



PANDEY SIR'S IITIAN CLASSES

• IIT-JEE • MEDICAL • FOUNDATION • BOARD

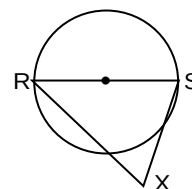


INSTRUCTIONS:

1. This Questions paper contains 13 printed pages and 90 questions. All questions are compulsory. Please ensure that the question Paper you have received contains all questions and pages. If you find some mistake like missing questions or pages then contact the invigilator immediately.
2. The Question Paper contains 45 questions of Science, 25 questions of Mathematics and 20 questions of Mental Ability.
3. All questions are straight objective type questions and each carries 4 options for their answers out of which only one is correct.
4. Each Question carries **4 Marks**.
There is **NO NEGATIVE** Marking.
0 marks will be awarded for an unattempted question.
5. You have to indicate your response by darkening the appropriate bubble on the OMR sheet provided.
6. Use only HB pencil or Black/Blue Ball Pen for darkening the bubble(s).
7. Use of calculator, Blank Paper, Log Table, Slide Rule & Mobile is not allowed. If you are carrying any of these, then keep them at a place specified by invigilator at your own responsibility.

Class: 9th Moving 10th

- Q1.** N is a three-digit number. It exceeds the number formed by reversing the digits by 792. Its hundreds digit can be
 (a) 9 (b) 8 (c) Either 8 or 9 (d) None of these
- Q2.** If $a = \sqrt{6} - \sqrt{3}$, $b = \sqrt{3} - \sqrt{2}$ and $c = \sqrt{2} - \sqrt{6}$, then find the value of $a^3 + b^3 + c^3 - 2abc$.
 a) $3\sqrt{2} - 5\sqrt{3} - \sqrt{6}$ b) $3\sqrt{2} - 5\sqrt{3} - \sqrt{6}$ c) $3\sqrt{2} - 4\sqrt{3} + \sqrt{6}$ d) $3\sqrt{2} + 4\sqrt{3} + \sqrt{6}$
- Q3.** In a class, 45% of the students drink pulpy orange and 90% of the remaining students drink maaza. No student drinks both maaza and pulpy orange. Then the percentage of the students of the class who drink neither maaza nor pulpy orange, is
 (a) 4.5% (b) 6.5% (c) 7.5% (d) 5.5%
- Q4.** A trader claims to sell his goods at cost price. But he gives only 900 g for every one kg. Then his profit percentage, is
 (a) $11\frac{1}{9}\%$ (b) $9\frac{1}{11}\%$ (c) 10% (d) $12\frac{1}{2}\%$
- Q5.** $\sqrt{\sqrt{63} + \sqrt{56}}$ is equal to
 a) $\sqrt[4]{7}(\sqrt{3} + \sqrt{5})$ b) $\sqrt[4]{7}(\sqrt{3} + 1)$ c) $\sqrt[4]{7}(\sqrt{3} + \sqrt{5})$ d) $\sqrt[4]{7}(\sqrt{2} + 1)$
- Q6.** Factors of $(x^2 - 2ax + a^2 - b^2)$ is
 (a) $[x - (a + b)][x - (a + b)]$ (b) $[x + (a + b)][x - (a + b)]$
 (c) $[x - (a - b)][x - (a + b)]$ (d) $[x + (a - b)][x - (a - b)]$
- Q7.** The greatest among the following is
 (i) $\sqrt[3]{1.728}$ (ii) $\frac{\sqrt{3}-1}{\sqrt{3}+1}$ (iii) $\left(\frac{1}{2}\right)^{-2}$ (iv) $\frac{17}{8}$
 (a) i (b) iv (c) ii (d) iii
- Q8.** The average of A & B is 25, B & C is 28, and C & A is 21, then the average of A, B & C is (approximately)
 (a) 23 (b) 27 (c) 25 (d) 26
- Q9.** RS is a diameter of circle as shown in the diagram. X is a point lying outside the circle. Then $\angle RXS$ is
 (a) 90° (b) Greater than 90°
 (c) Lesser than 90° (d) Can not be determined from given data

