



Time : 1½ Hr.

**SAMPLE TEST PAPER**

Max. Marks : 210

**GENERAL INSTRUCTIONS**

1. Question paper contains 70 questions of Mathematics (1 to 25), Physics (26 to 35), Chemistry (36 to 45), Biology (46 to 55) & Mental Ability (56 to 70), each question carry 3 mark.
2. Blank papers, clip boards, log tables, slide rule, calculators, mobile or any other electronic gadgets in any form is not allowed.
3. Write your Name and Roll No. in the space provided in the bottom of this booklet.
4. Before answering the paper, fill up the required details in the blank space provided in the answer sheet.
5. Do not forget to mention your roll number neatly and clearly in the blank space provided in the answer sheet.
6. There is no negative marks for wrong answer.
7. No rough sheets will be provided by the invigilators. All the rough work is to be done in the blank space provided in the question paper.
8. In case of any dispute, the answer filled in the OMR sheet available with the institute shall be final.
9. Any correction/objection in Answer Key will be accepted/entertained within 24 hrs. of exam conduction. No correction/objection will be accepted after the time.

**MARKING CRITERIA**

No. of Questions	Type	Marks		
		Correct	Incorrect	Blank
1-70	Only one correct	Q. No. 1 to 70 (3 Mark each)	<b>NO NEGATIVE MARKS</b>	0

**IMPORTANT**

**PROCEDURE OF FILLING UP THE ANSWERS IN OMR SHEET**

**Wrong Filling**

- (A)  (B) (C) (D) Tick mark
- (A)  (B) (C) (D) Cross mark
- (A)  (B) (C) (D) Half filled or semi dark
- (A)  (B)  (C)  (D) Light filled

**Right Filling**

- (A)  (B) (C) (D) Fully darken with HB Pencil
- (A)  (B) (C) (D) Fully darken with HB Pencil
- (A)  (B) (C) (D) Fully darken with HB Pencil
- (A)  (B)  (C)  (D) Fully darken with HB Pencil

Name : \_\_\_\_\_ Roll No. : \_\_\_\_\_

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# Syllabus of Reso NET

FOR STUDENTS STUDYING IN CLASS-IX IN 2017-18

## MATHEMATICS

- ❖ NUMBER SYSTEMS
- ❖ POLYNOMIALS
- ❖ LINES AND ANGLES
- ❖ CONGRUENCY OF TRIANGLE
- ❖ COORDINATE GEOMETRY
- ❖ HERON'S FORMULA
- ❖ LINEAR EQUATION IN TWO VARIABLES
- ❖ QUADRILATERAL
- ❖ AREA OF PARALLELOGRAM TRIANGLE
- ❖ TRIANGLE
- ❖ CIRCLE
- ❖ SURFACE AREA AND VOLUME
- ❖ STATISTICS
- ❖ PROBABILITY

## PHYSICS

- ❖ MOTION
- ❖ FORCE AND NEWTON'S LAWS
- ❖ GRAVITATION
- ❖ FLUID
- ❖ WORK, ENERGY AND POWER
- ❖ WAVE MOTION AND SOUND

## CHEMISTRY

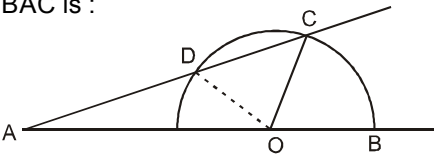
- ❖ MATTER IN OUR SURROUNDINGS
- ❖ IS MATTER AROUND US PURE
- ❖ ATOMS AND MOLECULES
- ❖ STRUCTURE OF ATOM

## BIOLOGY

- ❖ FUNDAMENTAL UNIT OF LIFE
- ❖ TISSUE
- ❖ IMPROVEMENT IN FOOD RESOURCES
- ❖ DIVERSITY OF LIVING ORGANISM
- ❖ WHY DO WE FALL ILL
- ❖ NATURAL RESOURCES

