



**PINNAACLE CLASSES**

**ADMISSION TEST**

**CLASS: X – XI**

**TEST ID : 101**

**Date:**

**Time: 3 Hours**

**Max Marks: 400**

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**IMPORTANT INSTRUCTIONS:**

1. The test is of 3 hours duration.
2. The Test Booklet consists of 100 questions. The maximum marks are 400.
3. There are FIVE parts in the question paper Physics, Chemistry, Mathematics, Biology and Mental Ability having 20 questions in each part of equal weightage. Each question is allotted 4 (four) marks for correct response.
4. Candidates will be awarded marks as stated above in instruction No. 3 for correct response of each question. -1(minus one) marks will be deducted for indicating incorrect response of each question. No deduction from the total score will be made if no response is indicated for an item in the answer sheet.
5. There is only one correct response for each question. Filling up more than one response in any question will be treated as wrong response and marks for wrong response will be deducted accordingly as per instruction 4 above.
6. Do not open the seal before starting the examination.



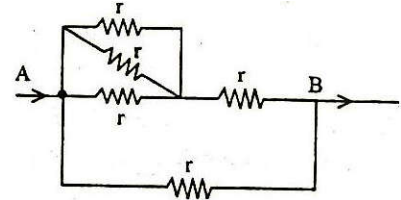
## PHYSICS

1. Light takes  $t_1$  sec to travel a distance  $x$  cm in vacuum and the same light takes a time  $t_2$  sec to travel  $10x$  in a medium. The critical angle of corresponding medium is

- a)  $\sin^{-1}(t_1/t_2)$     b)  $\sin^{-1}(t_1/10t_2)$     c)  $\sin^{-1}(10t_1/t_2)$     d)  $\sin^{-1}(t_1/5t_2)$

2. If the equivalent resistance between A and B is equal to 4 ohm. What is value of each resistance of the grouping assuming them of equal value?

- a)  $2\Omega$     b)  $3\Omega$   
c)  $7\Omega$     d)  $15\Omega$



3. 'n' similar resistances, each of 'r' ohms, when connected in parallel give rise to a total resistance 'R' ohms. When these are connected in series, the total resistance will become

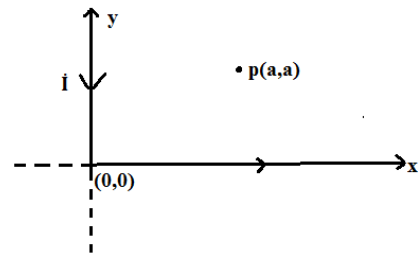
- a)  $n^2R$     b)  $\frac{R}{n}$     c)  $nR$     d)  $\frac{R}{n^2}$

4. Two cells with the same e.m.f.  $\epsilon$  and different internal resistance  $r_1$  and  $r_2$  are connected in series to an external resistance R. The value of R so that the potential difference across the first cell be zero is

- a)  $\sqrt{r_1 r_2}$     b)  $r_1 + r_2$     c)  $r_1 - r_2$     d)  $\frac{r_1 + r_2}{2}$

5. Two infinitely long wires are placed along x & y axis as shown then find magnetic field at point P.

- a)  $\frac{\mu_0 I}{2\pi a}$     b)  $\frac{\mu_0 I}{4\pi a} \left(1 + \frac{1}{\sqrt{2}}\right)$   
c)  $\frac{\mu_0 I}{2\pi a} \left(1 + \frac{1}{\sqrt{2}}\right)$     d)  $\frac{\mu_0 I}{4\pi a} (\sqrt{2} + 1)$

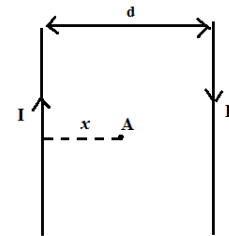


6. The magnetic induction due to a current carrying coil of radius  $r$  at centre is  $B_0$ . The magnetic induction on the axial line of the same coil at a distance  $r$  is B. The ratio of  $B_0$  to B is

- a)  $2\sqrt{2}$     b)  $2\sqrt{3}$     c)  $3\sqrt{2}$     d)  $5\sqrt{2}$

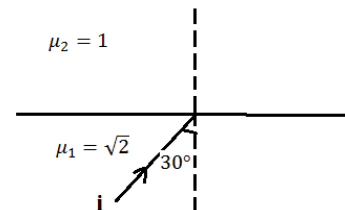
7. Two infinitely long wires carry current in opposite direction and distance between them is gives as d. Point A is in between wires at a distance x from first. Find x where magnetic field induced is minimum

