

Important Notice

This sample paper is based on the half yearly Syllabus. STEPS Exam Will be on the same pattern based on the full syllabus.



PREMIER INSTITUTE
FOR
IIT - JEE | NEET | PRE - FOUNDATION

Sample Paper

Presently Studying in

Class - 08th

SET-A

Time : 2 hr.

Date : _____

F. M : 240

IMPORTANT INSTRUCTIONS

1. Immediately fill in the particulars on this page of the Test Booklet with Blue/Black Ball Point Pen. Use of pencil is strictly prohibited.
2. The candidates should not write their Form Number anywhere else (except in the specified space) on the test booklet/Answer Sheet.
3. The test is of **2 hours** duration.
4. The test Booklet consists of **60** questions. The maximum marks are **240**.
5. The distribution of marks subject wise in each part is as below for each correct response.
Section A : IQ (60 marks) – 15 Questions.
Section B : Mathematics (80 marks) – 20 Questions.
Section C : Science (60 marks) – 15 Questions.
Section D : Challenger (Maths) (40 marks) – 10 Questions.
6. Students cannot use log tables and calculators or any other material in the examination hall.
7. Students must abide by the instructions issued during the examination by the invigilators or the centre in charge.
8. Before attempting the question paper, ensure that it contains all the pages and that no question is missing.
9. Each correct answer carries **4 marks**. There is **no negative marking**.
10. A candidate has to write his / her answer in the **OMR** sheet by darkening the appropriate bubble with the help of **Blue / Black Ball Point** Pen only as the correct answer(s) to the question attempted.

Enrollment Id : _____ Test Date : _____

Student Name : _____

Parents Name : _____

Class _____ Roll No. _____

Mobile No : (Student) _____ (Father's) _____

SECTION -A [IQ]

This section contains 15 Multiple Choice Questions. Each question has four choices (A), (B), (C) and (D) out of which ONLY ONE is correct

1. A man is facing south. He turns 135° in the anticlockwise direction and then 180° in the clockwise direction. Which direction is he facing now ?
 (A) North-east (B) North-west (C) South-east (D) South-west
2. Deepak starts walking straight towards east. After walking 75 metres, he turns to the left and walks 25 metres straight. Again he turns to the left, walks a distance of 40 metres straight, again he turns to the left and walks a distance of 25 metres. How far is he from the starting point ?
 (A) 25 metres (B) 50 metres (C) 140 metres (D) None of these
3. Kishenkant walks 10 kilometres towards North. From there, he walks 6 kilometres towards South. Then, he walks 3 kilometres towards East. How far and in which direction is he with reference to his starting point ?
 (A) 5 kilometres West (B) 5 kilometres North-east
 (C) 7 kilometres East (D) 7 kilometres West

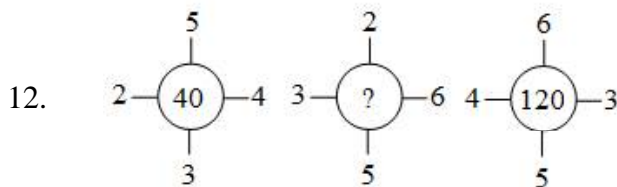
Direction-(Q.4-6)

In the following series find the number in place of question mark ?

4. 23, 19, $\frac{?}{?}$, 12, 9.
 (A) 14 (B) 15 (C) 16 (D) 17
5. $8\frac{4}{7}$, $9\frac{3}{3}$, $11\frac{5}{5}$, $13\frac{8}{4}$, $\frac{?}{?}$
 (A) $\frac{80}{3}$ (B) $\frac{70}{3}$ (C) $\frac{50}{3}$ (D) 20
6. 25, 22, 30, $\frac{?}{?}$, 35.
 (A) 27 (B) 26 (C) 28 (D) 29
7. In a certain code, GOODNESS is coded as HNPCODTR. How is GREATNESS coded in that code ?
 (A) HQFZUODTR (B) HQFZUMFRT
 (C) HQFZSMFRT (D) FSDBSODTR

ROUGH WORK

8. In a code language POSE is coded as OQNPRTDF, then TYPE will be coded as -
 (A) SUXZOQFD (B) SUXZQOFD
 (C) SUXZOQDF (D) SUXZQODE
9. If ROSE is coded as 6821, CHAIR is coded as 73456 and PREACH is coded as 961473, what will be the code for SEARCH ?
 (A) 246173 (B) 214673 (C) 214763 (D) 216473
10. Which name will come at 3rd place in a telephone directory from the following given names ?
 (A) AMIT (B) AMINA (C) ALOK (D) ABHIMAN
11. Which one of the following words will come fourth in the Dictionary?
 Propriety, Proposition, Prosecute, Prosposal, Prosody.
 (A) Proposition (B) Prosody (C) Proposal (D) Prosecute



- (A) 50 (B) 55 (C) 60 (D) 70

13.

| | | |
|-----|-----|----|
| 256 | 128 | 32 |
| 112 | 56 | 14 |
| 800 | 400 | ? |

- (A) 200 (B) 100 (C) 25 (D) 50

Directions (Q 14 & 15)

In each of the following questions three out of four alternatives contain alphabet placed in a particular form. Find the one that does not belong to the group.