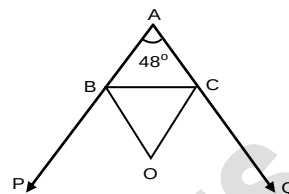


SPACE FOR ROUGH WORK



- Q10.** In the given figure BO and CO are the bisectors of the exterior angles of B and C. then $\angle BOC$ is

(a) 46° (b) 56°
(c) 66° (d) 76°



- Q11.** Amar and Bhavan have a certain amount with them. If Bhavan gives Rs 20 to Amar, he will have half the amount that Amar has now. If Amar gives Rs 40 to Bhavan, he will have half the amount that Bhavan has now. Find the amount Bhavan has.

a) 70 b) 90 c) 60 d) 80

- Q12.** If $x < y < 2x$; the median and the mean of x , y and $2x$ are 27 and 33 respectively, then find the mean of x and y .

a) 23.5 b) 24 c) 23 d) 25.5

- Q13.** From the month of August, whose first day is Tuesday, a day is selected. Find the probability that the day selected is not a Tuesday.

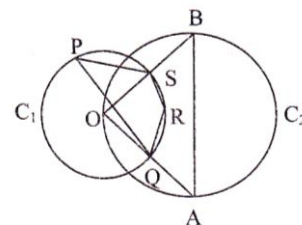
a) $5/6$ b) $26/31$ c) $6/31$ d) $27/31$

- Q14.** The probability that in a family of 3 children, there will be at least one boy is

(a) $\frac{7}{8}$ (b) $\frac{1}{8}$ (c) $\frac{1}{2}$ (d) $\frac{3}{4}$

- Q15.** In the shown figure (not to scale), O is the centre of the circle C_1 , and AB is the diameter of the circle C_2 . Quadrilateral PQRS is inscribed in the circle with centre O. Find $\angle QRS$.

a) 105° b) 115°
c) 135° d) 145°

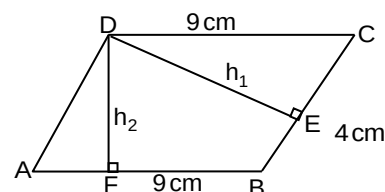


- Q16.** Two dice were rolled simultaneously. Find the probability that the sum of the numbers on them was a two-digit prime number.

a) $1/9$ b) $1/18$ c) $1/12$ d) $1/6$

- Q17.** The adjacent sides of a parallelogram are 4 cm and 9 cm. The ratio of its altitudes, i.e. h_1/h_2 is

(a) 16 : 81 (b) 9 : 4
(c) 2 : 3 (d) 3 : 2



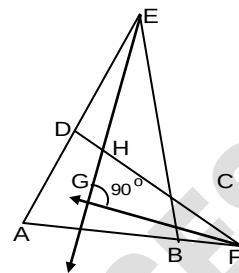
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Q18. In the given figure ABCD is a cyclic quadrilateral, $\angle DAB = 50^\circ$ and $\angle ABC = 80^\circ$.

$\overrightarrow{EG}$ and $\overrightarrow{FG}$ are the angle bisectors of $\angle DEC$ and $\angle BFC$. Find $\angle FHG$.

- a) 80° b) 90°
c) 75° d) 105°



Q19. In a triangle, the average of any two sides is 6 cm more than half of the third side. Find area of the triangle (in sq cm).

- a) $64\sqrt{3}$ b) $48\sqrt{3}$ c) $72\sqrt{3}$ d) $36\sqrt{3}$

Q20. Raman suffered a loss of 10% by selling an article. Had he sold it at Rs 180 more, he would have made a profit of 2%. Find his cost price (in Rs).

- a) 1350 b) 1800 c) 1650 d) 1500

Q21. In an election, there were only two contestants P and Q. 14% of the total votes polled were invalid. The number of valid votes secured by P was 15% more than that secured by Q. What percentage of the total votes were polled in favour of Q?

- a) 48% b) 37.5% c) 40% d) 31.5%

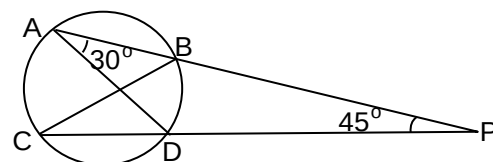
Q22. Rs 585 is to be divided among A, B and C in the ratio 3 : 4 : 6. By mistake, it is divided in the ratio $\frac{1}{6} : \frac{1}{4} : \frac{1}{3}$.