- a)  $d/3$     b)  $d/2$     c)  $d/4$     d) Data insufficient



8. If a light ray is sent from medium 1 of refractive index  $\mu_1 = \sqrt{2}$  to medium 2 of refractive index  $\mu_2 = 1$  with angle of incidence  $30^\circ$  as shown, then

- a) ray gets refracted completely  
b) ray gets refracted completely  
c) ray gets partially refracted and partially reflected  
d) ray doesn't get refracted (or) reflected

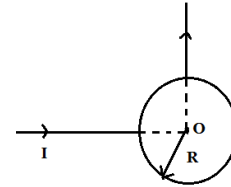


9. Two long conductors, separated by a distance  $d$  carry current  $I_1$  and  $I_2$  in the same direction. They exert a force  $F$  on each other. Now the current in one of them is increased to two times and its direction is reversed. The distance is also increased to  $3d$ . The new value of the force between them is

- a)  $-2F$                       b)  $F/3$                       c)  $-2F/3$                       d)  $-F/3$

10. Resistance for unit length of given wire is ' $r$ ', then magnetic field strength at centre of circle is

- a) 0                      b)  $\frac{\mu_0 I}{4R}$                       c)  $\frac{\mu_0 I}{2R}$                       d)  $\frac{\mu_0 I}{3R}$

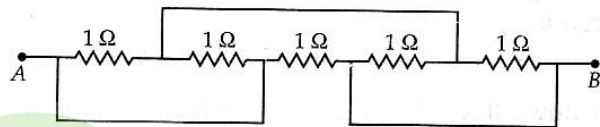


11. The masses of three wires of copper are in the ratio 1: 3: 5 and length are in the ratio 5: 3: 1. Then the ratios of their electrical resistance are

- a) 1: 3: 5                      b) 5: 3: 1                      c) 1: 15: 25                      d) 125: 15: 1

12. Resistors each of value  $1\Omega$  are arranged as shown in the figure. The equivalent resistance between points A and B is

- a)  $\frac{1}{2}\Omega$                       b)  $\frac{1}{5}\Omega$   
c)  $\frac{5}{4}\Omega$                       d)  $\frac{4}{5}\Omega$

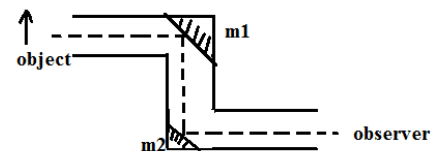


13. A long wire carries a steady current. It is bent into a circle of one turn and the magnetic field at the centre of the coil is  $B$ . It is then bent into a circular loop of  $N$  turns. The magnetic field at the centre of the coil will be (carrying the same current)

- a)  $NB$                       b)  $N^2B$                       c)  $2NB$                       d)  $2N^2B$

14. A periscope is constructed as shown. Both mirrors  $m_1$  and  $m_2$  makes  $45^\circ$  with horizontal then observer observes image as

- a)  $\uparrow$                       b)  $\leftarrow$                       c)  $\rightarrow$                       d)  $\downarrow$



15. Two long parallel straight conductors carry currents  $I_1$  and  $I_2$  ( $I_1 > I_2$ ). When the currents are in the same direction, the magnetic field at a point midway between the wires is  $20\mu T$ . If the direction of  $I_2$  is reversed, the field becomes  $50\mu T$ . The ratio of the currents  $\frac{I_1}{I_2}$  is

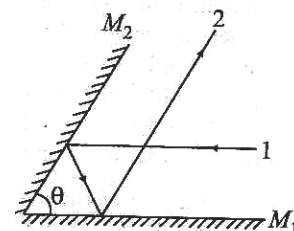
- a)  $\frac{5}{2}$                       b)  $\frac{7}{3}$                       c)  $\frac{4}{3}$                       d)  $\frac{5}{3}$

16. A concave mirror gives an image three times as large as the object placed at a distance of 20 cm from it. For the image to be real, the focal length should be