## MENTAL ABILITY

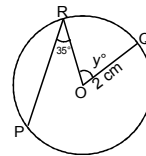
- ❖ *LETTER REPEATING SERIES*
- ❖ *CODING\_DECODING*
- ❖ *SERIES COMPLETION*
- ❖ *MATHEMATICAL OPERATIONS*
- ❖ *DIRECTION SENSE TEST*
- ❖ *SITTING ARRANGEMENT*
- ❖ *PUZZLE TEST*
- ❖ *VENN DIAGRAM*
- ❖ *SYLLOGISM*
- ❖ *DAY,DATE AND TIME*
- ❖ *DICE TEST*
- ❖ *CUBE TEST*
- ❖ *NON-VERBAL SERIES*
- ❖ *ANALOGY*
- ❖ *NON-VERBAL CLASSIFICATION*

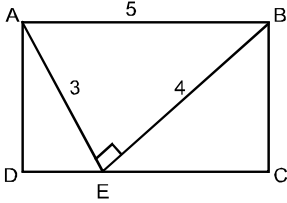
1. Toffees are bought at the rate of 4 for a rupee. To gain 60% they must be sold at :  
 (A) 5 for 2 rupee (B) 4 for 2 rupee  
 (C) 6 for 2 rupee (D) 8 for 2 rupee
2.  $\frac{\sqrt{6}}{\sqrt{2}+\sqrt{3}} + \frac{3\sqrt{2}}{\sqrt{6}+\sqrt{3}} - \frac{4\sqrt{3}}{\sqrt{6}+\sqrt{2}}$  is :  
 (A) 0 (B) 1  
 (C) -1 (D)  $\frac{1}{2}$
3. A train overtakes two persons walking along a railway track. The first one walks at 4.5 km/hr. The other one walks at 5.4 km/hr. The train needs 8.4 and 8.5 seconds respectively to overtake them. What is the speed of the train if both the persons are walking in the same direction as the train ?  
 (A) 63 km/hr (B) 72 km/hr  
 (C) 99 km/hr (D) 81 km/hr
4. In a  $\Delta PQR$ , PS is bisector of  $\angle P$  and  $\angle Q = 70^\circ$ ,  $\angle R = 30^\circ$ , then :  
 (A)  $QS > PQ > PR$  (B)  $QS < PQ < PR$   
 (C)  $PQ > QS > SR$  (D)  $PQ < QS < SR$
5. The median of following series 520, 20, 340, 190, 35, 800, 1210, 50, 80, is :  
 (A) 1210 (B) 520  
 (C) 190 (D) None of these
6. Let a protractor be laid upon an angle, as pictured. If the measure of  $\angle BOC$  is  $47^\circ$ , and measure of  $\angle BOD$  is  $163^\circ$ , then the measure of  $\angle BAC$  is :  
  
 (A)  $7.5^\circ$  (B)  $15^\circ$   
 (C)  $30^\circ$  (D)  $36^\circ$
7. One of the factors of the expression  $(2a + 5b)^3 + (2a - 5b)^3$  would be -  
 (A) 4a (B) 10b  
 (C)  $2a + 5b$  (D)  $2a - 5b$
8. The value of k for which  $x + k$  is a factor of  $x^3 + kx^2 - 2x + k + 4$  is :  
 (A) -5 (B) 2  
 (C)  $-\frac{4}{3}$  (D)  $\frac{6}{7}$
9. If the radius of a circle is increased by 8%, then the area of the circle is increased by  
 (A) 3.6% (B) 12.36%  
 (C) 6% (D) 16.64%
10. A, B and C together can finish a piece of work in 4 days. A alone can do it in 9 days and B alone in 18 days. How many days will be taken by C to do it alone.  
 (A) 15 days (B) 14 days  
 (C) 13 days (D) 12 days
11. If  $\frac{3 + \sqrt{7}}{3 - \sqrt{7}} = a + b\sqrt{7}$  then (a, b) =  
 (A) (8, -3) (B) (-8, -3)  
 (C) (-8, 3) (D) (8, 3)
12. A sphere of radius 3 cm is dropped into a cylindrical vessel of radius 4 cm. If the sphere is submerged completely, then the height (in cm) to which the water rises, is :  
 (A) 2.35 (B) 2.30  
 (C) 2.25 (D) 2.15
13. In a cricket match, a batswoman hits a boundary 6 times out of 30 balls she plays. Find the probability that she did not hit a boundary.  
 (A) 0.8 (B) 0.6  
 (C) 0.5 (D) 0.2
14. Simplify :  $\frac{2}{\sqrt{5} + \sqrt{3}} + \frac{1}{\sqrt{3} + \sqrt{2}} - \frac{3}{\sqrt{5} + \sqrt{2}}$ .  
 (A) 1 (B) 0  
 (C) 10 (D) 100
15. If  $4x^4 - 3x^3 - 3x^2 + x - 7$  is divided by  $1 - 2x$  then remainder will be :  
 (A)  $\frac{57}{8}$  (B)  $-\frac{59}{8}$   
 (C)  $\frac{55}{8}$  (D)  $-\frac{55}{8}$

