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SECTION-A : PHYSICS

This section contains **20 Multiple Choice Questions**. Each question has four choices (1), (2), (3) and (4) out of which **ONLY ONE** is correct.

1. An object experiences net force and exhibits an acceleration in response. Which of the following statements is always true ?

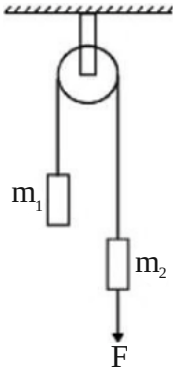
(1) The object moves in the direction of the force.

(2) The acceleration is in the same direction as the velocity.

(3) The acceleration is in the same direction as the net force.

(4) The velocity of the object increases.

2. Infigure m_1 = 2 kg, m_2 = 5 kg and F = 21N. Find the acceleration of blocks.



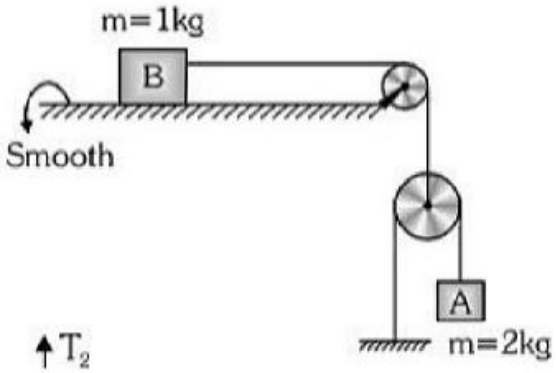
(1) 5 m/s^2

(2) 7 m/s^2

(3) 10 m/s^2

(4) 14 m/s^2

3. In the given figure, the value of acceleration of block A is :



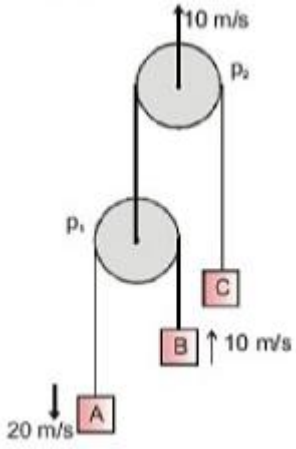
(1) 4g/9

(2) 3g/7

(3) 8g/9

(4) None of these

4. Velocities of blocks A, B and pulley p, are shown in figure. Find velocity of pulley p_1 and block C.



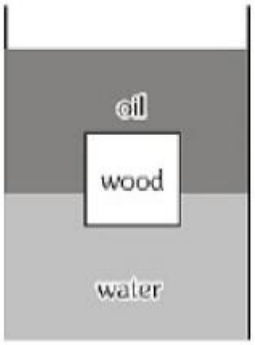
(1) $V_{P_1} = 10\ m/s \downarrow, V_C = 25\ m/s \uparrow$

(2) $V_{P_1} = 5\ m/s \uparrow, V_C = 25\ m/s \uparrow$

(3) $V_{P_1} = 5\ m/s \downarrow, V_C = 25\ m/s \downarrow$

(4) $V_{P_1} = 5\ m/s \downarrow, V_C = 25\ m/s \uparrow$

5. Acubical block of wood of side of 10 cm, floats at the interface between oil and water as shown in figure with its lower face 2 cm below the interface. The density of oil is 0.6 g/cm^3. The mass of the block is



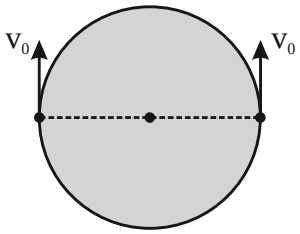
(1) 600 g (2) 680 g
(3) 800 g (4) 200 g

6. A shell is fired from a cannon with a velocity v (m/s) at an angle θ with the horizontal direction. At the highest point in its path it explodes into two pieces of equal mass. One of the pieces retraces its path to the cannon and the speed (m/s) of the other piece immediately after the explosion is :—

(1) $3v\cos\theta$ (2) $2v\cos\theta$

(3) $\frac{3}{2}v\cos\theta$ (4) $\sqrt{\frac{3}{2}}v\cos\theta$

7. Two particles of mass m, constrained to move along the circumference of a smooth circular hoop of equal mass m, are initially located at opposite ends of a diameter and given equal velocities v_0 shown in the figure. The entire arrangement is located in gravity free space. Their velocity just betore collision is



(1) $\frac{1}{\sqrt{3}}v_0$ (2) $\frac{\sqrt{3}}{2}v_0$

(3) $\frac{2}{\sqrt{3}}v_0$ (4) $\frac{\sqrt{7}}{3}v_0$

8. C_p and C_v are specific heats at constant pressure and constant volume respectively. It is observed that
$C_p - C_v = a$ for hydrogen gas
$C_p - C_v = b$ for nitrogen gas
The correct relation between a and b is :