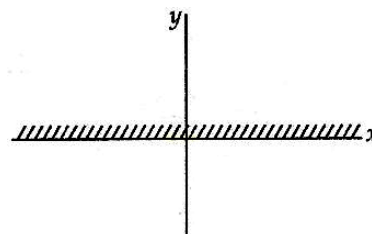
- a) 10 cm                      b) 15 cm                      c) 20 cm                      d) 30 cm

17. Two plane mirrors  $M_1$  and  $M_2$  are inclined at angle  $\theta$  as shown in the figure. A ray of light 1, which is parallel to  $M_1$  strikes  $M_2$  and after two reflections, the ray 2 becomes parallel to  $M_2$ . The angle  $\theta$  is

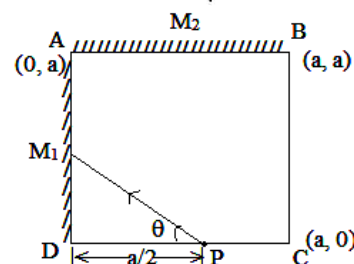
- a)  $0^\circ$                       b)  $30^\circ$                       c)  $45^\circ$                       d)  $60^\circ$



18. A plane mirror is placed along the  $x$  –axis facing negative  $y$  –axis. The mirror is fixed. A point objects is moving with velocity  $3\hat{i} + 4\hat{j}$  in front of the plane mirror. The relative velocity of image with respect to its object is
- a)  $-8\hat{j}$                       b)  $8\hat{j}$                       c)  $3\hat{i} - 4\hat{j}$                       d)  $-6\hat{i}$

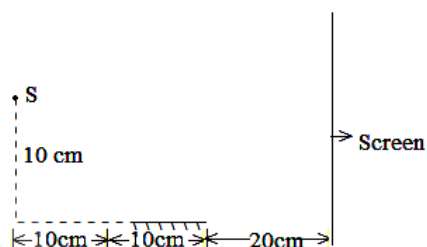


19. After successive reflections from plane mirrors  $M_1$  and  $M_2$ , the ray is passing through the point C. Find the value of  $\theta$ .
- a)  $30^\circ$                       b)  $37^\circ$                       c)  $45^\circ$                       d)  $53^\circ$



20. A point source has been placed as shown in the figure. What is the length on the screen that will receive reflected light from the plane mirror?

- a) 10 cm                      b) 20 cm                      c) 30 cm                      d) 40 cm



## CHEMISTRY

21. Insulin contains 3.4 % sulphur, what will be the minimum molecular weight of insulin?
- a) 94.176                      b) 1884                      c) 941.176                      d) 976
22. Density of water at room temperature is  $1 \text{ g/ml}$ . How many molecules are there in a drop of water, if its volume is  $0.05 \text{ ml}$
- a)  $1.67 \times 10^{21}$                       b)  $16.7 \times 10^{21}$                       c)  $6.023 \times 10^{23}$                       d)  $1.67 \times 10^{26}$
23. Rearrange the following (I to IV) in the order of increasing masses:
- (I) 0.5 mole of  $O_3$                       (II) 0.5 gm atom of oxygen  
 (III)  $3.011 \times 10^{23}$  molecules of  $O_2$                       (IV) 5.6 litre of  $CO_2$  at STP
- a) II < IV < III < I                      b) II < I < IV < III                      c) IV < II < III < I                      d) I < II < III < IV
24. Vapour density of a mixture containing  $NO_2$  and  $N_2O_4$  is 27.6. The mole fraction of  $N_2O_4$  in the mixture is:
- a) 0.1                      b) 0.2                      c) 0.5                      d) 0.8
25. The mass of  $CaO$  that shall be obtained by heating 20 kg of 90% pure lime stone ( $CaCO_3$ ) is
- a) 11.2 kg                      b) 8.4 kg                      c) 10.08 kg                      d) 16.8 kg
26. A 6.85 g sample of hydrate  $Sr(OH)_2 \cdot xH_2O$  is dried in an oven to give 3.13 g of anhydrous  $Sr(OH)_2$ . What is the value of  $x$ ? (Atomic weights:  $Sr = 87.60, O = 16.0, H = 1.0$ )
- a) 8                      b) 12                      c) 10                      d) 16

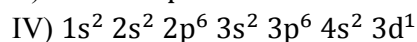
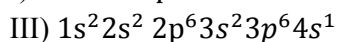
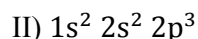
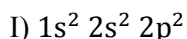
27. A signature, written in carbon pencil weighs 1 mg. What is the number of carbon atoms present in the signature?