Find the loss incurred to C due to this mistake (in Rs).

- a) 10 b) 15 c) 20 d) 25

Q23. Two chords AB and CD of a circle cut each other when produced outside the circle at P, AD and BC are joined. If $\angle PAD = 30^\circ$ and $\angle CPA = 45^\circ$. Find $\angle CBP$

- a) 105° b) 115°
c) 135° d) None

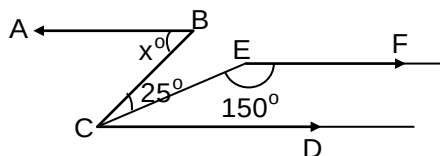


Q24. At the rate of m metres per s seconds, how many metres does a cyclist travel in x minutes?

- a) $\frac{m}{sx}$ b) $\frac{60mx}{s}$ c) $\frac{60m}{s}$ d) $\frac{60ms}{x}$

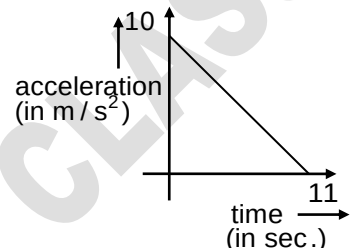
Q25. In the figure find x if $AB \parallel CD \parallel EF$.

- a) 45° b) 55°
c) 60° d) 70°



SPACE FOR ROUGH WORK



- Q26.** A 150 m long train is moving with a uniform velocity of 45 km/h . The time taken by the train to cross a bridge of length 850 meters is
 (a) 56 sec (b) 68 sec (c) 80 sec (d) 92 sec
- Q27.** A body moving with an initial velocity of 5 m/s accelerates at 2 m/s^2 . Its velocity after 10 seconds is
 (a) 20 m/s (b) 25 m/s (c) 5 m/s (d) 22.5 m/s
- Q28.** A particle starts from rest. Its acceleration (a) versus time (t) is as shown in the figure. The maximum speed of the particle will be
 (a) 110 m/s (b) 55 m/s
 (c) 550 m/s (d) 660 m/s
- 
- Q29.** The ratio of magnitudes of average speed to average velocity, is
 (a) Always less than one (b) Always equal to one
 (c) Always more than one (d) Equal to or more than one
- Q30.** Two wave pulses travel in opposite directions on a string and approach each other. The shape of one pulse is inverted with respect to the other.
 (a) The pulse will collide with each other and vanish after collision
 (b) The pulses will reflect each other that is pulse going towards right will finally move towards left and vice versa.
 (c) The pulses will pass through each other but their shapes will be modified.
 (d) The pulse will pass through each other without any change.
- Q31.** An astronaut with all her equipments has a mass of 95 kilograms. How much will she weight on the moon, where the acceleration due to gravity is $1.67 \text{ meter per second square}$?
 (a) 159 N (b) 169 N (c) 149 N (d) 100 N
- Q32.** A force of $2 \times 10^5 \text{ N}$ acts on a body of mass $4 \times 10^4 \text{ kg}$ at rest for 10 s. The final velocity of the body is
 (a) 5 m s^{-1} (b) 50 m s^{-1} (c) 150 m s^{-1} (d) 250 m s^{-1}
- Q33.** A body is moving in a straight line with in increasing speed. The unbalanced force acts
 (a) In the direction of motion of the body
 (b) In a direction opposite to the direction of motion
 (c) In a direction perpendicular to the direction of motion of the body
 (d) None of these

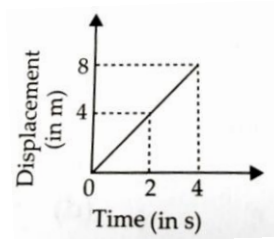
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Q34. Displacement-time graph of an object of mass 2 kg is shown in figure.

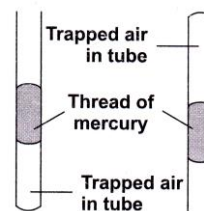
The force required to move the object for first four seconds is

- (a) 0 (b) 4 N
(c) 2 N (d) 8 N



Q35. A thin tube contains a thread of mercury which traps air at the end of the tube. The other end of the tube is open to the atmosphere. When the tube is turned slowly upside down, the volume of the trapped air increases. It is because,

- (a) The air gets hotter when the tube is turned upside down
(b) The atmosphere pushes less when it acts upwards on the mercury
(c) The pressure of the trapped air is reduced
(d) The trapped air molecules hit the mercury harder when travelling downwards.