(1) a = b (2) a = 14b

(3) a = 28b (4) $a = \frac{1}{14}b$

9. A particle starts from rest with uniform acceleration a. Its velocity after n seconds is v. The displacement of the body in the last two secondis is :

(1) $\frac{2v(n-1)}{n}$ (2) $\frac{v(n-1)}{n}$

(3) $\frac{v(n+1)}{n}$ (4) $\frac{2v(2n+1)}{n}$

10. Foran ideal gas PT^{11} = constant then volume expansion coefficient is equal to :-

(1) $\frac{11}{T}$ (2) $\frac{1}{T}$

(3) $\frac{12}{T}$ (4) $\frac{2}{T}$

11. The acceleration of a particle is increasing linearly with time *t* as *bt*. The particle starts from the origin with an initial velocity v_0 The distance travelled by the particle in time *t* willbe

(1) $v_0t+\frac{1}{3}bt^2$ (2) $v_0t+\frac{1}{3}bt^3$

(3) $v_0t+\frac{1}{6}bt^3$ (4) $v_0t+\frac{1}{2}bt^3$

12. A particle is projected from a horizontal plane (x-z plane) such that its velocity vector at time t is given by $\vec{v}=a\hat{i}+(b-ct)\hat{j}$. Its range on the horizontal plane is given by :

(1) $\frac{ba}{c}$ (2) $\frac{2ba}{c}$

(3) $\frac{3ba}{c}$ (4) None

13. From a tower of height H, a particle is thrown vertically upwards with a speed u. The time taken by the particle, to hit the ground, is n times that taken by it to reach the highest point of its path. The relation between H, u and n is:

(1) $2g\ H = n^2u^?$ (2) $gH = (n-2)^2\ u^2$

(3) $2g\ H = nu^2(n-2)$ (4) $gH = (n-2)u^2$

14. In the case of a fluid, Bernoulli's theorem expresses the application of the principle of conservation of:-

(1) Linear momentum (2) Energy

(3) Mass (4) Angular momentum

15. A body attains a height equal to the radius of the Earth when projected from Earth' surface. The velocity of the body with which it was projected is :–

(1) $\sqrt{\frac{GM_e}{R}}$ (2) $\sqrt{\frac{2GM_e}{R}}$

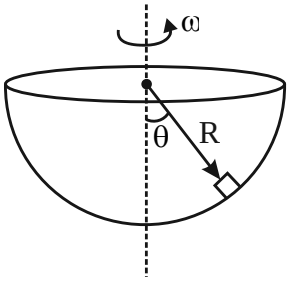
(3) $\sqrt{\frac{5}{4}\frac{GM_e}{R}}$ (4) $\sqrt{\frac{3GM_e}{R}}$

16. A particle executes simple harmonic motion with a frequency f. The frequency with which its kinetic energy oscillates is :-

(1) $\frac{f}{2}$ (2) f

(3) 2f (4) 4f

17. A hallow hemispherical bowl having radius of inner smooth surface R = 80 cm is rotated with angular velocity ω = 5 rad/s, A small object is placed at rest w.r.t. the bowl at position as shown. Find angle θ.



(1) 30 (2) 45

(3) 37 (4) 60

18. A particle moving horizontally collides with a fixed plane inclined at 60° to the horizontal. If it bounces vertically, the coefficient of restitution is:

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

(3) $\frac{1}{3}$ (4) None of these

19. The magnitude of displacement of a particle moving in a circle of radius a with constant angular speed ω varies with time 't' as.

(1) $2a\sin\omega t$

(2) $2a\sin\frac{\omega t}{2}$

(3) $2a\cos\omega t$

(4) $2a\cos\frac{\omega t}{2}$

20. Amonkey of mass 40 kg climbs on a rope which can stand a maximum tension of 600 N. Calculate tension in rope in following cases. In which case will the rope break :

Neglect the mass of string. (g = 9.8 ms^{-2})

(1) The monkey climbs up with an acceleration of 6 m s^{-2}.

(2) The monkey climbs down with an acceleration of 4 m s^{-2}.

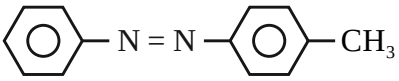
(3) The monkey climbs up with a uniform speed of 5 m s^{-1}.

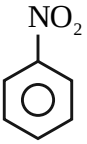
(4) None of these

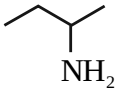
SECTION-B : CHEMISTRY

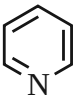
This section contains **20 Multiple Choice Questions**. Each question has four choices (1), (2), (3) and (4) out of which **ONLY ONE** is correct.

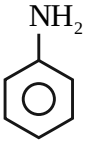
21. For which of the following compounds Kjeldahl method is not used for estimation of nitrogen ?