- a)  $5.02 \times 10^{23}$       b)  $5.02 \times 10^{20}$       c)  $6.02 \times 10^{20}$       d)  $0.502 \times 10^{20}$

28. If each orbital occupy four electrons then calculate total number of elements in 4<sup>th</sup> period.

- a) 35      b) 36      c) 37      d) 38

29. Electronic configuration of following elements is given as follows:



Select the correct set of block, group and period number for the above electronic configuration in periodic table.

	Block	Group	Period number
a)	I	p	IV A
b)	II	s	I A
c)	III	p	VI A
d)	IV	d	1 B

30. For the four halogen P, Q, R & S ionisation energies and electron gain enthalpies are given in the following:

Element	IE in KJ/mol	$\Delta_{eg}H$ in KJ/mol
P	1680	-340
Q	1100	-350
R	500	-120
S	400	-100

I) P is the highest electronegative

II) S is the least electronegative

III) The electronegativity of P equal to 4

IV) R may be chlorine

a) II, III, IV

b) I, III, IV

c) I, II, III

d) I, IV

31.  $A_0/2$  atoms of X(g) are converted into X<sup>+</sup>(g) by energy E<sub>1</sub>.  $A_0/2$  atoms of X(g) are converted into X<sup>-</sup>(g) by energy E<sub>2</sub>. Hence ionization potential and electron affinity of X(g) are

a)  $\frac{2E_1}{A_0}, \frac{2(E_1-E_2)}{A_0}$

b)  $\frac{2E_1}{A_0}, \frac{2E_2}{A_0}$

c)  $\frac{E_1-E_2}{A_0}, \frac{2E_2}{A_0}$

d)  $\frac{E_1}{A_0}, \frac{E_1-E_2}{A_0}$

32. If the electro negativity difference between two atoms A and B is 2.0, then the percentage of covalent character in the molecule is:

a) 46 %

b) 54 %

c) 23 %

d) 72 %

33. Among the following the number of elements showing only one non zero oxidation state is:  
*O, Cl, F, N, P, Sn, Tl, Na, Ti*

a) 1

b) 2

c) 3

d) 4

34. Which of the following pairs have nearly same size?

- I. *Zr, Hf*                      II. *Nb, Ta*                      III. *Fe, Zn*                      IV. *K, Rb*  
a) I, II, III, IV                      b) I, III                      c) I, II                      d) I, IV

35. Which of the following is not a Lewis acid-base reaction?

- a)  $BrF_3 + F^- \rightarrow [BrF_4]^-$                       b)  $AlCl_3 + BF_3 \rightarrow AlCl_3 \cdot BF_3$   
c)  $I_2 + I^- \rightarrow I_3^-$                       d)  $NH_3 + BF_3 \rightarrow NH_3 \cdot BF_3$

36. The *pH* of  $10^{-8}$  M *HCl* solution is

- a) 6                      b) 8                      c) 6.98                      d) 8.62

37. When 200 ml of solution of *pH* = 2 is mixed with 300 ml of solution of *pH* = 3 the final *pH* of the solution will be

- a) 2.33                      b) 2.13                      c) 1.57                      d) 5

38. The conjugate acid of hydroxide ion

- a)  $O^{2-}$                       b)  $H_2O$                       c)  $H^+$                       d)  $H_3O^+$

39. The dissociation constant of acetic acid is  $1.8 \times 10^{-5}$ , the hydrolysis constant of 0.1 M sodium acetate is

- a)  $1.8 \times 10^{-19}$                       b)  $1.8 \times 10^{-5}$                       c)  $5.56 \times 10^{-10}$                       d)  $55.6 \times 10^{-10}$

40. Solubility of  $Hg_2Cl_2$  in a solvent is *S* moles/litre. Its solubility product will be:

- a)  $16 S^2$                       b)  $8 S^2$                       c)  $16 S^4$                       d)  $4 S^3$

MATHS

41. If  $\alpha, \beta$  are roots of the quadratic equation  $x^2 - x + 1 = 0$ . Then  $\alpha^4 + \beta^4 =$

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

42.  $D_1$  is the discriminant of the quadratic equation  $4x^2 - 5x - 6 = 0$  and  $D_2$  is the discriminant of the quadratic equation  $9x^2 - 6x - 8 = 0$ . Then the value of  $\sqrt{D_1} - \sqrt{D_2} =$

