

# **SET** (Spectrum Entrance Test)

## for Students Presently in Class 08th



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### SPECTRUM ENTRANCE TEST

#### **TEST BOOKLET CODE : A**

#### PAPER CODE : 2401

*Class:* VIII *Time:* 90 Min. (11:00 AM to 12:30 PM) Date: Max. Marks: 180

#### **INSTRUCTIONS**

1. The question paper contains 60 questions in three parts (Part A : Mathematics, Part B : Mental Ability, Part C: Science

Part A contains 25 questions, Part B contains 25 questions and Part C contains 10 questions.

Each question has four options A, B, C & D, out of which only one option is correct.

Each question carries <u>+3 marks</u> for correct answer and <u>-1 mark</u> for wrong answer.

# Please ensure that the Question Paper you have received contains all the QUESTIONS and Pages. If you found some mistake like missing questions or pages then contact immediately to the Invigilator.

- 2. Indicate the correct answer(s) for each question by filling appropriate bubble(s) in your OMR sheet.
- **3.** Use only Black / Blue ball point pen for darkening the bubble(s).
- 4. Use of Calculator, Log Table, Slide Rule and Mobile is not allowed.
- 5. For example if only 'B' choice is correct then, the correct method for filling the bubble is



The answer of the question in any other manner (such as putting  $\bigotimes$ , cross  $\bigotimes$ , or partial shading  $\bigoplus$  etc.)will be treated as wrong.

#### **PART A: MATHEMATICS**

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

- 1.If the area of a circle is 100 times the area of another circle, then the ratio of circumferences of circles is(A) 10 : 1(B) 1 : 10(C) 5 : 1(D) 1 : 5
- 2. In the diagram,  $\ell$  and m are parallel line. The sum of the angles A, B and C marked in the diagram is :

- 3.If the supplement of an angle is three times its complement, then angle is :<br/> $(A) 40^{\circ}$ (B)  $35^{\circ}$ (C)  $50^{\circ}$ (D)  $45^{\circ}$
- 4.  $\frac{-3}{7} \times \frac{-2}{3} \div \frac{16}{-21}$  is :
  - (A)  $-\frac{3}{8}$  (B)  $-\frac{32}{147}$  (C)  $-\frac{8}{49}$  (D)  $-\frac{27}{32}$
- 5. Rahim is 15 years older than Vimal. Ten years ago Vimal was half the age of Rahim. Rahim's present age is
  :
  (A) 25 years
  (B) 30 years
  (C) 15 years
  (D) 40 years

6. A car goes 90 km in 5 litres of petrol. For covering a distance of 135 km, the petrol required will be:

(A) 
$$7\frac{1}{5}$$
 litres (B)  $3\frac{1}{3}$  litres (C)  $7\frac{1}{2}$  litres (D)  $33\frac{1}{3}$  litres

- A square pyramid has
   (A) 4 vertices 4 faces
   (B) 5 vertices 4 faces
   (C) 5 vertices 5 faces
   (D) 8 vertices 6 faces
- 8. The value of  $\frac{3^{(12+n)} \times 9^{(2n-7)}}{3^{5n}}$  is : (A)  $\frac{1}{3}$  (B)  $\frac{9}{13}$  (C)  $\frac{1}{9}$  (D)  $\frac{2}{3}$
- 9. A's salary is 50% more than B's. How much percent is B's salary less than A's ?

(A) 33% (B) 
$$33\frac{1}{4}$$
 (C)  $33\frac{1}{3}$ % (D)  $33\frac{1}{2}$ 

**10.** Two poles of heights 10 m and 15 m stand upright on the ground. The feet of the poles are 12 m apart.



SPACE FOR ROUGH WORK

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11.	If $2 + \frac{2x-3}{2x+3} = \frac{3x+4}{x+2}$	then the value of x is :		
	(A) – 3	(B) – 2	(C) 3	(D) – 4
12.	A wire of 396 m length is of the square to that of	s in the form of a square. circle.	It is cut and bent to form a	a circle. Find the ratio of the area
	(A) 11 : 14	(B) 14 : 11	(C) 10 : 14	(D) 1 : 11
13.	A sum of Rs.7000 is div those of B and C are in	risible among A, B, C in s the ratio 4 : 5. The amou	uch a way that shares of nt received by C is :	A and B are in the ratio 2 : 3 and
	(A) Rs. 2600	(B) Rs. 2800	(C) Rs. 3000	(D) Rs. 3900
14.	Ekta drives a car with a be covered in 8 hrs., Ho	speed of 48 km./hr. and o w much speed should El	covers a fixed distance in kta increse.	10 hrs., if the same distance is to
	(A) 60 km/ hr.	(B) 36 km/ hr.	(C) 24 km/ hr.	(D) 12 km/ hr.
15.	Nitin started a business 12,000. If the total prof	s with Rs. 10,000 and aft it is Rs. 10,800 then profi	er 4 months Shailesh joir t share of Shailesh is :	ns the business by investing Rs.
	(A) Rs. 4800	(B) Rs. 6000	(C) Rs. 5000	(D) Rs. 5800
16.	The sum of seven conse (A) 4	ecutive natural numbers i (B) 2	s 1617. How many of thes (C) 5	e numbers are not prime : (D) 7
17.	If the average of 11, 12, (A) 17	, 13, 14 and x is 13, then (B) 21	the value of x will be : (C) 15	(D) 34

