.

39. If variance of four numbers is 9, what will be the variance if each of these four numbers is multiplied by 3 ?

(1) 9 (2) 27 (3) 81 (4) 243

40. If the matrix A is both symmetric and skew symmetric, then :

(1) A is a lower triangular matrix. (2) A is a diagonal matrix.

(3) A is a upper triangular matrix. (4) A is a zero matrix.

41. The line $y = x + 1$ is a tangent to the curve $y^2 = 4x$ at the point :

(1) (1, 2) (2) (2, 1) (3) (1, – 2) (4) (– 1, 2)

42. If $[x]$ is greatest integer function of x, then $\int_{-1}^{1} [x] dx$ is equal to :

(1) – 1 (2) 0 (3) 1 (4) 2

43. Which of the following is a homogeneous differential equation ?

(1) $(2x + 3y + 4)\, dx - (4x + 6y + 7)\, dy = 0$

(2) $(x^2 + 2y^3)\, dx + 2xy\, dy = 0$

(3) $(xy)\, dx - (x^3 + y^3)\, dy = 0$

(4) $y^2\, dx + (x^2 - 2xy - y^2)\, dy = 0$

44. The non-zero vectors $\vec{a}, \vec{b}$ and $\vec{c}$ are related by $\vec{a} = 8\vec{b}$ and $\vec{c} = -7\vec{b}$. Then the angle between $\vec{a}$ and $\vec{c}$ is :

(1) 0 (2) π (3) $\frac{\pi}{4}$ (4) $\frac{\pi}{2}$

45. Two events A and B will be independent if :

(1) $A \cap B = \phi$ (2) $P(A) = P(B)$

(3) $P(\overline{A} \cap \overline{B}) = [1 - P(A)]\,[1 - P(B)]$ (4) $P(A) = P(\overline{B})$

46. Two finite sets have m and n elements respectively. The total number of subsets of first set is 30 more than the total number of subsets of the second set. The values of m and n respectively are :

(1) 7, 6 (2) 6, 3 (3) 5, 1 (4) 8, 7

47. Let R be the relation in the set {5, 6, 7, 8} given by $R = \{(5, 6), (6, 6), (5, 5), (8, 8), (5, 7), (7, 7), (7, 6)\}$. Choose the ***correct*** answer :

(1) R is reflexive and symmetric but not transitive.

(2) R is reflexive and transitive but not symmetric.

(3) R is symmetric and transitive but not reflexive.

(4) R is an equivalence relation.

48. If $\cos^{-1}x + \cos^{-1}y = \frac{2\pi}{3}$, then $\sin^{-1}x + \sin^{-1}y$ is equal to :

(1) $\frac{2\pi}{3}$ (2) $\frac{\pi}{3}$ (3) $\frac{\pi}{6}$ (4) π

49. If $p, q \in R$ and $1 + \sqrt{2}\,i$ is a root of $x^2 + px + q = 0$, then :

(1) $p = -2, q = \sqrt{3}$ (2) $p = -\sqrt{2}, q = 3$

(3) $p = -\sqrt{2}, q = \sqrt{3}$ (4) $p = -2, q = 3$

50. Graph of a linear ineqality in two variables is :

(1) a straight line (2) a point (3) full plane (4) half plane

51. The susceptibility of magnesium at 300 K is 1.2×10^{-5}. At what temperature the susceptibility be 1.44×10^{-5} ?

(1) 280 K (2) 250 K (3) 270 K (4) 260 K

52. Which has the highest frequency ?

(1) X-rays (2) γ-rays (3) Microwaves (4) Visible rays

53. A photon and electron have same de-Broglie wavelength. Which of the statement is ***correct*** ?

(1) Total energy of photon > Total energy of electron.

(2) Total energy of electron > Total energy of photon.

(3) Total energy of electron = Total energy of photon.

(4) Cannot be calculated.