(A) 

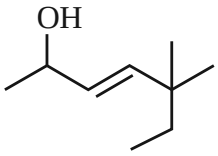
(B) 

(C) 

(D) 

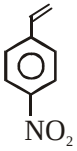
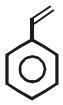
(E) 

(1) A, B, D and E
(2) A, B and D
(3) A and D
(4) D and E

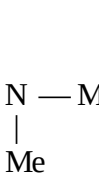
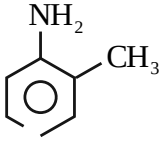
22.  The correct IUPAC name of the given compound is -

(1) 5, 5 dimethyl hept-3-en-2ol
(2) 5 ethyl 5 methyl hex-3-en-2ol
(3) 5, 5 diethyl hex 3-en-2-ol
(4) 5 ethyl 2 hydroxy 5 methyl hex-3ene

23. Decreasing order of reactivity with HCl for :-

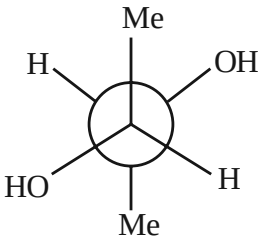
(A)  (B)  (C) 

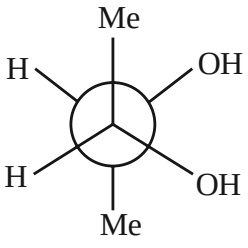
(1) A < C < B
(2) C > B > A
(3) C > A > B
(4) None

24. Order of basic strength Ph — NH_2, Ph — NH — Me, Ph —  — Me, 

(1) A > B > C > D
(2) B > A > C > D
(3) C > B > A > D
(4) C > B > D > A

25. Among the following, the Newmann projections of meso-2, 3-butanediol are :


P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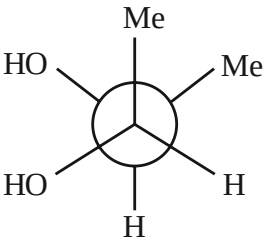
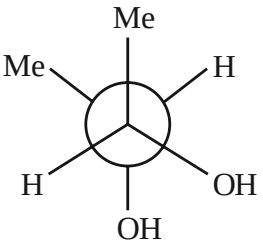

R


S

(1) P, Q
(2) P, R
(3) R, S
(4) Q, S

26. Find major product of following reaction :

$HC\equiv C-CH_2-CH=CH_2 \xrightarrow{HCl\ (1mole)}$

(1) $H_2C=\underset{\underset{Cl}{|}}{C}-CH_2-CH=CH_2$ (2) $CH\equiv C-CH_2-\underset{\underset{Cl}{|}}{CH}-CH_3$

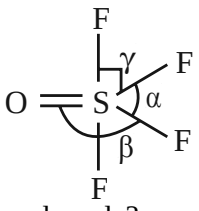
(3) $HC\equiv C-CH_2-CH_2-CH_2Cl$ (4) $ClHC=CH-CH_2-CH=CH_2$

27. The first seven successive ionisation energy (in eV/atom) of element 'X' are 8 eV/atom, 16 eV/atom, 33 eV/atom, 45 eV/atom, 166 eV/atom, 205 eV/atom and 246 eV/atom respectively. The element 'X' can be :-

(1) C (2) O

(3) N (4) Si

28. Consider the molecule given below,



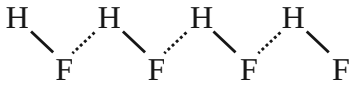
Which of the following is correct order of bond angle?

(1) $\alpha > \beta > \gamma$ (2) $\beta > \gamma > \alpha$

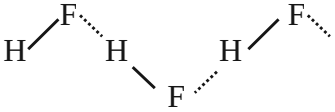
(3) $\alpha > \gamma > \beta$ (4) $\beta > \alpha > \gamma$

29. The H-bonds in solid HF can be best represented as :

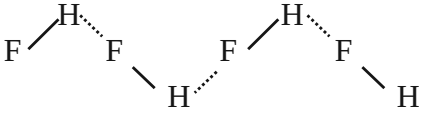
(1) H — F --- H — F --- H — F (2)



(3)



(4)



30. The alkali metals dissolve in liquid NH_3, it is found that :

(1) the dilute solution are blue but the colour changes to bronze with increasing concentration

(2) the blue colour is due to the presence of solvated electrons

(3) the blue solutions are paramagnetic but the bronze coloured solutions are diamagnetic

(4) all the facts given above are found

31. Alkali metals possess metallic lustre when freshly cut because :

(1) They have a hard surface and light is reflected back

(2) Their crystal structure contains ordered arrangement of constituent atoms

(3) They contain loosely bound electrons which absorb the photons and then re-emit

(4) They are obtained from the minerals on which light has been falling for years

32. $B(OH)_3 + NaOH \rightleftharpoons NaBO_2 + Na\,[B(OH)_4] + H_2O$

How can this reaction is made to proceed in forward direction?