Q36. During a football match, the ball shot towards the goal struck the defender's foot at the speed of 10 ms^{-1} and it bounces back at 20 m s^{-1} . If the time of impact was 0.2 sec, and mass of the ball is $1/2 \text{ kg}$, then average force exerted by defender on the ball is

- (a) 75 N (b) 35 N (c) 50 N (d) 40 N

Q37. If R is the radius of the earth, the height at which the weight of a body becomes $1/4$ its weight on the surface of the earth is

- (a) $2R$ (b) R (c) $\frac{R}{2}$ (d) $\frac{R}{4}$

Q38. A stone is dropped from the top of a tower. Its velocity after it has fallen 20 m is

- (a) 5 ms^{-1} (b) 10 ms^{-1} (c) 15 ms^{-1} (d) 20 ms^{-1}

Q39. A coin and a feather are dropped together from same height, in vacuum. Then

- (a) The coin will reach the ground first (b) The feather will reach the ground first
(c) Both will reach the ground at the same time (d) The feather will not fall down

Q40. If the distance between two bodies becomes 6 times original distance, then the force between them becomes

- (a) 36 times (b) 6 times (c) 12 times (d) $\frac{1}{36}$ times

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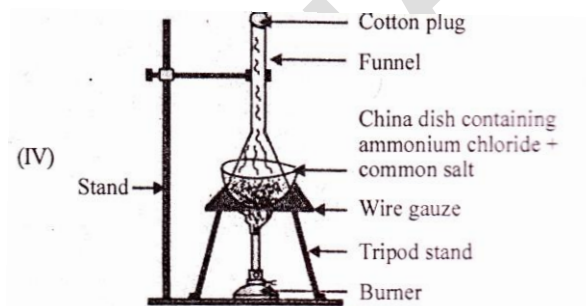
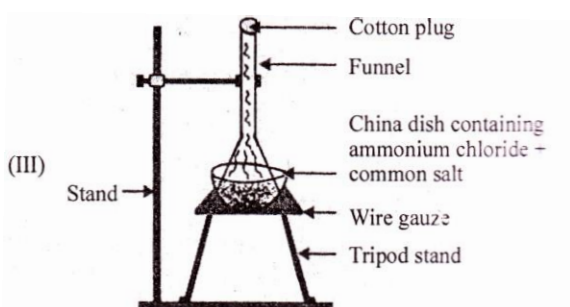
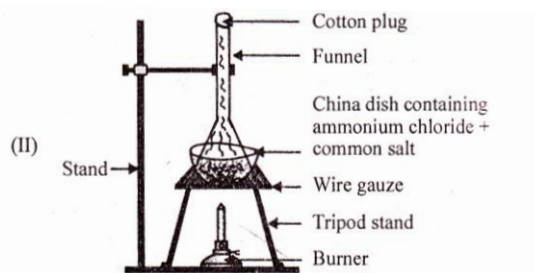
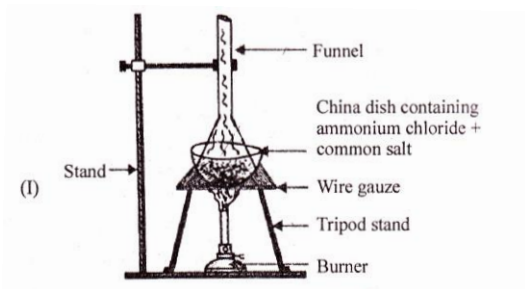
CHEMISTRY