(Space For Rough Work)

16. If  $x^y = y^x$ , then  $\left(\frac{x}{y}\right)^{\frac{x}{y}}$  equals
- (A)  $x^{\frac{x}{y}}$  (B)  $x^{\frac{x}{y}-1}$   
 (C)  $x^{\frac{y}{x}}$  (D)  $x^{\frac{y}{x}-1}$
17. If the length of the parallel sides of an isosceles trapezium are 20 cm and 30 cm and its area is  $100 \text{ cm}^2$ , then the length of non-parallel side is  
 (A) 41 cm (B) 9 cm  
 (C)  $\sqrt{41}$  cm (D) 3 cm
18. Find the value of  $(a + 1)^{-1} + (b + 1)^{-1}$  where  $a = (2 + \sqrt{3})^{-2005}$  &  $b = (2 - \sqrt{3})^{-2005}$  is  
 (A) 1 (B) 0  
 (C)  $(16 - 12\sqrt{3})^{-2005}$  (D) None
19. Let  $A : (B + C) = 6 : 7$  and  $B : (A + C) = 8 : 9$ . If a sum of Rs. 221 is divided among A, B, C, then the shares of A, B, C (in Rs.) respectively will be  
 (A) 102, 104, 15 (B) 100, 106, 15  
 (C) 104, 100, 17 (D) 80, 100, 41
20. The diagonals of a parallelogram ABCD intersect each other at the point O. If  $\angle DAC = 32^\circ$  and  $\angle AOB = 70^\circ$ , then  $\angle DBC$  is :  
 (A)  $24^\circ$  (B)  $32^\circ$   
 (C)  $38^\circ$  (D)  $86^\circ$
21. Which of the following number is irrational ?  
 (A)  $\sqrt{16} - 4$  (B)  $(3 - \sqrt{3})(3 + \sqrt{3})$   
 (C)  $\sqrt{5} + 3$  (D)  $-\sqrt{25}$
22. If  $25^{x-1} = 5^{2x-1} - 100$ , then the value of x is :  
 (A) 0 (B) 1  
 (C) 2 (D) None of these

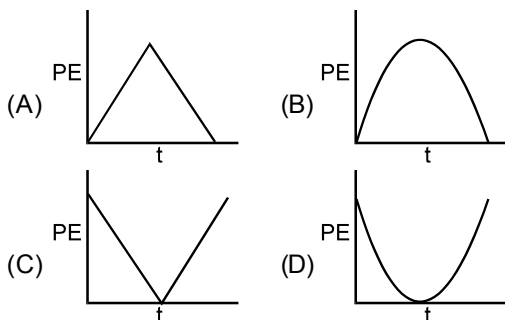
23. O is the centre of the circle as shown in the diagram. The distance between P and Q is 4 cm. Then the measure of  $\angle ROQ$  is :