- a) 18                      b) 10                      c) 11                      d) 7

43. If the product of the roots of  $5x^2 - 4x + 38 - k(-4x^2 - 2x - 1) = 0$  is -5 then the value of  $k + 2$  is

- a) 5                      b) 3                      c) 1                      d) -1

44. If  $\alpha, \beta, \gamma$  such that  $\alpha + \beta + \gamma = 2, \alpha^2 + \beta^2 + \gamma^2 = 6, \alpha^3 + \beta^3 + \gamma^3 = 8$ . Then  $\alpha\beta\gamma =$

- a) -1                      b) -2                      c) 18                      d) 2

45. If  $\cos \theta + \sec \theta = 2$  then  $\cos^{2017} \theta + \sec^{2017} \theta$  is

- a) 2                      b) 0                      c) 2017                      d) 4

46. The number of points, having both coordinates as integers, that lie in the interior of the triangle with vertices  $(41,0)$ ,  $(0,41)$  and  $(0,0)$  is
- a) 861                      b) 780                      c) 901                      d) 820
47. If  $(3,2)$ ,  $(-3,2)$ ,  $(0, h)$  are the vertices of an equilateral triangle and  $h < 0$  then the value of  $h$  is
- a)  $2 + 3\sqrt{3}$               b)  $3 + 3\sqrt{3}$               c)  $2 - 3\sqrt{3}$               d)  $3 - 3\sqrt{3}$
48. The centroid of  $\Delta ABC$  is  $(2,7)$ . The points  $B, C$  lie on  $x, y$  axes respectively and  $A = (4,8)$  then  $B$  and  $C$  are
- a)  $(2,0), (0,13)$               b)  $(0,2), (13,0)$               c)  $(6,3), (2,0)$               d) None
49. If the points  $(k, 2 - 2k)$ ,  $(-k + 1, 2k)$ ,  $(-k + 1, 2k)$ ,  $(-4 - k, 6 - 2k)$  are collinear then  $k$  is
- a)  $\frac{1}{2}, -1$                       b)  $1, \frac{1}{2}$                       c)  $\frac{57}{6}, \frac{37}{6}$                       d) 1
50. If the mid points of the sides  $\overline{AB}, \overline{BC}, \overline{CA}$  of  $\Delta ABC$  are  $(6, -1)$ ,  $(-4, -3)$ ,  $(2, -5)$  respectively. Then centroid of  $\Delta ABC$  is
- a)  $(-\frac{4}{3}, 3)$                       b)  $(\frac{4}{3}, -3)$                       c)  $(4,1)$                       d)  $(1,4)$
51. If  $\tan^2 \theta = 1 - k^2$ , then  $\sec \theta + \tan^3 \theta \operatorname{cosec} \theta =$
- a)  $(1 - k^2)^{3/2}$                       b)  $(2 - k^2)^{1/2}$                       c)  $(2 - k^2)^{3/2}$                       d)  $(1 + k^2)^{3/2}$
52. In the right angled  $\Delta ABC$ ,  $\angle B = 90^\circ$  and  $\tan C = \frac{1}{2}$ . If  $AC = 6 \text{ cm}$ , then the length of the side  $BC$  is
- a)  $\frac{12}{5} \text{ cm}$                       b)  $\frac{12}{\sqrt{5}} \text{ cm}$                       c)  $\frac{5}{12} \text{ cm}$                       d)  $\frac{5}{\sqrt{12}} \text{ cm}$
53. If  $\cos x + \cos^2 x = 1$ . Then  $\sin^{12} x + 3 \sin^{10} x + 3 \sin^8 x + \sin^6 x =$
- a) 2                                  b) -2                                  c) 1                                  d) 0
54. The value of  $(\sin \theta + \operatorname{cosec} \theta)^2 - (\tan^2 \theta + \cot^2 \theta) + (\cos \theta + \sec \theta)^2 =$
- a) 0                                  b) 6                                  c) 8                                  d) 7
55. The shadow of a pole of height  $(\sqrt{3} + 1)$  metres standing on the ground is found to be 2 metres longer when the elevation is  $30^\circ$  than when elevation was  $\theta$ . Then  $\theta =$
- a)  $75^\circ$                                   b)  $60^\circ$                                   c)  $45^\circ$                                   d)  $30^\circ$
56. A house subtends a right angle at the window of an opposite house and the angle of elevation of the window from the bottom of the first house is  $60^\circ$ . If the distance between the two houses be 6 m, then the height of the first house is
- a)  $8\sqrt{3}m$                                   b)  $6\sqrt{3}m$                                   c)  $4\sqrt{3}m$                                   d)  $2\sqrt{3}m$
57.  $\sqrt{1 - \sin^2 100^\circ} \cdot \operatorname{cosec} 100^\circ =$
- a) -1                                  b) 1                                  c) 0                                  d)  $1/2$