(1) Addition of cis- 1, 2 diol (2) Addition of Borax

(3) Addition of trans-1, 2 diol (4) Addition of Na_2HPO_4

33. For the reaction $H_2(g) + CO_2(g) \rightleftharpoons CO(g) + H_2O(g)$, if the initial concentration of $[H_2] = [CO_2]$ and x moles/litre of hydrogen is consumed at equilibrium the correct expression of K_p is :-

(1) $\frac{x^2}{(1-x)^2}$ (2) $\frac{(1+x)^2}{(1-x)^2}$

(3) $\frac{x^2}{(2+x)^2}$ (4) $\frac{x^2}{1-x^2}$

34. K_a for formic acid and acetic acid are 2.1×10^{-4} and 1.1×10^{-5} respectively. The relative strength of acids is:

(1) 2 : 1 (2) 2.3 : 1

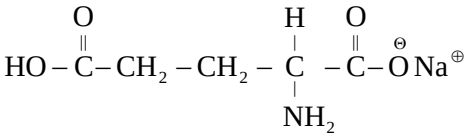
(3) 1 : 2.1 (4) 4.36 : 1

35. If $C_6H_{12}O_6(s) + 90_2(g) \rightarrow 6CO_2(g) + 6H_2O(g)$; $\Delta H = -680$ kCal The weight of $CO_2(g)$ produced when 170 kCal of heat is evolved in the combustion of glucose is:-

(1) 265 g (2) 66 g

(3) 11 g (4) 64 g

36. Monosodium glutamate (MSG) is salt of one of the most abundant naturally occuring non-essential amino acid which is commonly used in food products like in "MAGGI" having structural formula as



Mass % of Na in MSG is-

(1) 14.8 (2) 15.1

(3) 13.6 (3) 16.1

37. Two solutions of a substance (non electrolyte) are mixed in the following manner. 480 ml of 1.5 M first solution + 520 ml of 1.2 M second solution. What is the molarity of the final mixture?

(1) 2.70 M (2) 1.344 M

(3) 1.50 M (3) 1.20 M

38. Arrange the orbitals of H-atom in the increasing order of their energy :

$3p_x, 2s, 4d_{xy}, 3s, 4p_z, 3p_y, 4s$

(1) $2s < 3s = 3p_x = 3p_y < 4s = 4p_z = 4d_{xy}$ (2) $2s < 3s < 3p_x = 3p_y < 4s = 4p_z = 4d_{xy}$

(3) $2s < 3s < 3p_x = 3p_y < 4s = 4p_z = 4d_{xy}$ (4) $2s < 3s < 3p_x = 3p_y < 4s < 4p_z < 4d_{xy}$

39. Methyl orange is

(1) Pink in acidic medium, yellow in basic medium

(2) Yellow in acidic medium, pink in basic medium

(3) Colourless in acidic medium, pink in basic medium

(4) Pink in acidic medium, colourless in basic medium.

40. If the velocity of an electron in 1st orbit of H-atom is v. What will be the velocity of electron in 3rd orbit of Li^{2+} ?

(1) v (2) v/3

(3) 3v (3) 9/v

Attempt any one of section C or D

SECTION-C : BIOLOGY

FOR ADMISSION IN MEDICAL STREAM

This section contains **20 Multiple Choice Questions**. Each question has four choices (1), (2), (3) and (4) out of which **ONLY ONE** is correct.

41. Collagen is

(1) Carbohydrate (2) Lipid (3) Fibrous protein (4) Globular protein

42. The steroid hormones easily pass through the plasma membrane through simple diffusion because they are _____

(1) Gaseous (2) Carbon-based (3) Water Soluble (4) Lipid Soluble

43. Isolated thylakoids suspended in a culture medium with CO_2 and H_2O do not produce hexose due to the absence of ?

(1) ATP (2) Enzyme (3) Proteins (4) Hill reagent

44. The hormone that participates in metabolizing calcium and phosphorous are called _____

(1) Glucagon (2) Calcitonin (3) Glycogen (4) None of the above

45. Bryophyllum can be propagated vegetatively by the

(1) Stem (2) Leaf

(3) Root (4) Flower

46. ____is involved in the synthesis of phospholipids.

(1) Mitochondria (2) Cytoplasm

(3) Endoplasmic Reticulum (4) Smooth Endoplasmic Reticulum

47. How many phenotypes can occur in the human blood group ABO with alleles $I^A I^B$ i?

(1) 2 (2) 3

(3) 4 (4) 1

48. In Mendel's experiments with garden pea, round seed shape (RR) was dominant over wrinkled seeds (rr), yellow cotyledon (YY) was dominant over green cotyledon (yy). What are the expected phenotypes in the F2 generation of the cross RRYY × rryy ?

(1) Round seeds with yellow cotyledons, and wrinkled seeds with yellow cotyledons.

(2) Only round seeds with green cotyledons.

(3) Only wrinkled seeds with yellow cotyledons.