- (A)  $70^\circ$  (B)  $35^\circ$   
 (C)  $105^\circ$  (D)  $30^\circ$
24. If  $x = \sqrt{2 + \sqrt{2}}$ , then  $x^4 + \frac{4}{x^4}$  is :  
 (A) 8 (B)  $6\sqrt{2} - 2$   
 (C)  $6 - \sqrt{2}$  (D) 12
25. Consider the rectangle ABCD as shown. E is a point on CD such that  $AE = 3$  unit,  $BE = 4$  unit and  $AE \perp BE$ . The area of rectangle ABCD (in sq. unit) is :  
  
 (A) 8 (B) 10  
 (C) 12 (D) 14
26. The elastic potential energy of a spring-  
 (A) Increases only when it is stretched.  
 (B) Decreases only when it is stretched.  
 (C) Decreases only when it is compressed.  
 (D) Increases whether stretched or compressed.
27. The total work done on a particle is equal to the change in its kinetic energy.  
 (A) always  
 (B) only if the forces acting on the body are conservative  
 (C) only if the forces acting on the body are gravitational  
 (D) only if the forces acting on the body are elastic.

(Space For Rough Work)

28. A body is thrown upwards with some initial velocity. Then which of the following represents the graph of potential energy (PE) of the body versus time (t).



29. Inertia of an object is the natural tendency of :  
 (A) Changing its state of motion  
 (B) Stopping the motion  
 (C) Offering a resistance to change its state of rest only  
 (D) Offering a resistance to change its state of rest or motion

30. A fresh egg sinks in pure water, whereas it floats in saturated salty water. This is due to :  
 (A) The fluid matter inside the egg-shell  
 (B) Higher density of the pure water  
 (C) Higher density of the salty water  
 (D) The fact that the egg-shell is made of calcium which is heavier than pure water

31. Two bodies of mass 100 kg and  $10^4$  kg are lying one metre apart. At what distance from 100 kg body will the intensity of gravitational field (gravitational force on unit mass) be zero.

- (A)  $\frac{1}{9}$  m                      (B)  $\frac{1}{10}$  m  
 (C)  $\frac{1}{11}$  m                      (D)  $\frac{10}{11}$  m

32. The speed of an aeroplane A is 600 Km/h. The speed of another plane B is 240 m/s. Then :  
 (A) The speed of A is greater than that of B.  
 (B) Both have the same speed  
 (C) B is faster than A.  
 (D) We cannot definitely say.

33. On a planet (whose size is the same as that of earth and mass 4 times to the earth) the energy needed to lift a 2kg mass vertically upwards through 2m distance on the planet is ( $g = 10\text{m/sec}^2$  on surface of earth)

- (A) 16 J                      (B) 32 J  
 (C) 160 J                      (D) 320 J

34. When an object undergoes acceleration :  
 (A) its speed always increases  
 (B) its velocity always increases  
 (C) it always falls towards the Earth  
 (D) a net non-zero force always acts on it

35. If an athlete takes t seconds to go once round the circular path of radius r, the speed v is :

- (A) circumference of circle/time  
 (B) time/circumference of circle  
 (C) area of circle/time  
 (D) area of circle/circumference of circle

36. Rutherford scattering experiment is related to the size of the -

- (A) nucleons                      (B) electron  
 (C) atom                      (D) nucleus

37. The orbits in an atom are numbered by -

- (A) 100, 200, 300 .....  
 (B) 10, 20, 30 .....  
 (C) 1, 2, 3, 4 .....  
 (D) 5, 10, 15 .....

38. In an atom the shell which has a maximum two electrons is -

- (A) first shell                      (B) second shell  
 (C) third shell                      (D) fourth shell

39. How many grams of methanol ( $\text{CH}_3\text{OH}$ ) must be added to 2 moles of  $\text{H}_2\text{O}$  to make a solution containing equal numbers of molecules of  $\text{H}_2\text{O}$  and  $\text{CH}_3\text{OH}$  ?

