



**Pre-  
Foundation  
Zeal  
Course**

**SAMPLE PAPER**

**SET**

**(Spectrum Entrance Test)**

**JEE-Advanced (IIT) | JEE-Main | NEET-UG | MHT-CET | Olympiad | Pre-Foundation**

**SPECTRUM ENTRANCE TEST**

TEST BOOKLET CODE : A

TEST CODE : 6598

Class : VIII

Date :

Time : 90 Min.

Max. Marks : 180

**INSTRUCTIONS**

- 1) This question paper consists of 60 questions divided into three parts:
  - **Part A: Mathematics** – 25 questions
  - **Part B: Mental Ability** – 25 questions
  - **Part C: Science** – 10 questions
- 2) Each question has four options (**A, B, C, and D**), with only one correct answer.
- 3) Marking Scheme:
  - **Correct Answer:** +3 marks
  - **Wrong Answer:** -1 mark
- 4) Before starting, ensure that your question paper contains **all questions and pages**. If you find any missing questions or pages, inform the **invigilator immediately**.
- 5) Mark your answers by **darkening the appropriate bubble** on the OMR sheet.
- 6) Use **only a black or blue ballpoint pen** to fill the bubbles.
- 7) The use of **calculators, log tables, slide rules, and mobile phones** is strictly **prohibited**.
- 8) Example: If only option '**B**' is correct, the correct method for filling the bubble is as follows:



A	B	C	D
<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>

Any other method (such as putting ⊙, ⊗ partial shading ● etc.) will be considered incorrect.

Name : ..... Reg. No. : .....

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**PART A: MATHEMATICS**

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**Q.1 to Q.25** has four choices (A), (B), (C), (D) out of which only **ONE** is correct.

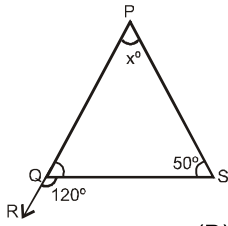
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1.  $25 \times (-5) \times (-4) \times (-20) =$  \_\_\_\_\_  
(A) 1000                      (B) -10,000                      (C) -1000                      (D) 10,000
2. If  $3\frac{2}{5} = 3 + x$ , then x equals :  
(A)  $\frac{3}{5}$                       (B)  $\frac{1}{5}$                       (C)  $\frac{2}{5}$                       (D)  $3\frac{2}{5}$
3. Samon travelled 5 km 52 metre by bus, 2 km 265 metre by car and the rest 1 km 30 metre he walked. Total distance travelled by him is :  
(A) 8.347 km                      (B) 8.000 km                      (C) 8.925 km                      (D) 9.000 km
4. The numbers 35, 105, 385 are divisible by :  
(A) 5                      (B) 7                      (C) both 5 & 7                      (D) None of these

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*SPACE FOR ROUGH WORK*

5. Measure of  $x^\circ$  in the given figure is :



- (A)  $60^\circ$  (B)  $70^\circ$  (C)  $80^\circ$  (D)  $55^\circ$

6. A triangle can have at the most \_\_\_\_\_ obtuse angle (s).

- (A) 1 (B) 2 (C) 3 (D) none

7. If length of a rectangle is doubled and breadth is halved, then the area of the rectangle \_\_\_\_\_

- (A) becomes 2 times (B) becomes half (C) remains same (D) becomes 4 times

8. Rakesh bought a CD for Rs 750 and sold it for Rs 875. Find his gain percent.

- (A)  $16\frac{1}{5}\%$  (B)  $16\frac{2}{5}\%$  (C)  $16\frac{1}{3}\%$  (D)  $16\frac{2}{3}\%$

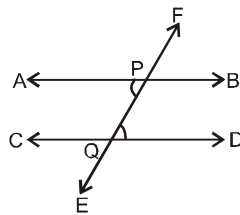
9. Value of a & b in the expression  $\frac{7}{15} = \frac{35}{a} = \frac{-63}{b}$  is :

- (A)  $a = 55$  &  $b = -120$  (B)  $a = 75$  &  $b = -135$  (C)  $a = 45$  &  $b = -75$  (D) None of these