(4) Only wrinkled seeds with green cotyledons.

49. Plasma, Red Blood Cells and Bicarbonates act as a medium for the transportation of carbon dioxide. The maximum amount of carbon dioxide is carried by which of the following

(1) Bicarbonates

(2) Red Blood Cells

(3) Plasma

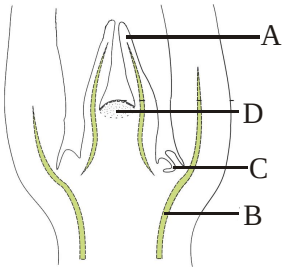
(4) Red Blood Cells and the Bicarbonates together carry about 70 percent of the carbon dioxide.

50. One of the reasons why some people cough after eating a meal may be due to the improper movement of _____

(1) Larynx (2) Diaphragm

(3) Neck (4) Epiglottis

51. Given below is the diagrammatic sketch of shoot apex. Identify the part labelled A, B, C, D & select right option about them



	A	B	C	D
(1)	Leaf primordium	Vascular tissue	Terminal bud	Axillary bud
(2)	Axillary bud	Vascular tissue	Apical meristem	Terminal bud
(3)	Leaf primordium	Vascular tissue	Axillary bud	Apical meristem
(4)	Axillary bud	Vascular tissue	Leaf primordium	Apical meristem

52. Identify the correct match from the Column-I and Column-II and Column-III.

	Column-I		**Column-II**		**Column-III**
1	Biodiversity	a	used in natural classification	i	Study of both external and internal characters
2	Gross morphology	b	identification, Nomenclature and classification	ii	Different type of plants and animals
3	Systematics	c	includes cytological informations	iii	Taxonomy
4	Neosystematics	d	different types and number of species	iv	includes ecological informations

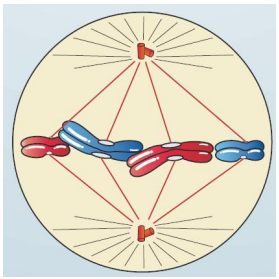
(1) 1-d,ii 2-a,i 3-b,iii 4-c,iv

(2) 1-a,i 2-b,ii 3-c,iii 4-d,iv

(3) 1-d,iv 2-c,iii 3-b,ii 4-c,i

(4) 1-d,iii 2-c,ii 3-a, iv 4-b, i

53.



Above figure represent the stage of cell division. Read the following statements.

(a) Initiation of condensation of chromatin

(b) Chromosomes are at equator

(c) Activity of recombinase enzyme

(d) Chromosome is made up of two chromatids.

(e) Homologous chromosomes start pairing together

How many of the above statements are true with respect to above figure.

(1) Four (2) One (3) Two (4) Three

54. Following are the statements regarding photosynthetic pigments :-

(A) Chlorophyll-a is amphipathic in nature.

(B) β-carotene is most common type of phycobilins found in plants.

(C) In chromatogram, chlorophyll-b appear yellow green in colour.

(D) Chlorophyll has porphyrin head with manganese at the centre.

How many of the above statements are right ?

(1) Four (2) Three (3) Two (4) One

55. How many of the following structure is associated with stomach ?

(a) Rugae

(b) Brush border

(c) Lacteals

(d) Oblique muscle

(e) Mucosa

(1) Two (2) Four

(3) Three (4) Five

56. Read the following four statements (A-D) :-

(A) Being crystalloid, protoplasm exhibits tyndall effect

(B) Protoplasm has capability of assimilation

(C) In majority of living cells, protoplasm is present in gel phase

(D) Sol is a type of colloidal solution

How many of the above statements are wrong ?

(1) Four (2) Three

(3) Two (4) One

57. Which one of the following statement is incorrect ?

(1) The Principle of countercurrent flow facilitates efficient respiration in gills of fishes.

(2) In insects, circulating body fluids serve to distribute oxygen to tissues.

(3) The residual air in lungs slightly decreases the efficiency of respiration in mammals.

(4) The Presence of non-respiratory air sacs, increase the efficiency of respiration in birds.

58. Consider the following four statements (a-d) and select the option which includes all incorrect statements :-

(a) All muscles are ectodermal in origin.

(b) Muscles do not have the property of elasticity.

(c) Voluntary muscles are generally associated with skeletal components of body.

(d) Visceral muscles are striated muscles.

Options :

(1) Statements (a), (b) and (c) (2) Statement (c) Only

(3) Statements (a), (b) and (d) (4) Statements (a) and (d)

59. Which of the given statement is false :-

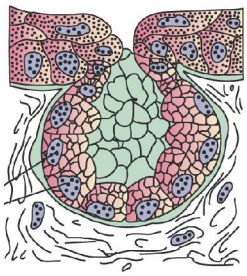
(1) Nissl's granule are the centre of protein synthesis.

(2) Amacrine cells of retina are example of pseudounipolar neuron.