- Q41.** Select the one that when used would be considered as best condition for liquefaction of a gas.
(a) Increasing the temperature.
(b) Decreasing the pressure
(c) Increasing the pressure and decreasing the temperature
(d) Decreasing the pressure and increasing the temperature.
- Q42.** The process of change of liquid state into gaseous state at constant temperature is known as
(a) Boiling (b) Melting (c) Fusion (d) Evaporation
- Q43.** Which of the following will yield a mixture?
(a) Crushing of marble tile
(b) Breaking of ice-cubes
(c) Addition of sodium metal to water in a china dish
(d) Agitating a detergent with water in a washing machine.
- Q44.** A few substances are arranged in the increasing order of 'forces of attraction' between their particles. Which one of the following represents a correct arrangement?
(a) Water < air < wind (b) Air < sugar < oil (c) Oxygen < water < sugar (d) Salt < juice < air
- Q45.** A mixture of common salt, sulphur, sand and iron filings is shaken with carbon disulphide and filtered through a filter paper. The filtrate is evaporated to dryness in a china dish. What will be left in the dish after evaporation ?
(a) Sand (b) Sulphur (c) Iron filings (d) Common salt
- Q46.** Chemical change is always accompanied by
(i) Production of sound (ii) Heat and light
(iii) Change in mass (iv) Change in colour
(a) (i) (ii) & (iii) (b) (ii) & (iv) (c) (i) only (d) (i), (ii) & (iv)

SPACE FOR ROUGH WORK



Q47. Which of the following is the correct arrangement for separation a mixture of common salt and ammonium chloride?



(a) I

(b) II

(c) III

(d) IV

Q48. Match Column I with Column II and select the correct answer using the codes given below the columns.

	Column I		Column I
(A)	Evaporation	(p)	Solid
(B)	Sponge	(q)	Diffusion
(C)	Spreading of virus on sneezing	(r)	Liquid into vapours above room temperature
(D)	Fusion	(s)	Liquid into vapours
(E)	Boiling	(t)	Melting

(a) A - (s); B-(q); C-(p); D-(t); E-(r)

(b) A-(s); B-(p); C-(q); D-(t); E-(r)

(c) A-(p); B-(s); C-(q); D- (t); E-(r)

(d) A-(s); B-(p); C-(q); D-(r); E-(t)

Q49. Consider the following statements:

(1) Colloids shows the property of tyndall effect

(2) We can regard solutions as homogeneous mixture.

Which of these statement (s) is /are correct ?

(a) (a) only

(b) (2) only

(c) Both (1) and (2)

(d) Neither (1) nor (2)

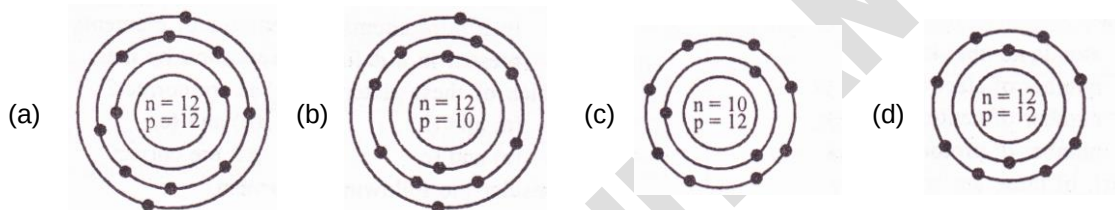
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- Q50.** Neon is
 (a) Monoatomic (b) Diatomic (c) Triatomic (d) Tetra atomic
- Q51.** The charge on an electron is
 (a) 1.6×10^{-6} coulombs (b) 1.6×10^{-20} coulombs (c) 1.6×10^{-19} coulombs (d) 1.6×10^{-16} coulombs
- Q52.** Which of the following correctly represents 360 g of water
 (i) 2 moles of H_2O (ii) 20 moles of water
 (iii) 6.022×10^{23} molecules of water (iv) 1.2044×10^{25} molecules of water
 (a) (i) (b) (i) and (iv) (c) (ii) and (iii) (d) (ii) and (iv)
- Q53.** In the Thomson's model of atom, which of the following statements are correct?
 (i) The mass of the atom is assumed to be uniformly distributed over the atom.
 (ii) The positive charge is assumed to be uniformly distributed over the atom.
 (iii) The electrons are uniformly distributed in the positively charged sphere
 (a) (i), (ii) and (iii) (b) (i) and (iii) (c) (i) and (iv) (d) (i), (iii) and (v)
- Q54.** Identify the Mg^{2+} ion from the fig. where, n and p represent the number of neutrons and protons respectively



- Q55.** No. of valence electrons in an element ${}^{14}_7X$ is :
 (a) 5 (b) 1 (c) 7 (d) 3