58. If  $\sqrt{\frac{1-\cos\theta}{1+\cos\theta}} = \operatorname{cosec}\theta - \cot\theta$ . Then  $\theta$  lies in the quadrants  
 a) I, II                                      b) II, III                                      c) III, IV                                      d) I, IV
59. If  $\tan(\alpha + \beta) = \sqrt{3}$ ,  $\tan(\alpha - \beta) = 1$ . Then  $\tan 6\beta =$   
 a) 0    b) -1    c) 1    d) 2
60. If  $\tan 20^\circ = p$ . Then  $\frac{\tan 610^\circ + \tan 700^\circ}{\tan 560^\circ - \tan 470^\circ} =$   
 a)  $\frac{1-p^2}{1+p^2}$                                       b)  $\frac{1+p^2}{1-p^2}$                                       c)  $\frac{2p}{1+p^2}$                                       d)  $\frac{2p}{1-p^2}$

## BIOLOGY

61. Euglena is  
 a) Prokaryotic multi-cellular non chlorophyllus form  
 b) Prokaryotic unicellular non chlorophyllus form  
 c) Eukaryotic multi-cellular chlorophyllus form  
 d) Eukaryotic unicellular chlorophyllus form
62. Respiration is  
 a) Catabolic metabolism                                      b) Anabolic metabolism  
 c) Catabolic- anabolic metabolism                                      d) all
63. Find out which of the following is false  
 a)  $6CO_2 + 12H_2O \rightarrow C_6H_{12}O_6 + 6O_2 + 6H_2O$                                       b)  $C_6H_{12}O_6 + 6O_2 \rightarrow 6CO_2 + 12H_2O + 36ATP$   
 c)  $C_6H_{12}O_6 \rightarrow 3CO_2 + 2C_2H_5OH + 2ATP$                                       d)  $C_6H_{12}O_6 \rightarrow 2C_3H_6O_3 + 2ATP$
64. Which of the following is correct?  
 a) Fish is with undivided ventricle  
 b) Frog is with incompletely divided ventricle  
 c) lizard is with completely divided ventricle  
 d) Crocodile with completely divided ventricle
65. Micturition is  
 a) Only hormonal regulation                                      b) Only neural regulation  
 c) Hormonal & neural regulation                                      d) None
66. Which of the following involved in hip joint  
 a) Glenoidcavity                                      b) Tuberculum                                      c) Acetabulum                                      d) Capitulum
67. Malfunction of which of the following causes 'ataxia'  
 a) Cerebrum                                      b) cerebellum                                      c) crura cerebri                                      d) cerebral peduncles

68. Which of the following is correct?

- a) Cretinism is due to deficiency of somatotropin
- b) Dwarfism is due Hyperthyroidism
- c) Pineal gland is biological clock
- d) Inability of  $\beta$  cells in pancreas causes diabetes mellitus

69. Choose correct answer

- i) HIV causes AIDS
- ii) HIV belongs to Retro viruses category
- iii) It has reverse transcriptase enzyme
- iv) It Hosts in body fluids
- a) (i) & (ii) only
- b) (ii) & (iii) only
- c) (iii) & (iv) only
- d) all

70. Match the following

Column-I	Column-II
a) Alveoli	i) Osseous Tissue
b) haversian system	ii) Hepar
c) Cell	iii) Pulmones
d) Hepatic lobule	iv) life
a) $a - iii, b - i, c - ii, d - iv$	b) $a - iii, b - iv, c - i, d - ii$
c) $a - iii, b - ii, c - i, d - iv$	d) $a - iii, b - i, c - iv, d - ii$