(3) Centripetal conduction takes place in dendron

(4) Myelin sheath act as insulator and prevents leakage of ions

60. Chosse the incorrect option w.r.t. the secretion of given tissue in the given figure :-



(1) Saliva (2) Mucus

(3) Tear (4) Milk

SECTION-D : MATHEMATICS

FOR ADMISSION IN ENGINEERING STREAM

This section contains **20 Multiple Choice Questions**. Each question has four choices (1), (2), (3) and (4) out of which **ONLY ONE** is correct.

61. The value of $3+\cfrac{1}{4+\cfrac{1}{3+\cfrac{1}{4+\cfrac{1}{3+\text{------}\infty}}}}$ is equal to

(1) $1.5+\sqrt{3}$ (2) $2+\sqrt{3}$ (3) $3+2\sqrt{3}$ (4) $4+\sqrt{3}$

62. Let α and β be the root of $x^2 - 6x - 2 = 0$. If $a_n = \alpha^n - \beta^n$ for $n \geq 1$, then the valule of $\frac{a_{10} - 2a_8}{3a_9}$ =

(1) 2 (2) 4 (3) 1 (4) 3

63. If $\log_3 2$, $\log_3(2^x - 5)$, $\log_3\left(2^x - \frac{7}{2}\right)$ are in arithmetic progression, then the value of x is

(1) An even integer (2) A prime number (3) Divisible by 7 (4) Divisible by 6

64. The angle of elevation of a jet plane from a point A on the ground is 60°. After a flight of 20 seconds at the speed of 432 km/hr, the angle of elevation changes to 30°. If the jet plane is flying at a constant height, then its height is

(1) $1800\sqrt{3}$m (2) $3600\sqrt{3}$m (3) $2400\sqrt{3}$m (4) $1200\sqrt{3}$m

65. The intersection of three lines x – y = 0, x + 2y = 3, and 2x + y = 6 is a

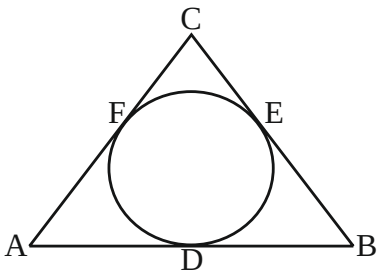
(1) Right angled triangle (2) Equilateral triangle

(3) Isosceles triangle (4) None of these

66. The number of rational terms in the binomial expansion of $(4^{1/4} + 5^{1/6})^{120}$ is

(1) 20 (2) 21 (3) 22 (4) 23

67. In the adjacent figure, if AB = 10 cm, BC = 12 cm and AC = 14 cm then AD =



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

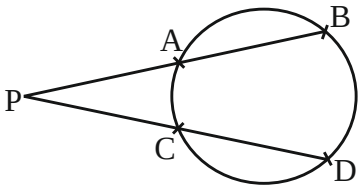
68. For what value of m, equation 2x + my - 4 = 0, 3x - 7y - 10 = 0 has no solution ?

(1) $\frac{2}{3}$ (2) $\frac{4}{10}$ (3) $\frac{-14}{3}$ (4) $\frac{14}{3}$

69. Find the least number which when divided by 12, leaves a remainder of 7, when divided by 15, leaves a remainder of 10 and when divided by 16, leaves a remainder a remainder of 11.

(1) 115 (2) 235 (3) 247 (4) 475

70. In the given figure, AB and CD are two chords of a circle intersecting at point P. If PC = 3 cm and PD = 4 cm, PA = (x + 2) cm, PB = (x + 3) cm, then x =



(1) 4 cm (2) 2 cm (3) 3 cm (4) 1 cm

71. If $m^2 - n^2 = 7$, where m, $n \in Z$, then, number of ordered pairs (m, n) is

(1) 1 (2) 2 (3) 3 (4) 4

72. Number of positive integers x for which $f(x) = x^3 - 8x^2 + 20x - 13$, is a prime number, is

(1) 1 (2) 2 (3) 3 (4) 4

73. The first term of an infinite G.P is 1 and any term is equal to the sum of all the succeeding terms. Then the series is

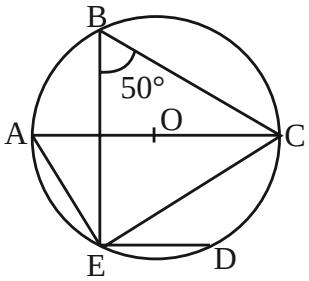
(1) $1, \frac{1}{2}, \frac{1}{4}, \frac{1}{8}, \ldots\ldots \infty$ (2) $1, \frac{1}{3}, \frac{1}{9}, \frac{1}{27}, \ldots\ldots \infty$

(3) $1, \frac{1}{4}, \frac{1}{16}, \frac{1}{64}, \ldots\ldots \infty$ (4) $1, \frac{1}{5}, \frac{1}{25}, \frac{1}{125}, \ldots\ldots \infty$