14. (A) DBF (B) HFK (C) NLP (D) XVZ
 15. (A) NKMJ (B) FCEB (C) URTQ (D) TQRP

ROUGH WORK

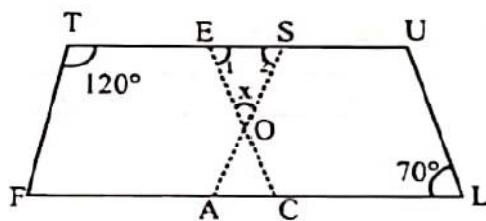
SECTION -B [MATHEMATICS]

This section contains 20 Multiple Choice Questions. Each question has four choices (A), (B), (C) and (D) out of which ONLY ONE is correct

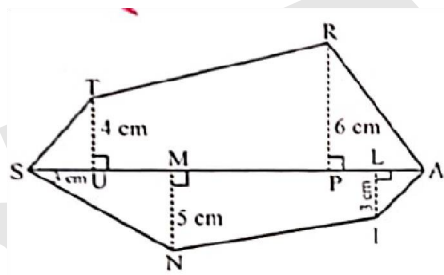
16. If $b = 2 \times 4 \times 6 \times \dots \times 98 \times 100$, then the number of zeroes at the end of B will be
 (A) 12 (B) 11 (C) 10 (D) 101.
17. Find the square root of $\frac{\left(3\frac{1}{4}\right)^4 - \left(4\frac{1}{3}\right)^4}{\left(3\frac{1}{4}\right)^2 - \left(4\frac{1}{3}\right)^2}$
 (A) $4\frac{5}{12}$ (B) $5\frac{5}{12}$ (C) $6\frac{5}{12}$ (D) $7\frac{5}{12}$
18. At the first stops on his route, a driver unloaded $\frac{2}{5}$ of the packages in his van. After he unloaded another three packages at his next stop, $\frac{1}{2}$ of the original number of packages remained. How many packages were in the van before the first delivery ?
 (A) 25 (B) 10 (C) 30 (D) 36
19. If $\left(\frac{p^2}{q}\right)^{5x+7} = \left(\frac{q^3}{p^3}\right)^{x-8}$, then the value of $(5x + 7)$ is
 (A) 12 (B) $10\frac{11}{13}$ (C) 17 (D) $7\frac{2}{9}$
20. If n leaves remainder 1 when divided by 2, then n^3 leaves a remainder of _____, when divided by 2.
 (A) 1 (B) 2 (C) 0 (D) 3
21. To construct a convex quadrilateral uniquely, it is necessary to know at least _____ of its building blocks.
 (A) four (B) five (C) six (D) three

ROUGH WORK

22. In the given figure, FAST and CLUE are parallelograms. Find the value of x.



- (A) 50° (B) 40° (C) 49° (D) 60°
23. Find the area of hexagon STRAIN, if SA=10CM, SL = 8CM, SP = 7CM, SM = 5CM, SU = 3CM, TU = 4CM, RP = 6CM, LI = 3CM AND MN = 5CM.



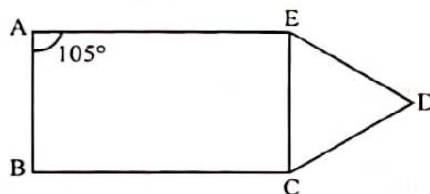
- (A) 61.5cm^2 (B) 63.5cm^2 (C) 60.5cm^2 (D) 62.5cm^2
24. The circumference of a circle is equal to the sum of the perimeters of an equilateral triangle of side 12cm and a square of diagonal $2\sqrt{2}$ cm, Find the area of the circle in cm^2 .
- (A) 44 (B) 144 (C) 154 (D) None of these
25. The expression $\sqrt{50} + \sqrt{32}$ is equivalent to which of the following ?
- (A) $\sqrt{82}$ (B) $9\sqrt{2}$ (C) $9\sqrt{1}$ (D) 36
26. $\sqrt[3]{1+3+5+7+\dots+53} =$
- (A) 11 (B) 13 (C) 7 (D) 9