71. Most acceptable theory of evolution is

- a) Special creation
- b) Spontaneous generation
- c) Chemical evolution
- d) Biogenesis

72. Mammals evolved from

- a) Reptiles
- b) Birds
- c) Amphibians
- d) (a) & (b)

73. Fertilization in human being occurs at

- a) Infundibular-ampulla junction
- b) ampulla-Isthemic junction
- c) Isthemic-Infundibular junction
- d) at any junction of Reproductive track

74. Phenomenon of plasmolysis occurs when

- a) cells are kept in hypertonic solution
- b) cells are kept in hypotonic solution
- c) cells are kept in Isotonic solution
- d) None of the above

75. Translocations of carbohydrates in phloem occurs in the form of

- a) Starch
- b) Fructose
- c) Maltose
- d) Sucrose

76. Assimilatory power in photosynthesis refers to

- a)  $ATP + NADPH_2 + CO_2$
- b)  $ATP + NADPH_2$
- c)  $ATP$
- d)  $NADPH_2$

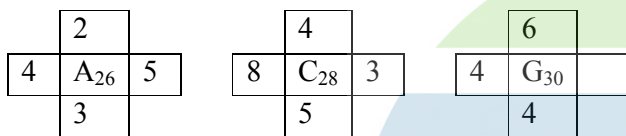
77. ATP can be formed in the photosynthesizing plant cells by

- a) Photophosphorylation
- b) Oxidative phosphorylation
- c) Substrate level phosphorylation
- d) All of the above

78. The hormone responsible for apical dominance is
- a) *IAA*                                      b) *GA*                                      c) *ABA*                                      d) florigens
79. Which one of the following growth regulators is known as "Stress hormone"
- a) *ABA*                                      b) Ethylene                                      c)  $GA_3$                                       d) *IAA*
80. A long day plant, flowers only if exposed to a light period
- a) More than its critical day length                                      b) less than its critical day length  
c) Equal to its critical day length                                      d) Slightly less than its critical day length

### MENTAL ABILITY TEST

81. Find the missing numbers 2, 17, 82, 257, 626, ?
- a) 2179                                      b) 2146                                      c) 1296                                      d) 1297
82. Find the wrong terms in the series 2, 6, 30, 250, and 3130
- a) 2                                      b) 6                                      c) 250                                      d) 3130
83. Find the missing term in the given figures?



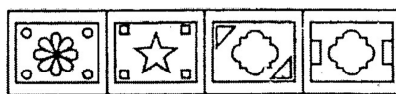
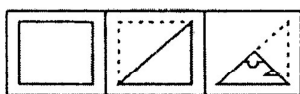
- a) 4                                      b) 3                                      c) 2                                      d) 5
84. A man is facing west. He then turns  $135^\circ$  in clockwise direction and then turn  $90^\circ$  in anti-clockwise direction and another  $225^\circ$  in anti-clockwise direction and then  $315^\circ$  in clock wise direction. At last he is facing which direction?
- a) North-East                                      b) South-West                                      c) North-West                                      d) South-East
85. One evening before sunset two friends Vimal and Kamal were taking to each other face to face. If Kamal shadow was exactly to his left side, which direction was Vimal facing?
- a) North                                      b) South                                      c) South -West                                      d) North- West
86. **Statements:**      I: Some pencils are papers      II: Some papers are boxes.
- Conclusions:**      I. Some pencils are boxes.      II. Some boxes are pencils.  
                                    III. Some boxes are papers.      IV. Some papers are pencils.
- a) Only conclusions I and II follow.                                      b) Only conclusions II and III follow.  
c) Only conclusions III and IV follow.                                      d) All conclusions follow.
87. **Statements:**      I: All doors are cots.      II: Some cots are erasers.
- Conclusions:**      I: Some doors are erasers.                                      II. All cots are doors.  
                                    III. Some cots are doors.                                      IV. Some erasers are doors.
- a) Only conclusions III and IV follow.                                      b) Only conclusions I and II follow.  
c) Only conclusion IV follows.                                      d) Only conclusion III follows