74. The number of positive integral solutions of $\frac{x^2(4-3x)^3(x-2)^4}{(x-5)^5(2x-7)^6} \geq 0$ is

(1) 1 (2) 2 (3) 3 (4) 4

75. In the given figure the chord ED is parallel to the diameter AC of the circle with centre O, then $\angle CED$ is equal to



(1) 40° (2) 50° (3) 60° (4) None of these

76. The number of ways in which 10 identical apples can be distributed among 6 children so that each child receives atleast one apple is

(1) 126 (2) 252 (3) 378 (4) None of these

77. The mean of the data set comprising of 16 observations is 16. If one of the observation valued 16 is deleted and three new observations valued 3, 4, 5 are added to the data, then the mean of the resultant data, is

(1) 16.8 (2) 16.0 (3) 15.8 (4) 14.0

78. The angle between the two tangents from origin to the cirlce $(x - 7)^2 + (y + 1)^2 = 25$ equals

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

79. The line $12x \cos\theta + 5y \sin\theta = 60$ is tangent to which of the following curves ?

(1) $x^2 + y^2 = 169$ (2) $144x^2 + 25y^2 = 3600$

(3) $25x^2 + 12y^2 = 3600$ (4) $x^2 + y^2 = 60$

80. A tangent is drawn to the parabola $y^2 = 6x$ which is perpendicular to the line $2x + y = 1$. Which of the following points does not lie on it ?

(1) (–6, 0) (2) (4, 5) (3) (5, 4) (4) (0, 3)

SECTION-E : IQ (MENTAL ABILITY)

This section contains **20 Multiple Choice Questions**. Each question has four choices (1), (2), (3) and (4) out of which **ONLY ONE** is correct.

81. **Direction :** Which sequence of letters when placed at the blanks one after the other will complete the given series ?
ac _ cab _ baca _ aba _ acac
(1) aacb (2) acbc (3) babb (4) bcbb

82. If **PAPER** is **11.20**, **PENCIL** is **9.83**, what will be the **PEN** ?
(1) 12.80 (2) 11.60 (3) 11.66 (4) 13.8

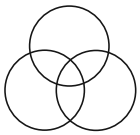
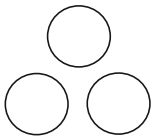
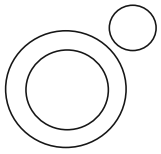
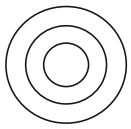
83. **Directions :** Find the missing numbers.
1, 1, 4, 8, 9, ? ,16, 64
(1) 21 (2) 27 (3) 25 (4) 28

84. If + is x, - is +, x is ÷ and ÷ is -, then what is the value of given equation
$12 \times 4 + 5 \div 2 - 10 = ?$
(1) 20 (2) 39.66 (3) 23 (4) 39.33

85. If East become North-West, North-West become South and so on then what will South become ?
(1) North-West (2) South-West (3) West (4) North-East

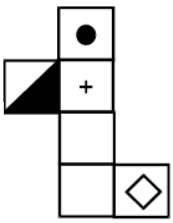
86. **Directions :** Six Persons P, Q, R, S, T and U are sitting in a circle facing one another front to front. P is sitting in front of Q, Q is sitting to the right of T and left of R, P is to the left U and right of S.
Who is sitting opposite to S ?
(1) U (2) T (3) R (4) Q

87. **Directions : The following questions are based on the following information :**
Five men A, B, C, D and E read a newspaper. The one who reads first gives it to C. The one who reads last had taken from A. E was not the first or last to read. There were two readers between B and A.?
B passed the newspaper to whom ?
(1) A (2) C (3) D (4) E

88. **Directions : Each question below contains three groups of things. You are to choose from the following four numbered diagrams, the diagram that depicts the correct relationship among the three groups of things in each question.**
Vegetable, Fruit, Mango
(1) 
(2) 
(3) 
(4) 

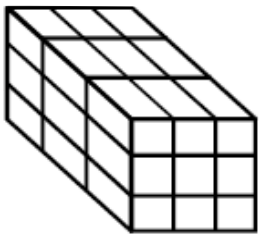
89. **Directions :** In each of the questions below are given two statements and two conclusions numbered I and II. You have to take the given two statements to be true even if they seem to be at variance from commonly known facts. Read the conclusions and then decide which of the given conclusions logically follows from the two given statements.
Statements : All students are boys
No boy is dull
Conclusions (i) : There is no girl student in the class
(ii) : No student is dull
(1) Only conclusion I is true (2) Only conclusion II is true
(3) Both conclusions I and II are true (4) Neither conclusion I nor conclusion II is true

90. Karan was born on 29th February 1972. How many birthdays he celebrate upto 2008 ?
(1) 8 (2) 9 (3) 10 (4) 11

91. Direction: (X) 

(1)  (2)  (3)  (4) 

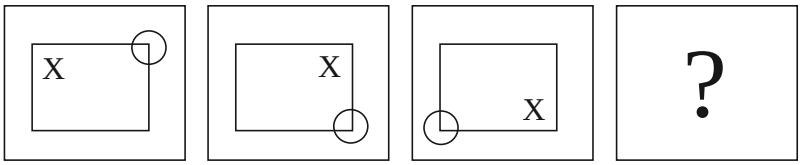
92. Twenty seven cubes are arranged in a block as shown below. How many cubes are surrounded by other cubes on all sides ?