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SPACE FOR ROUGH WORK

10. If  $\frac{2x-3/4}{9x+4/7} = \frac{1}{4}$  then  $x =$   
 (A)  $\frac{25}{7}$                       (B)  $-\frac{25}{7}$                       (C)  $\frac{23}{7}$                       (D)  $-\frac{23}{7}$
11. The ratio of the income of Sita and Gita is 2 : 3. If Sita's income is Rs. 9000, then Gita's income is  
 (A) Rs. 13,500                      (B) Rs. 6000                      (C) Rs. 12,000                      (D) None of these
12. If  $3(x + 5) + 16 = 5(x + 14) - 21$ , then  $x =$   
 (A)  $x = -8$                       (B)  $x = -7$                       (C)  $x = -6$                       (D)  $x = -9$
13. If AB and CD are two parallel lines and EF is a transversal which cuts AB at P and CD at Q, then  $\angle APQ$  and  $\angle PQD$  are called –

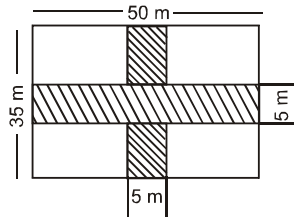


- (A) Corresponding angles                      (B) Alternate angles  
 (C) Interior opposite angles                      (D) Adjacent angles

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14. The diagram given along side shows two paths drawn inside a rectangular field 50 metres long and 35 metres wide. The width of each path is 5 metres. Find the area of the shaded portion.

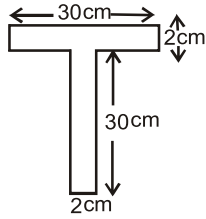


- (A)  $400 \text{ m}^2$                       (B)  $250 \text{ m}^2$                       (C)  $175 \text{ m}^2$                       (D)  $425 \text{ m}^2$
15. The total cost of flooring a room at Rs 8.50 per square metre is Rs 510. If the length of the room is 8 metre, then its breadth is  
 (A)  $50/4 \text{ m}$                       (B)  $60/8 \text{ m}$                       (C)  $70/5 \text{ m}$                       (D)  $25/4 \text{ m}$
16. By selling apples at the rate of Rs.  $24\frac{1}{4}$  per kilogram, a fruit-seller gets Rs. 8536. How many kilogram of apples did he sell ?  
 (A) 252                                  (B) 312                                  (C) 352                                  (D) 432
17. If  $a = -2$ ,  $b = 3$  and  $c = 4$ , then the value of  $a^3 + b^3 + 3a^2c - 4bc^3$  is :  
 (A) 107                                  (B)  $-107$                                   (C) 701                                  (D)  $-701$
18. If  $a = 2\frac{1}{2} \times 3\frac{1}{2}$  and  $b = 3\frac{1}{2} \div 2\frac{1}{2}$  then  
 (A)  $a > b$                                   (B)  $a < b$                                   (C)  $a = b$                                   (D) none of the above

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SPACE FOR ROUGH WORK

19. Perimeter of the given figure is



- (A) 94 cm                      (B) 124 cm                      (C) 120 cm                      (D) 96 m
20. Sum of  $3xy$ ,  $3yx$  and  $4x^2y$  is  
 (A)  $10x^2y$                       (B)  $10yx^2$                       (C)  $6xy + 4x^2y$                       (D)  $7xy + 3x^2y$
21. If  $x : 6 :: 32 : 24$  then, what is the value of  $x$  ?  
 (A) 7                      (B) 8                      (C) 6                      (D) 5
22. A marble tile measures 25 cm by 20 cm. To cover a wall of size 4 m by 3 m, then number of required tiles will be :  
 (A) 340                      (B) 270                      (C) 240                      (D) 120
23. Two wires 15 cm and 25 cm in length are to be cut into smaller pieces of equal length. What can be maximum length of each smaller piece ?  
 (A) 4 cm                      (B) 3 cm                      (C) 5 cm                      (D) 6 cm

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SPACE FOR ROUGH WORK

24. Arrange  $\frac{-5}{21}$ ,  $\frac{-12}{7}$ ,  $\frac{7}{-7}$  in descending order :

(A)  $\frac{-12}{7} > \frac{-5}{21} > \frac{7}{-7}$       (B)  $\frac{7}{-7} > \frac{-5}{21} > \frac{-12}{7}$       (C)  $\frac{-5}{21} > \frac{7}{-7} > \frac{-12}{7}$       (D)  $\frac{-5}{21} > \frac{-12}{7} > \frac{7}{-7}$

25. The length and breadth of a rectangle are 20 cm and 15.5 cm. Calculate its perimeter.

(A) 50 cm                      (B) 76 cm                      (C) 71 cm                      (D) 40 cm

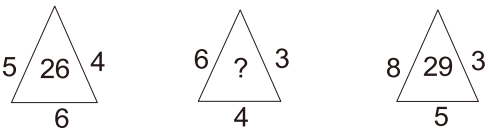
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*SPACE FOR ROUGH WORK*