- (A) 2g                      (B) 10g  
 (C) 32 g                      (D) 64 g

40. How many moles of electrons weigh one kilogram ?

- (A)  $6.022 \times 10^{23}$                       (B)  $\frac{1}{91.108} \times 10^{31}$   
 (C)  $\frac{6.022}{9.108} \times 10^{54}$                       (D)  $\frac{1}{9.108 \times 6.022} \times 10^8$

(Space For Rough Work)

41. Which of the following is not a state of matter ?  
 (A) Solid (B) Liquid  
 (C) Gas (D) Boiling point
42. The substance which does sublime on heating is -  
 (A) potassium chloride (B) HCl  
 (C) iodine (D) CO<sub>2</sub>
43. Two miscible liquids can be separated by distillation when there is a large difference in their -  
 (A) melting points (B) boiling points  
 (C) volatile nature (D) valence electrons
44. The process of obtaining pure crystals of copper sulphate from copper sulphate solution is known as -  
 (A) crystallisation (B) galvanisation  
 (C) rusting (D) None of these
45. A dispersion of liquid in water is an example of a colloidal -  
 (A) Aerosol (B) Emulsion  
 (C) Foam (D) Gel
46. Classification reflecting the evolutionary interrelationships of organisms is called  
 (A) phylogenetic classification  
 (B) artificial classification  
 (C) natural classification  
 (D) numerical classification
47. Sarcolemma is the term used for the membrane of following tissue -  
 (A) Nervous (B) Epithelial  
 (C) Muscular (D) None of these
48. Vascular cryptogames are -  
 (A) Bryophytes (B) Gymnosperms  
 (C) Pteridophytes (D) Angiosperms
49. Algae possess photosynthetic pigments and hence they are called as  
 (A) parasitic (B) holophytic  
 (C) saprophytic (D) holozoic
50. Squid and octopus belong to -  
 (A) arthropoda (B) annelida  
 (C) mollusca (D) chordata
51. Amount of haemoglobin in an adult  
 (A) 10 gm/100ml. (B) 8 gm/100 ml.  
 (C) 14.5 gm/100ml. (D) both A and B
52. Sprain is caused by excessive pulling of  
 (A) nerves (B) tendons  
 (C) muscles (D) ligaments
53. MMR Vaccine is for protection against -  
 (A) Measles (B) Mumps  
 (C) Rubella (D) All of the above
54. Which of the following pair of diseases is caused by virus ?  
 (A) Chicken pox and Polio  
 (B) Polio and Malaria  
 (C) Tuberculosis and Chicken pox  
 (D) Sleeping sickness and Tetanus
55. Three kingdom classification was proposed by  
 (A) Linnaeus (B) Haeckel  
 (C) Whittaker (D) Lamarck
- Direction : (56 to 57) Find the missing terms.**
56. 512, 64, 16, 8, 8, 16, ?  
 (A) 16 (B) 32  
 (C) 40 (D) 64
57. MTH, QRK, UPN, YNQ, ?  
 (A) CKT (B) CLT  
 (C) ELT (D) EKT
- Directions : (58) Which sequence of letters when placed at the blanks one after the other will complete the given letter series ?**
58. a \_ cdaab \_ cc \_ daa \_ bbb \_ cdddd  
 (A) bdbda (B) bddca  
 (C) bbcad (D) bbdac
- Direction : (59) Find the missing terms.**
59. 
$$12 \begin{matrix} 25 \\ \circlearrowleft 6 \\ 17 \end{matrix} 8 \quad 16 \begin{matrix} 36 \\ \circlearrowleft 9 \\ 22 \end{matrix} 12 \quad 20 \begin{matrix} 42 \\ \circlearrowleft ? \\ 18 \end{matrix} 14$$
  
 (A) 6 (B) 15  
 (C) 30 (D) 47
60. In the word **PARADISE** how many pairs of letters are there which have as many letters between them in the word as in the alphabet ?  
 (A) None (B) One  
 (C) Two (D) Three

(Space For Rough Work)

61. SUPER = 79, SUPREME = 97, LABOUR = ?  
 (A) 79 (B) 69  
 (C) 89 (D) 49
62. If PAPER is 11.20, PENCIL is 9.83, what will be the PEN ?  
 (A) 12.80 (B) 11.60  
 (C) 11.66 (D) 13.8
63. Which letter will be the 5th from right if the first and the second, the third and the fourth and so on are interchanged from the word COMPANIONATE?  
 (A) I (B) O  
 (C) A (D) N