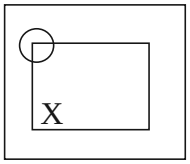
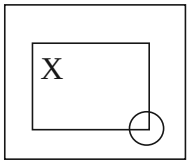
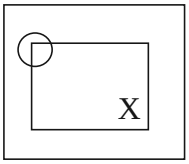
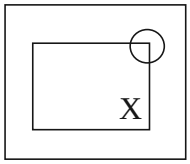
(1) 3 (2) 1 (3) 9 (4) 6

93. **Direction :** Find the next figure of the given series

Problem Figures



Answer figures

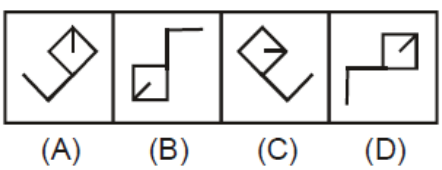
(1)  (2)  (3)  (4) 

94. **Directions :** In each of the following questions there is a certain relation between two given numbers on (LHS) of : : and one number is given on (RHS) of : : while another number is to be found out at the? Mark of given alternatives having the same relation with this number.

42 : 20 : : 64 : ?

(1) 31 (2) 32 (3) 33 (4) 34

95. Find the odd one out.



(1) A (2) B (3) C (4) D

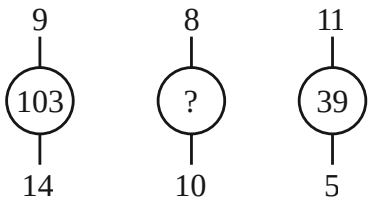
Direction : (96 to 98) Find the missing term.

96.

24X	40N	512R
6F	10J	32F
80B	100V	?

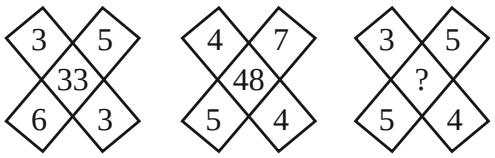
(1) 320 T
(2) 400 G
(3) 1800 F
(4) 1800 K

97.



(1) 62
(2) 102
(3) 84
(4) 74

98.



(1) 47
(2) 45
(3) 37
(4) 35

99. If 1st October is Sunday, then 1st November will be

(1) Monday
(2) Tuesday
(3) Wednesday
(4) Thursday

100. Five girls are standing in a circle facing the centre. Suman is between Lata and Asha. Mamta is to the right of Lata. If Suman and Mamta interchange their positions, who will be fourth to the left of Rajani?

(1) Lata
(2) Suman
(3) Asha
(4) Mamta

SHARP_CLASS- XI

ANSWER KEY

TEST DATE:

PHYSICS	**Q. No**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**	**18**	**19**	**20**
	Ans.	3	2	3	4	2	1	4	2	1	3	3	2	3	2	1	3	4	3	2	1
CHEMISTRY	**Q. No.**	**21**	**22**	**23**	**24**	**25**	**26**	**27**	**28**	**29**	**30**	**31**	**32**	**33**	**34**	**35**	**36**	**37**	**38**	**39**	**40**
	Ans.	2	1	2	3	2	2	4	4	3	4	3	1	1	4	2	3	2	1	1	1
BIOLOGY	**Q. No.**	**41**	**42**	**43**	**44**	**45**	**46**	**47**	**48**	**49**	**50**	**51**	**52**	**53**	**54**	**55**	**56**	**57**	**58**	**59**	**60**
	Ans.	3	4	2	2	2	4	3	1	1	4	3	1	3	3	3	3	2	3	2	2
MATHS	**Q. No.**	**61**	**62**	**63**	**64**	**65**	**66**	**67**	**68**	**69**	**70**	**71**	**72**	**73**	**74**	**75**	**76**	**77**	**78**	**79**	**80**
	Ans.	1	1	2	4	3	2	3	3	2	4	4	3	1	3	1	1	4	3	2	3
MAT	**Q. No.**	**81**	**82**	**83**	**84**	**85**	**86**	**87**	**88**	**89**	**90**	**91**	**92**	**93**	**94**	**95**	**96**	**97**	**98**	**99**	**100**
	Ans.	1	3	2	3	4	2	2	3	3	2	2	2	1	1	3	4	1	4	3	3