**PART B: MENTAL ABILITY**

**Q.26 to Q.50** has four choices (A), (B), (C), (D) out of which only **ONE** is correct.

**Direction (Q.26):** Find the missing numbers :

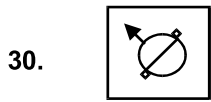
26.  (A) 32 (B) 22 (C) 18 (D) 27

**Directions (Q.27) :** Find the missing term :

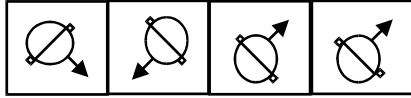
27. 4, 8, 16, ?, 64  
 (A) 30 (B) 33 (C) 32 (D) 35
28. 'A' travelled Westwards 5 km, turned left and travelled 3 km, turned right and travelled 9 km. He then travelled North 3 km. How far was 'A' from the starting point now ?  
 (A) 3 kms (B) 5 kms (C) 14 kms (D) 10 kms
29. Choose the one word which can be formed from the letters of the given word.  
**RATIONALISATION**  
 (A) NATIONALISTIC (B) NATIONALIST (C) SITUATION (D) REALISATION

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Direction (Q.30) : Find the mirror image –



(X)



(A) (B) (C) (D)

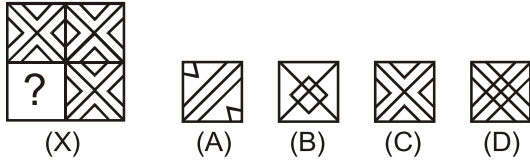
31. If **black** means **white**, **white** means **red**, **red** means **yellow**, **yellow** means **blue**, **blue** means **green**, **green** means **violet**, and **violet** means **orange** what is the colour of the sky?  
 (A) Green (B) Violet (C) Orange (D) Yellow
32. In the following list of numerals, how many 2's are followed by 1 but not preceded by 4 ?  
 4 2 1 2 1 4 2 1 1 2 4 4 4 1 2 2 1 2 1 4 4 2 1 4 2 1 2 1 2 4 1 4 2 1 2 4 1 4 6  
 (A) Two (B) Three (C) Four (D) Five
33. Which letter will be the sixth to the right of the eleventh letter from the right end of the alphabet?  
 (A) K (B) V (C) J (D) U

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SPACE FOR ROUGH WORK

34. Arrange the given words in the order they occur in dictionary.  
 1. **SIGN**      2. **SOLID**      3. **SCENE**      4. **SIMPLE**  
 (A) 3, 1, 2, 4      (B) 3, 1, 4, 2      (C) 3, 4, 1, 2      (D) 3, 4, 2, 1

**Direction (Q.35):** Select a figure from the four alternatives, which when placed in the blank space of figure (X) would complete the pattern.



35. (X) (A) (B) (C) (D)
36. If 'x' means '+', '-' means 'x', '÷' means '+' and '+' means '-' then what will be the value of  $(2 - 15 \div 18) \times 8 + 6 = ?$   
 (A) 8      (B) 4      (C) 2      (D) 0

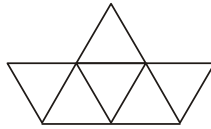
**Direction : (Q.37)** Which set of letters when placed at the gaps sequentially shall complete the series?

37. k \_ mk \_ lmkk \_ kk \_ mk.  
 (A) lkml      (B) lkmk      (C) lkmm      (D) lkml
38. In a certain code **721** means **good college life**, **526** means **you are good** and **257** means **life are good**. Which digit stands for **you** in the code ?  
 (A) 6      (B) 5  
 (C) 7      (D) Cannot be determined

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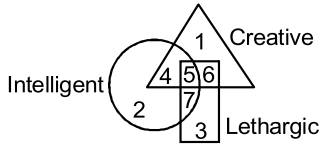
SPACE FOR ROUGH WORK

39. How many triangles are there in given figure :



- (A) 8 (B) 7 (C) 9 (D) 5

40. Refer to the given diagram and answer the following question :



Who are intelligent as well as lethargic but not creative persons ?