88. If SAT=41, MAT=47 then NTSE will be equal to?  
 a) 88                                      b) 58                                      c) 50                                      d) 53
89. In a certain code, COMPUTER is written as RFUVQNPC. How is MEDICINE written in same code?  
 a) EOJDEJFM                              b) EOJDJEFM                              c) MFEJDJOE                              d) MFJEDJOE
90. In a certain code language: "pit na som" means "bring me water", "na jo tod" means "water is life", "tub od pit" means "give me toy" and "jo lin kot" means "life and death"  
 Which of the following represent "is" in the language?  
 a) tod                                      b) na                                      c) jo                                      d) is
91. Botany: Plants :: Entomology:?  
 a) Snakes                                      b) Insects                                      c) Birds                                      d) Germs
92. A cube is painted blue on all faces and is then cut in to 125 cubes of equal size. How many cubes are not painted on any face?  
 a) 25                                      b) 64                                      c) 27                                      d) 36
93. Pointing towards a woman in the photograph, Vijay said "the only daughter of her paternal grandfather is my wife". How is Vijay related to that Woman?  
 a) Brother                                      b) Father                                      c) Cousin                                      d) Uncle
94. "P + Q" means "P is the brother of Q", "P \* Q" means "P is the father of Q" and "P / Q" means "P is the mother of Q"  
 Which of the following would mean "R" is the son of "M"?  
 a) M/R\*S                                      b) M\*S/R                                      c) M+R\*S                                      d) M\*S\*R
95. The calendar for the year 2007 will be the same for the year?  
 a) 2018                                      b) 2012                                      c) 2017                                      d) 2013
96. How many times are the hands of a clocks perpendicular in a day?  
 a) 42                                      b) 44                                      c) 48                                      d) 46

**Direction (97 - 98):** In each of the following questions, a paper is folded and cut with scissor as shown in the problem figures given below. You have to select from the answer figures a, b, c and d a figure which will appear on the unfolded paper shown in the problem figure.

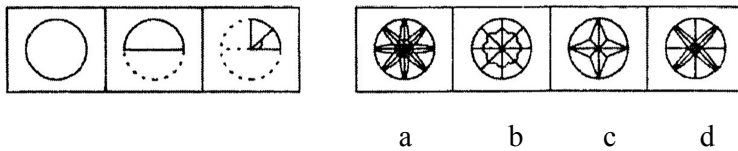
97. Problem Figures

Answer Figures

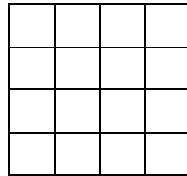


a                                      b                                      c                                      d

98. Problem Figures Answer Figures



99. Count the number of squares in the following figure?



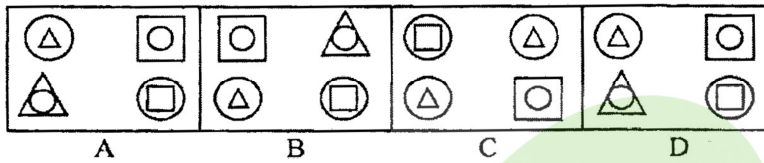
a) 16

b) 25

c) 28

d) 30

100. In each of the following questions, out of the five figures A, B, C and D four are similar in a certain way. One figure is not like the other four. Choose the figure which is different from the rest.



*“In order to succeed, your desire for **SUCCESS** should be greater than your fear of failure”.*

**ROUGH WORK**





## ZENITH PROGRAMME

The best brains compete to get admitted to this two-year legendary course offered by us. The course, unmatched in its rigour and precision, paves way for the students to the corridor of this very zenith of preparation. The stimulating atmosphere of this institute, small batches – for we do believe in imparting quality education with a limited strength in a class, and one-to-one interaction with the instructor ensure that every rough edge is smoothed, every small doubt is cleared. More importantly, because we motivate and enthuse them to think analytically, we make for IIT-JEE a systematic approach to problem-solving mandatory.

## RANKER SPECIAL BATCH (RSB) PROGRAMME

RSB is a fast-track program, designed relying on decades of experience in order to train students in the right way that they realize their full potential. Let us suppose that a student takes a week to learn a concept on his/her own. If he/she is taught the same concept in a general atmosphere, he/she may take four days to learn it. If a highly experienced teacher teaches it, he/she can get it in not more than a couple of days. If supported with a wholesome learning environment – practice, doubt clearance, periodic tests and a timely feedback, the student is likely to achieve complete in a half day. This is all about RSB and its goal.