SPACE FOR ROUGH WORK



- Q56.** The undefined nuclear region in a bacteria is called
 (a) Nucleoid (b) Nucleus (c) Chromosome (d) Nucleolus
- Q57.** The SER helps in building the cell membrane. This process is called
 (a) Protein synthesis (b) Membrane abiogenesis
 (c) Membrane biogenesis (d) Glycogenesis
- Q58.** The organelles that contain their own genetic material are
 (a) Mitochondria, Vacuoles (b) Plastids, Golgi complex
 (c) Mitochondria, Plastids (d) Ribosomes, Nucleolus
- Q59.** Cardiac muscle cells are cylindrical, branched,
 (a) Uninucleate and voluntary (b) Uninucleate and involuntary
 (c) Multinucleate and voluntary (d) Multinucleate and involuntary
- Q60.** While doing work and running, you move your organs like hands, legs etc. Which among the following is correct ?
 (a) Smooth muscles contract and pull the ligament to move the bones.
 (b) Smooth muscles contract and pull the tendons to move the bones.
 (c) Skeletal muscles contract and pull the ligament to move the bones.
 (d) Skeletal muscles contract and pull the tendon to move the bones.
- Q61.** Find out the incorrect sentence
 (a) Parenchymatous tissues have intercellular spaces
 (b) Collenchymatous tissues are irregularly thickened at corners.
 (c) Apical and intercalary meristems are permanent tissues.
 (d) Meristematic tissues, in its early stage, lack vacuoles.
- Q62.** Match Column I with Column II and select the correct answer using the codes given below the columns.

	Column I		Column II
(A)	Cell wall	(p)	Workbench for protein synthesis
(B)	Cell membrane	(q)	External support and protection, made up of cellulose
(C)	Nucleus	(r)	Encloses cytoplasm, osmosis
(D)	Ribosomes	(s)	Location of chromatin

- (a) A - (q) ; B - (r) ; C-(s) ; D- (p)
 (c) A - (r) ; B - (q) ; C-(s) ; D- (s)

- (b) A - (r) ; B -(q) ; C - (s) ; D- (p)
 (d) A - (r) ; B-(p) ; C-(g) ; D-(s)

SPACE FOR ROUGH WORK



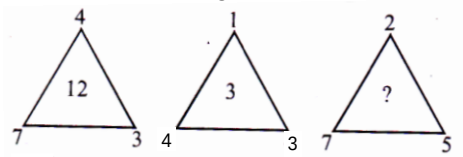
- Q63.** Consider the following statements:
(1) Robert Hooke discovered the nucleus in the cell.
(2) Nucleus and mitochondria are surrounded by a double membrane.
Which of these statement(s) is/are correct?
(a) (1) only (b) (2) only (c) Both (1) and (2) (d) Neither (1) nor (2)
- Q64.** The entire body surface and cavities inside the body are lined by
(a) Muscle tissue (b) Epithelial tissue (c) Connective tissue (d) Nervous tissue
- Q65.** Consider the following statements:
(1) Lysosomes are called as 'suicide bags' of a cell.
(2) The folds of inner membrane of mitochondria increase the area for ATP generating chemical reactions.
(3) Lysosomes are produced by endoplasmic reticulum.
(4) *Chlamydomonas* is a multicellular organism.
Which of these statement(s) is/are correct?
(a) (1) and (2) (b) (1), (3) and (4) (c) (2), (3) and (4) (d) All are correct
- Q66.** The living cells providing tensile strength are
(a) Parenchyma (b) Collenchyma (c) Sclerenchyma (d) Sclerotic cells
- Q67.** Average life span of human R.B.C. is
(a) 100 days (b) 90 days (c) 120 days (d) 80 days
- Q68.** The fibrous tissue which connects the two bone is
(a) Connective tissue (b) Tendon (c) Ligament (d) Adipose tissue
- Q69.** The girth of the stem or root increases due to
(a) Apical meristem (b) Intercalary meristem (c) Lateral meristem (d) None
- Q70.** The thickening of the walls of the sclerenchyma tissues is due to
(a) Suberin (b) Magnesium (c) Lignin (d) Calcium

SPACE FOR ROUGH WORK



MENTAL ABILITY

Q71. From among the four alternatives given below, which number replaces the question mark?