ROUGH WORK

27. The sides of a quadrilateral are produced in order. What is the sum of the four exterior angles ?
 (A) 180° (B) 360° (C) 420° (D) 720°
28. The pair of equations $3^{x+y} = 81$, $81^{x-y} = 3$ has
 (A) no solution (B) the solution $x = 2\frac{1}{2}$, $y = 1\frac{7}{8}$
 (C) The solution $x = 2$, $y = 2$ (D) the solution $x = 2\frac{1}{8}$, $y = 1\frac{7}{8}$
29. The sum of two numbers is 48. The smaller number is less than the greater number by half the greater number. Find the greater number .
 (A) 24 (B) 32 (C) 36 (D) 34
30. $(3)^{0.8} \times (3)^{0.4} \div (9)^{0.2} = 3^x$ then $x =$
 (A) 0.6 (B) 0.26 (C) 0.8 (D) 0.72
31. A wire bent in the form of a circle of radius $\frac{8\sqrt{2}}{\pi}$ cm is cut and again bent in the form of square, then the area of square will be
 (A) $16\sqrt{2}$ sq.cm (B) $4\sqrt{2}$ sq.cm (C) 32sq.cm (D) $32\sqrt{2}$ sq.cm
32. Which is greatest among $(3)^{198}$, $(27)^{64}$, $(9)^{100}$ and $(81)^{49}$?
 (A) $(9)^{100}$ (B) $(81)^{49}$ (C) $(27)^{64}$ (D) 3^{198}
33. Let x and y the positive integers such that x is prime and y is composite, then which of the following is true ?
 (A) $y-x$ cannot be an even integer (B) xy cannot be an even integer
 (C) $\frac{x+y}{x}$ cannot be an even integer (D) $x+y$ is an integer

ROUGH WORK

34. In the given figure $AE=BC$ and $AE \parallel BC$ and the three sides AB , CD and ED are equal in length. If $m\angle A = 105^\circ$, find measure of $\angle AED$ (figure not upto the scale).



- (A) 75° (B) 105° (C) 135° (D) can't be determined
35. Ravi makes and sells wooden toy boats. For each boat, it costs him Rs 2.00 for the wood and Rs 1.00 for the materials to decorate it. He sells each boat for Rs 7.50, Which of these expression could represent the amount of money that ravi will make selling n boats after his costs to make each boat are deducted ?

n = number of boats sold

- (A) $7.5n-3$ (B) $7.5n+3$ (C) $n(7.5-3)$ (D) $n(7.5+3)$

SECTION -C [SCIENCE]

This section contains 15 Multiple Choice Questions. Each question has four choices (A), (B), (C) and (D) out of which ONLY ONE is correct

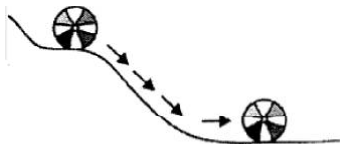
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36. A sperm consists of
 (A) One part (B) Two parts (C) Three parts (D) Four parts
37. Viviparous organism are the ones which
 (A) Produce eggs (B) Produce young ones
 (C) Both A and B (D) None of these
38. Chloroplast is found in
 (A) Plant cell only (B) Animal cell only
 (C) Both of these (D) None of these
-

ROUGH WORK

39. Single celled organisms are called
 (A) unicellular (B) Multi-cellular
 (C) Both of these (D) None of these
40. Cell is discovered by
 (A) Robert Brown (B) Robert Hooke
 (C) John Mendal (D) Charse Darwin
41. Which of the following is a natural fabric ?
 (A) Polyethylene (B) PVC (C) Nylon (D) Cotton
42. Why one should not wear polyester clothes while working in kitchen ?
 (A) It catches fire & sticks on the body (B) Clothes are costly
 (C) Moisture absorbing capacity is less (D) They are uncomfortable
43. Which is the most reactive metal of the following ?
 (A) Copper (B) Sodium (C) Calcium (D) Iron
45. Which among the following elements is metalloid:-
 (A) Beryllium (B) Barium (C) Boron (D) Bismith
45. In the laboratory, methane is prepared by heating a mixture of :
 (A) Sodium acetate and sodium carbonate (B) Sodium acetate and soda lime
 (C) Soda lime and sodium hydroxide (D) Soda lime and calcium oxide
46. When two unbalanced forces act on a body, in opposite directions, the net force is equal to
 (A) the sum of the individual unbalanced forces.
 (B) zero.
 (C) difference between the two unbalanced forces and is in the direction of the larger force.
 (D) difference between the two unbalanced forces and is in the direction of smaller force.
47. Nails have pointed ends. This results in
 (A) a decrease in the force exerted on them.
 (B) a decrease in the effect of the force exerted on them.
 (C) an increase in the force exerted on them.
 (D) an increase in the effect of the force exerted on them.

ROUGH WORK

48. Which of the following doesn't reduce friction ?
 (A) Ball bearing (B) Lubricant (C) Rolling (D) Grooving and treading
49. The diagram given below shows a ball rolling down a slope. The ball finally comes to a stop by itself.
 Which of the following statements describes what most likely caused the ball to stop ?