				Test Code : 2401
18.	The measure of each in (A) 8 Nos	terior angles of a regular (B) 6 Nos	polygon is 135º degree, t (C) 10 Nos	he number of its sides is : (D) 7 Nos
19.	The base of a parallelog $(A)$ 17 cm	ram is thrice its height. If	the area is $867 \text{ cm}^2$ , find t	the height of the parallelogram.
	(A) 17 Cm		(C) 54 cm	
20.	A square ABCD is inscr	ibed in a circle and A	B = 4 cm, then radius of	the circle is :
	(A) 2 cm	(B) $2\sqrt{2}$ cm	(C) 4 cm	(D) 4 $\sqrt{2}$ cm
21.	If $\frac{p}{q} = \left(\frac{2}{3}\right)^2 \div \left(\frac{6}{7}\right)^0$ . Fi	nd the value of $\left(\frac{q}{p}\right)^2$		
	(A) $\frac{4}{9}$	(B) $\frac{16}{81}$	(C) $\frac{9}{16}$	(D) <del>81</del> 16
22	Choose the rational num	ber which does not lie be	tween rational numbers	3/5 and 2/3 ·
	(A) 46/75	(B) 47/ 75	(C)49/75	(D) 50/75
23.	In a two-digit number, th is:	e sum of digit is 15. If 9 is	added to the number, the	digits are reversed. The number
	(A) 87	(B)78	(C)69	(D)96

24.	In a school $\frac{2}{7}$	of the students are boys	. If there are 305 girls, find	the number of boys in t	ne school ?
	(A) 112	(B) 122	(C) 132	(D) 127	

**25.** Factorize :  $9 x^2 y - 24 xy + 16 y$ (A)  $(3x-4)^2$  (B)  $(3x + 4)^2$  (C)  $(3x-4)^2 y^2$  (D)  $(3x-4)^2 y$ 

#### PART B: MENTAL ABILITY

Q.26 to Q.55 has four choices (A), (B), (C), (D) out of which only ONE is correct.

**Directions : (Q.26 to Q.28)** In the following questions, questions are formed by putting any three signs x ,= ,+ ,- in an appropriate order in place of \* four options are given for the answer of these signs. Find out the correct answer and show it on your answer sheet.

26.	12 * 5 * 48 * 12 (A) = + ×	(B) × = +	(C) = × –	(D) + × =
27.	95 * 5 * 18 * 5 (A) = - +	(B) + × =	(C) = + ×	(D) × = +
28.	10 * 10 * 10 * 10 (A) + – =	(B) = × =	(C) + = ×	(D) – × =
29.	Bhavan's Ranks 27 <sup>th</sup> in t last is 36 <sup>th</sup> . How many s	he class. Preksha is 7 rar tudents are there in the c	iks ahead of Bhavan in th lass ?	e class. Preksha's rank from the
	(A) 55	(B) 63	(C)43	(D) 56
Directi	ons ·(0 30) · In the questi	on below, there are four w	ords. These words are to	he arranged in alphabetical order

**Directions :(Q.30) :** In the question below, there are four words. These words are to be arranged in alphabetical order (as they are placed in the dictionary). Find out the word that comes last in the dictionary.

30.	(A) Slave	(B) Slope	(C) Slab	(D) Shine

				Test Code : 2401
Direct	tions :( Q.31 ) In the se & (D) . One among t	eries given below, one terr hem is the right answer. Io	n is missing. Series is fol dentify the right answer a	lowed by four alternatives (A), (B), (C) nd indicate it as per the "Instructions".
31.	2, 5,10, 17, ?			
	(A) 19	(B) 26	(C)28	(D) 30
32.	Select the word whi	ch not formed by the give	n letters –	
	(A) INPROVE	(B) EVENT	(C) MENTAIN	(D) PREVENT
33.	How many 'b' are th	ere which have 'a' as pref cabbcacabccbaabcc	ix and 'c' as suffix in the g	given series –
	(A) 1	(B) 2	(C) 3	(D) 4
34.	In a queue Suresh is be-	seventh from his right and	d 29th from the left, the nu	umber of the students in the queue will
	(A) 28	(B) 27	(C) 14	(D) 35
35.	Ram is to the South is to the North of Ra (A) North-West	n-East of Mukesh, Shyan am and North-West of Sl (B) South-West	n is to the East of Mukes nyam, in which direction (C) North-East	sh and North-East of Ram. If Suresh of Mukesh is Suresh located ? (D) South-East
36.	If <b>Eye</b> is called <b>Han</b> Tongue, with which	<b>d</b> , <b>Hand</b> is called <b>Mouth</b> of the following would a	, <b>Mouth</b> is called <b>Ear, E</b> person <b>hear</b> ?	<b>ar</b> is called <b>Nose</b> and <b>Nose</b> is called
	(A) Eye	(B) Mouth	(C) Nose	(D) Ear
37.	How many even nu number and immed	mbers are there in the fol iately followed by an even	lowing sequence which number ?	are immediately preceded by an odd
	51473985726	31586385224349	6	
	(A) 1	(B) 2	(C) 3	(D) 4

Directions (Q.38): Find the missing term :



**39.** Count the number of triangles in the following figure.



# Directions : (Q.40) Select a figure from the alternatives which when placed in the blank space of (X) would complete the pattern ?