54. Ratio of kWh to MeV is :

(1) 2.25×10^{19} (2) 2.25×10^{17} (3) 2.25×10^{15} (4) 2.25×10^{13}

55. In an a.c. input signal of frequency of 60 Hz is rectified by a full wave rectifier. Then output frequency will be :

(1) 60 Hz (2) 120 Hz (3) Zero (4) 30 Hz

56. BERYL consists of silicate framework of :

(1) SiO_4^{4-} (2) $Si_2O_7^{6-}$ (3) $Si_6O_{18}^{12-}$ (4) $Si_3O_9^{6-}$

57. In which of the following, all carbon atoms are *sp*-hybridized :

(1) $CH_3 - CH = CH - CH_3$ (2) $CH_3 - C \equiv C - CH_3$

(3) $CH_3 - CH_2 - C \equiv CH$ (4) $CH \equiv C - C \equiv CH$

58. A salt on treatment with dil. H_2SO_4 gives mixture of H_2S and SO_2. It contains :

(1) Sulphide (2) Sulphite (3) Sulphate (4) Thiosulphate

59. Which of the following compounds will ***not*** give a positive test for Nitrogen ?

(1) Urea (2) Thiourea

(3) Ammonium chloride (4) Aniline

60. Coordination numbers in *CsCl* structure are :

(1) 8 : 8 (2) 6 : 6 (3) 4 : 4 (4) 8 : 4

61. A beaker full of hot water is kept in a room and it cools from 80°C to 70°C in t_1 minutes; from 70°C to 60°C in t_2 minutes and from 60°C to 50°C in t_3 minutes. Then :

(1) $t_1 > t_2 > t_3$ (2) $t_1 = t_2 = t_3$ (3) $t_1 < t_2 = t_3$ (4) $t_1 < t_2 < t_3$

62. From a radio station the frequency of the waves is 15 megacycle/sec. Corresponding wavelength will be :

(1) 10 m (2) 20 m (3) 30 m (4) 40 m

63. Electronic charge on 1 mole of hydrogen molecules is :

(1) None of below (2) 19.27×10^6 C (3) 19.27×10^{-4} C (4) 19.27×10^4 C

64. The resistivity of material of wire 1.0 m long, 0.4 mm in diameter and resistance 2.0 ohm is :

(1) $2.5 \times 10^{-7}\ \Omega$ cm (2) $2.5 \times 10^{-10}\ \Omega$ cm

(3) $2.5 \times 10^{-5}\ \Omega$ cm (4) $2.5 \times 10^{-8}\ \Omega$ cm

65. Force experienced by a stationery charge placed in magnetic field is :

(1) qvB (2) $qvB \sin \theta$ (3) zero (4) None of the above

Directions Q. Nos. 66 to 68 : In each of the following questions, find the ***correct*** meanings :

66. 'Be on the horns of a dilemma' :

(1) of the first quality (2) be very busy

(3) to choose between two goods (4) to have a choice between two equal evils

67. 'Poke one's nose into' :

(1) to interfere (2) unconcerned

(3) to criticise (4) to continue

68. 'Upto one's ears' :

(1) worn out (2) deeply involved

(3) youthful (4) alarmed

Directions Q. Nos. 69 & 70 : In each of the following questions, choose the one that is ***opposite*** in meaning to the capitalized word :

69. EBB :

(1) enervate (2) eternal (3) effervescent (4) rise

70. KNOTTY :

(1) easy (2) tough (3) care (4) question

Directions Q. Nos. 71 to 75 : In each of the following questions, find the word closest to the meaning of the capitalized word :

71. LOT :

(1) right (2) folly (3) fate (4) oath

72. REPEAL :

(1) sharp (2) applaud (3) acceptance (4) abrogation

73. LETHAL :

(1) conventional (2) deadly (3) averse (4) demonstrative

74. COMPACT :

(1) brief (2) indict (3) muck (4) morose

75. CHASTE :

(1) loyal (2) pure (3) timid (4) curt

76. Which one of the following areas in India, is a hotspot of biodiversity ?

(1) Sunderbans (2) Gangetic Plain

(3) Eastern Ghats (4) Western Ghats

77. Biodiversity of a geographical region represents :

(1) The diversity in the organisms living in the region

(2) Genetic diversity present in the dominant species of the region

(3) Endangered species found in the region

(4) Species endemic to the region

78. *Bacillus thuringiensis* (Bt) strains have been used for designing novel :

(1) Bio-mineralization processes (2) Bio-insecticidal plants

(3) Biofertilizers (4) Bio-metallurgical techniques

79. The method of producing thousands of plants through tissue culture is called :

(1) Biofortification (2) Somatic hybridization

(3) Micropropagation (4) Biomagnification

80. Aedes aegypti is a vector for :

(1) Dengue fever (2) Japanese encephalitis

(3) Malaria (4) AIDS

Directions Q. Nos. 81 to 85 : In each of the following questions, find the most suitable word to fill in the blank :

81. The Chief with his followers ..... present there.

(1) was (2) were (3) had (4) has

82. In regard to details the committee ..... divided.

(1) is (2) was (3) were (4) has

83. A very pretty woman, ... she squints a little.

(1) if only (2) only (3) lest (4) because

84. ..... the shower was over the sun shone out again.