- (A) The heat produced as a result of its motion (B) The speed produced as a result of its motion
 (C) The friction between the ball and the surface (D) The energy produced as a result of its motion
50. Eardrum is a part of:
 (A) Sound producing organ (B) Skeletal system
 (C) Hearing organ (D) Reproductive organ.

SECTION -D [CHALLENGER]

This section contains 10 Multiple Choice Questions. Each question has four choices (A), (B), (C) and (D) out of which ONLY ONE is correct

51. If $x = \frac{\sqrt{3}+1}{\sqrt{3}-1}$ and $y = \frac{\sqrt{3}-1}{\sqrt{3}+1}$, then the value of $(x^2 + y^2)$ is.
 (A) 10 (B) 13 (C) 14 (D) 15
52. What should come in place of both x in the equation $\frac{x}{\sqrt{128}} = \frac{\sqrt{162}}{x}$
 (A) 12 (B) 14 (C) 144 (D) 196
53. A number when divided successively by 4 and 5 leaves remainders 1 and 4 respectively. When it is successively divided by 5 and 4, then the respective remainders will be
 (A) 1, 2 (B) 2, 3 (C) 3, 2 (D) 4, 1

ROUGH WORK

54. Which of the following statements is true?

(A) $\left(\frac{7}{9} - \frac{11}{12}\right) + \frac{2}{3} = \frac{7}{9} - \left(\frac{11}{12} + \frac{2}{3}\right)$

(B) $\left(\frac{8}{15} + \frac{6}{5}\right) - \frac{5}{12} = \frac{8}{15} + \left(\frac{6}{5} - \frac{5}{12}\right)$

(C) $8 - \left(2\frac{3}{5} + 2\frac{5}{12}\right) = 8 - 2\frac{3}{5} + 2\frac{5}{12}$

(D) $\frac{5}{2} - 0 = 0 - \frac{5}{2}$

55. Which of the following statements is false?

(A) $\left|\frac{-5}{3}\right|$ lies on the right of 0 on the number line.

(B) $-|-x| = x$ for all rational numbers.

(C) $\frac{-7}{17}$ lies on the left of 0 on the number line

(D) Every whole number is a rational number.

56. The area of a rectangle is length \times breadth. If the length is $(x + 3)$ units and breadth is $(y - 3)$ units then the area is :

(A) $xy - 3y + 3x - 9$

(B) $xy + 3y - 3x - 9$

(C) $xy + 3y + 3x - 9$

(D) $xy - 3y - 3x - 9$

57. If $x + \frac{1}{x} = 4$, find the value of $x^4 + \frac{1}{x^4}$.

(A) 194

(B) 196

(C) 190

(D) 184

58. Rahul has 260 coins of Re. 1, Rs. 2 and Rs. 5 all together. The total value of the money is Rs. 309. The number of Rs. 2 coins is three times the number of Rs. 5 coins. Find the number of 1 Rs coins.

(A) 232

(B) 200

(C) 210

(D) 243

59. In a regular polygon of n sides, the measure of each internal angle is

(A) $\frac{360^\circ}{n}$

(B) $\left(\frac{2n-4}{n}\right)90^\circ$

(C) $n90^\circ$

(D) $2n$ right angles.

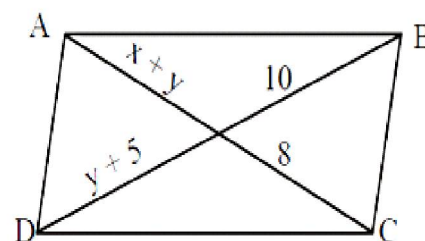
60. ABCD is a parallelogram as shown. Find x and y .

(A) 1, 7

(B) 2, 6

(C) 3, 5

(D) 4, 4



ROUGH WORK

ANSWER KEY

1. (D) 2. (D) 3. (B) 4. (C) 5. (D) 6. (A) 7. (B)
8. (C) 9. (B) 10. (B) 11. (B) 12. (C) 13. (B) 14. (B)
15. (D) 16. (A) 17. (B) 18. (C) 19. (B) 20. (A) 21. (B)
22. (A) 23. (D) 24. (C) 25. (B) 26. (D) 27. (B) 28. (D)
29. (B) 30. (C) 31. (C) 32. (A) 33. (D) 34. (C) 35. (C)
36. (C) 37. (B) 38. (A) 39. (A) 40. (A) 41. (D) 42. (A)
43. (B) 44. (C) 45. (D) 46. (C) 47. (D) 48. (D) 49. (C)
50. (C) 51. (C) 52. (A) 53. (B) 54. (B) 55. (B) 56. (B)

ROUGH WORK