- (A) 4 (B) 5 (C) 6 (D) 7
41. I have a few sweets to be distributed. If I keep 2, 3 or 4 in a pack, I am left with one sweet. If I keep 5 in a pack, I am left with none. What is the minimum number of sweets I can have to pack and distribute ?  
 (A) 25 (B) 37 (C) 54 (D) 65
42. Anil and Sunil are ranked seventh and eleventh respectively from the top in a class of 31 students. What will be their respective ranks from the bottom in the class ?  
 (A) 20th and 24th (B) 24th and 20th (C) 25th and 21st (D) 26th and 22nd
43. In the following series how many **Cs** are there which are immediately followed by '**Y**' but not immediately preceded by '**J**' ?  
 J C D Y J C Y O J H C Y Y Y C I J W C Y A C Y  
 (A) one (B) two (C) three (D) four


SPACE FOR ROUGH WORK

44. In a code language

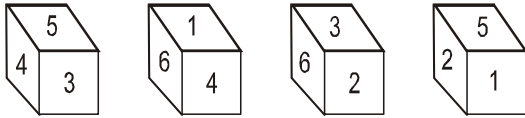
'MAKE' =    

'RACE' =    

Then in the same code language 'KARM' = ?

- (A)          (B)          (C)          (D)    

**Directions (Q.45 to Q.47):** Four positions of the same dice have been shown. Select the alternative which provides correct answer to the question asked.



45. Which number would be opposite to 3 ?  
 (A) 1                                      (B) 4                                      (C) 5                                      (D) 6
46. Which number would be opposite to 5 ?  
 (A) 2                                      (B) 3                                      (C) 4                                      (D) 6
47. Which number would be opposite to 4 ?  
 (A) 2                                      (B) 3                                      (C) 4                                      (D) 6

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SPACE FOR ROUGH WORK

48. Manan is taller than Vedant. Pavan is not tall as Manan. Ohm is taller than Pavan but not as tall as Manan. Who is the tallest among them.  
(A) Manan                      (B) Vedant                      (C) Pavan                      (D) Ohm
49. Which is the fourth letter just after the middle letter in  
A, B, C, D, E, F, G, H, I, J, K, L, M, N, O, P, Q, R, S -  
(A) F                      (B) L                      (C) K                      (D) N
50. If 'x' means '+', 'y' means '-', 'z' means '÷' and 'p' means 'x' then  $(6 \text{ p } 4) \text{ z } 6 \text{ y } 5 = ?$   
(A) 5                      (B) 10                      (C) -1                      (D) 20

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*SPACE FOR ROUGH WORK*

**PART C : SCIENCE**

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**Q.51 to Q.60** has four choices (A), (B), (C), (D) out of which only **ONE** is correct.

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51. Rear view mirror used in vehicles is :  
(A) concave                      (B) convex                      (C) Plane                      (D) All of these
52.  this symbol represents -  
(A) Switch                      (B) Bulb                      (C) Battery                      (D) Cell
53. When is an object said to be in motion ?  
(A) If object changes its position with time is said to be in motion  
(B) If object position does not change with time is said to be in motion  
(C) Both (A) and (B)  
(D) None of these
54. During all changes (physical or chemical) mass is -  
(A) gained                      (B) conserved                      (C) lost                      (D) can be gained or lost
55. A base reacts with an acid to form salt and water. What is this reaction called ?  
(A) Oxidation reaction                      (B) Neutralisation reaction  
(C) Reduction reaction                      (D) Ionisation reaction
- 

*SPACE FOR ROUGH WORK*

56. We got \_\_\_\_\_ from seas and oceans .  
(A) mineral water      (B) chlorinated water      (C) saline water      (D) distilled water
57. During heavy exercise, we get cramps in the legs due to the accumulation of  
(A) Carbon dioxide      (B) Lactic acid      (C) alcohol      (D) water
58. Iodine is used to test the presence of \_\_\_\_ in the food.  
(A) Proteins      (B) Carbohydrates      (C) Starch      (D) Fats
59. Tomato is a  
(A) stem      (B) root      (C) fruit      (D) leaf
60. A phenomenon due to which heat is trapped in the atmosphere is -  
(A) green house effect      (B) fractional distillation  
(C) nitrogen cycle      (D) decomposition

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*SPACE FOR ROUGH WORK*



## ANSWER KEY

1	2	3	4	5	6	7	8	9	10
B	C	A	C	B	A	C	D	B	B
11	12	13	14	15	16	17	18	19	20
A	D	B	A	B	C	D	C	B	C
21	22	23	24	25	26	27	28	29	30
B	C	C	C	C	B	C	C	B	C
31	32	33	34	35	36	37	38	39	40
D	C	B	B	C	D	D	A	B	D
41	42	43	44	45	46	47	48	49	50
A	C	C	C	A	A	D	A	D	C
51	52	53	54	55	56	57	58	59	60
B	C	A	B	B	C	B	C	C	A

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