- (a) 9 (b) 10 (c) 18 (d) 23

Q72. From among the four alternative given below, which letter replaces in the given figure the question mark?

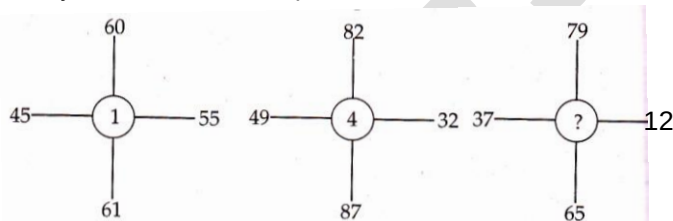
3	P	8
9	G	11
2	U	4
3	W	1
7	?	18

- (a) A (b) B (c) S (d) Y

Q73. Choose the correct mirror-image most closely resembles the word **source**, from the four given alternatives.

- (a) 20U109 (b) 901U02 (c) 910U02 (d) e c r u o s

Q74. Identify the number in the position of '?'.



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

Q75. A work can be completed by 40 workers in 40 days. If 5 workers leave every 10 days, in how many days work will be completed?

- (a) 55.66 (b) 56.44 (c) 56.66 (d) 54.66

SPACE FOR ROUGH WORK



- Q76.** Five friends A, B, C, D and E are standing in a row facing south but not necessarily in the same order. Only B is between A and E, C is immediate right to E and D is immediate left to A. On the basis of above information, which of the following statement is definitely true?
- a) B is to the left of A b) B is to the right of E
c) A is second to the left of C d) D is third to the left of E
- Q77.** Six persons A, B, C, D, E and F are sitting in two rows, three persons are sitting in each row
E is not at end of any row
D is second to the left of F
C, the neighbour of E, is sitting diagonally opposite to D
B is the neighbour of F
Who are sitting in each column?
(a) A and D; E and F; and B and C (b) A and F; D and E; and B and C
(c) B and D; A and C; and E and F (d) A and D; B and E; and F and C
- Q78.** The sum of the incomes of A and B is more than of C and D taken together. The sum of incomes of A and C is the same as that of B and D taken together. Moreover, A earns half as much as the sum of the incomes of B and D. Whose income is the highest?
(a) A (b) B (c) C (d) D
- Q79.** A cube whose two adjacent faces are coloured is cut into 64 identical small cubes. How many of those small cubes are not coloured at all?
a) 24 b) 32 c) 36 d) 48

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Q80. Study the following information and answer the question given below it:
Rohit, Kunal, Ashish and Ramesh are students of a school. Three of them stay far from the school and one near it. Two studies in class IV, one in class V and one in class VI. They study Hindi, Mathematics, Social Sciences and Science. One is good at all four subjects while another is weak in all of these. Rohit stay far from the school and is good at mathematics only while Kunal is weak in mathematics only and stay close to the school. Neither of these two nor Ashish studies in class VI. One who is good at all the subjects study in class V. Name the boy who is good at all the subjects.

- (a) Rohit (b) Ramesh (c) Kunal (d) Ashish

Q81. Find the number that does not belong to the group:

111, 331, 482, 551, 263, 383, 362, 284

- (a) 263 (b) 331 (c) 383 (d) 551

Q82.

Z	J	M
D	E	D
3	6	?

- (a) 6 (b) 8 (c) 7 (d) 9

Q83. If $54/32 = 4$, $36/42 = 3$, $92/22 = 7$ then what is $28/33 = ?$

- a) 5 b) 6 c) 4 d) 9

Q84. A boat starts with the speed of 1 km per hour. After every 1 km, the speed of boat becomes twice. How much will be the average speed of the boat at the end of journey of 2.5 km?

- (a) $\frac{2.5}{1.5125}$ (b) $\frac{2.5}{1.75}$ (c) $\frac{2.5}{1.625}$ (d) $\frac{2.5}{1.50}$

Directions for Question No.85: Answer the question based on the sequence of number given below.

3 8 2 3 7 2 8 3 3 7 8 2 8 3 7 8 7 3 7 8 7 3 8 2 7

Q85. How many time 8 comes between 2 and 3?

- (a) 2 (b) 3 (c) 4 (d) 5

SPACE FOR ROUGH WORK



ANSWERS

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