**Directions : (64) In the following questions choose the missing word in place of sign ? On the basis of the relationship between the words given on the left right side of sign ::**

64. 3 : 24 :: 5 : ?  
 (A) 120 (B) 45  
 (C) 124 (D) 27

**Directions : (65) Find out the pair which is different from the others**

65. (A) Transport (B) Bus  
 (C) Car (D) Train
66. If x stands for 'add', y stands for 'subtract', z stands for 'divide', and p stands for 'multiply,' then what is the value of (7 p 3) y 6 x 5 ?  
 (A) 10 (B) 12  
 (C) 15 (D) 20

**Direction : (67) Choose from the alternatives, the boxes that will be formed when figure (X) is folded:-**

67. (X)
- (A)
- (B)
- (C)
- (D)

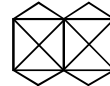
**Directions : (68) In the following questions you have to visualize the image of the item (Letter) in the mirror. Choose the mirror image from the alternatives.**

68. REASONING  
 (A) REVAZONING (B) ENINOSAEЯ  
 (C) REAZONING (D) ENINOSAEЯ

**Directions : (69) Select the diagram that best represents the given relationship.**

69. Boys, Students, Players
- (A)
- (B)
- (C)
- (D)

70. What is the number of triangles in this figure ?



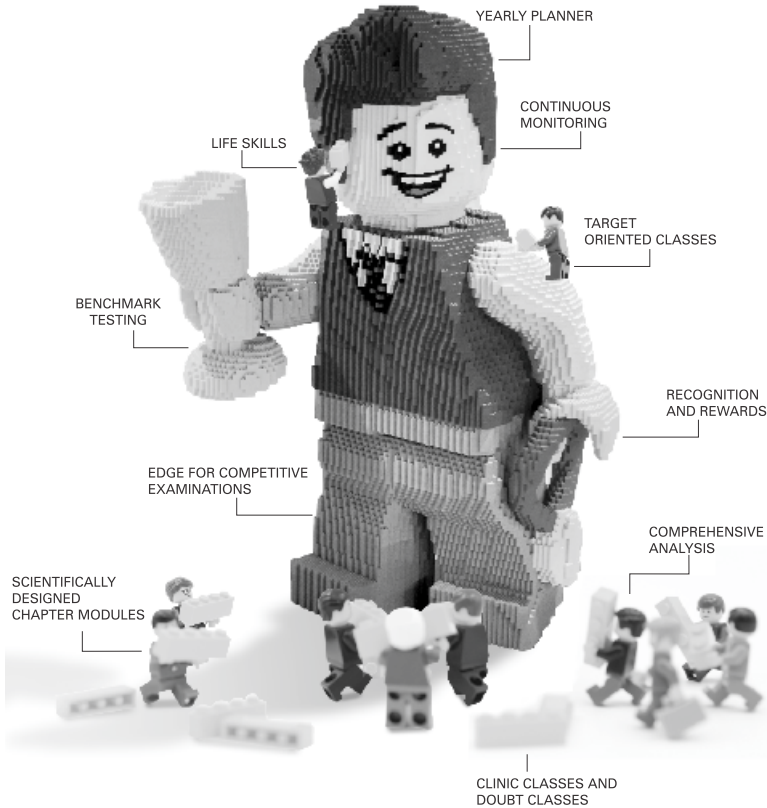
- (A) 12 (B) 20  
 (C) 22 (D) 24

## ANSWER KEY

Ques.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Ans.	A	A	D	B	C	B	A	C	D	D	D	C	A	B	B	B	C	A	A	C
Ques.	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
Ans.	C	C	A	D	C	D	A	B	D	C	C	C	C	D	A	D	C	A	D	D
Ques.	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60
Ans.	D	C	B	A	B	A	C	C	B	C	C	D	D	A	B	D	B	D	B	D
Ques.	61	62	63	64	65	66	67	68	69	70										
Ans.	B	C	A	A	A	D	B	B	A	C										

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