41.	In a certain code,	23 is coded as OX, 529 as	FOR, and 0229 as DOOF	R, how is 235290 coded ?
	(A) DOXFOR	(B)FORDOX	(C) OXFORD	(D) FOXORD
42.	'A' travelled Westw North 3 km. How fa	ards 5 km, turned left and ar was 'A' from the startin	travelled 3 km, turned righ g point now ?	ht and travelled 9 km. He then travelled
	(A) 3 kms	(B) 5 kms	(C) 10 kms	(D) 14 kms
43.	Ankur is taller thai Nishant. Who in th	n Anil, but not taller than is group is tallest ?	Ashish. Ashish is smalle	er than Manish who is not taller than
	(A) Ashish	(B) Manish	(C) Nishant	(D)Ankur
Answ	ver the given questi A B C D E F G H	ons (Q.44 to Q.46) base I J K L M N 0 P Q R S T	ed on the following Eng	lish alphabet:
44.	Which letter is fifth	to the right of the eightee	enth letter from your right	?
	(A) C	(B) D	(C) E	(D) N
45.	If all the vowels are fifth letter from the	e removed from the alpha e left?	abet, which letter will be th	he seventh to the right of the
	(A) L	(B) M	(C) N	(D) P
46.	If every alternate lo	etter, starting with A, is re would be the third to the	moved from the alphabet right of the fifth letter fror	t, which letter among the n the right?
	(A) X	(B) V SPACE F	OR ROUGH WORK	(D) J

**47.** Rohit says, "If Jai gives me Rs.40, he will have half as much as Atul, but if Atul gives me Rs. 40, then the three of us will all have the same amount." What is the total amount of money that Rohit, Jai and Atul have between them ?

(A) Rs. 240 (B) Rs. 320 (C) Rs. 360 (D) Rs. 420

**48.** 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) 7 (D) 12

**Direction (Q.49) : Find out the Mirror Image of following.** 

- 49.
   AN 5 4 WMG3
   (B) E0 X 4 WMG3 (C) 3 C
   (C) 3 C
- **50.** How many such pairs of digits are there in the number 531268947 each of which has as many digits between them in the number as when they are arranged in descending order?
  - (A) None (B) One (C) Two (D) More than three

#### PART C : SCIENCE

Q.56 to Q.75 has four choices (A), (B), (C), (D) out of which only ONE is correct.

<b>51.</b> An imag (A) upsi	e formed by a plane mirror is : de down. ller than the object	(B) equidistant from mirror as the object.
(0) 5110		
52. Electric	bell	
(A) has f	ilament	(B) has an electromagnet
(C) work	s on heating effect of current	(D) can be used as a switch
53. The ene	rgy of wind is-	
(A) Kine	tic energy	(B) Potential energy
(C) Mech	nanical energy	(D) Thermal energy
54. Change	of seasons on the earth takes place due	to the reason that
(A) the a	ixis of rotation of the earth is tilted to the	orbital plane.
(B) the a	ixis of rotation of the earth is perpendicula	ar to the plane of its orbit.
(C) the te	emperature of the earth keeps on changir	ıg.
(D) the s	un sends unequal amount of light on the	earth.
55. An exam	nple of a base which is without a metal at	om, is -
(A) sodiu	ım hydroxide	(B) magnesium hydroxide
(C) amm	ionium hydroxide.	(D) potassium hydroxide

56.	<ul> <li>Convection in air means</li> <li>(A) movement of air from hotter place to colder place.</li> <li>(B) transfer of heat from hotter place to colder place through air.</li> <li>(C) movement of air from the place of higher air pressure to the lower one.</li> <li>(D) movement of air from the place of lower air pressure to the higher one.</li> </ul>						
57.	<ul> <li>Which of the following statements are true regarding a mixture?</li> <li>(A) Mixtures are always homogeneous.</li> <li>(B) In a mixture constituents substances are mixed chemically.</li> <li>(C) The constituents in a mixture retain their individual properties.</li> <li>(D) Mixtures have fixed melting points or boiling points</li> </ul>						
58.	Arteries and veins are jo	ined by a network of -					
	(A) valves.	(B) muscles.	(C) capillaries.	(D) platelets.			
59.	Plants prevent : (A) soil erosion by wind or water (B) the loosening of soil and they bind the soil with the help of their roots (C) soil erosion due to afforestation (D) all of these						
60.	Carrier of malaria-causin (A) Female Anopheles n (C) Housefly	ng protozoan is : nosquito	(B) Cockroach (D) Butterfly				

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

## Answer Key

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