(1) Before (2) Alongwith (3) After (4) Inspite

85. Trust ..... God and do what is right.

(1) with (2) by (3) in (4) at

86. Rice belongs to family :

(1) Poaceae (2) Malvaceae (3) Solanaceae (4) Fabaceae

87. 'Chipko movement' was launched for the protection of :

(1) Grassland (2) Livestock (3) Wet lands (4) Forests

88. A flower which can be divided into two equal halves by only one plane is :

(1) Actinomorphic (2) Perfect (3) Zygomorphic (4) Regular

89. The depletion in the Ozone layer is caused by :

(1) Nitrous oxide (2) Chlorofluorocarbons

(3) Carbon dioxide (4) Methane

90. The chromosomes responsible for characteristics other than sex are known by which of the following terms ?

(1) Autosomes (2) Ribosomes (3) Lysosomes (4) Hydrosomes

91. DNA replication takes place during :

(1) Prophase (2) G_1-phase (3) G_2-phase (4) S-phase

92. Who wrote the book *'Systema Naturae'* ?

(1) Darwin (2) Lamarck (3) Linnaeus (4) Wallace

93. Which one is ***correct*** ?

(1) Plasma = Blood – Lymphocytes

(2) Blood = Plasma + RBC + WBC + Blood platelets

(3) Lymph = Plasma + RBC + WBC

(4) Neuron = Cyton + Dendrite + Axon + Synapse

94. If a colour blind woman marries a normal visioned man, their sons will be :

(1) All normal visioned

(2) One-half colour blind and one-half normal

(3) All colour blind

(4) Three-fourths colour blind and one-fourth normal

95. DNA is made of two chains that twist about one another in the shape of a ..... .

(1) Double helix (2) Straight ladder

(3) Broken ladder (4) Straight spiral

96. Surface Tension of a liquid does ***not*** depend upon :

(1) Temperature (2) Vapour Pressure

(3) Concentration (4) Size of surface

97. Which of the following is ***not*** a state function ?

(1) Entropy (2) Enthalpy (3) Work (4) Free energy

98. Which of the following acids is ***not*** a Polybasic acid ?

(1) Orthoboric acid (2) Orthophosphoric acid

(3) Sulfuric acid (4) Oxalic acid

99. Oxidation number of chromium in potassium chromate is :

(1) Two (2) Three (3) Five (4) Six

100. Green pigment CHLOROPHYLL contains :

(1) Calcium (2) Magnesium (3) Sodium (4) Potassium

SET CODE : B LAB ATTENDANT ENTRANCE WRITTEN TEST- APRIL 2014

1 - 1	26 - 4	51 - 2	76 - 4
2 - 3	27 - 2	52 - 2	77 - 1
3 - 1	28 - 2	53 - 2	78 - 2
4 - 2	29 - 4	54 - 1	79 - 3
5 - 1	30 - 2	55 - 2	80 - 1
6 - 1	31 - 1	56 - 3	81 - 1
7 - 3	32 - 3	57 - 4	82 - 3
8 - 2	33 - 4	58 - 4	83 - 2
9 - 1	34 - 2	59 - 3	84 - 3
10 - 4	35 - 4	60 - 1	85 - 3
11 - 1	36 - 2	61 - 4	86 - 1
12 - 2	37 - 4	62 - 2	87 - 4
13 - 1	38 - 1	63 - 4	88 - 3
14 - 4	39 - 3	64 - 1	89 - 2
15 - 3	40 - 4	65 - 3	90 - 1
16 - 4	41 - 1	66 - 4	91 - 4
17 - 2	42 - 1	67 - 1	92 - 3
18 - 3	43 - 4	68 - 2	93 - 2
19 - 1	44 - 2	69 - 4	94 - 3
20 - 3	45 - 3	70 - 1	95 - 1
21 - 2	46 - 3	71 - 3	96 - 4
22 - 1	47 - 2	72 - 4	97 - 3
23 - 1	48 - 2	73 - 2	98 - 1
24 - 3	49 - 4	74 - 1	99 - 4
25 - 2	50 - 4	75 - 2	100 - 2