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Academic Session: 2023-24

SAMPLE TEST PAPER

ResoNET-2023

(Resonance National Entrance Test for Admission in PCCP Classroom Contact Programmes-PCCPs)

FOR STUDENTS MOVING IN CLAS- IX IN 2023-2024
(PRESENTLY STUDYING IN CLASS - VIII IN 2022-2023)

COURSE NAME : PIONEER **COURSE CODE : PY**

Duration: 1½ Hours | Max. Marks: 210

Name : _____ Application Form Number : _____

Please read the next & last page of this booklet for the instructions.

GENERAL INSTRUCTIONS

1. This booklet is your Question Paper.
2. Blank papers, clip boards, log tables, slide rule, calculators, mobile or any other electronic gadgets in any form are not allowed to be used.
3. Write your **Name** & **Application Form Number** in the space provided in the first page of this booklet.
4. 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.
5. No query related to question paper of any type is to be put to the invigilator.

INSTRUCTIONS FOR OPTICAL RESPONSE SHEET (ORS)

➤ Darken the appropriate bubbles on the original by applying sufficient pressure.
➤ The original is machine-gradable and will be collected by the invigilator at the end of the examination.
➤ Do not tamper with or mutilate the ORS.
➤ Write your name, Application form number and the name of the examination centre and sign with pen in the space provided for this purpose on the original. **Do not write any of these details anywhere else**. Darken the appropriate bubble under each digit of your roll number.
➤ Before answering the paper, fill up the required details in the blank space provided in the Objective Response Sheet (ORS).
➤ Do not forget to mention your paper code and **Application Form Number** neatly and clearly in the blank space provided in the Objective Response Sheet (ORS) / Answer Sheet.
➤ Use a **BLACK BALL POINT** to darken the bubbles in the upper sheet.
➤ Darken the bubble **COMPLETELY.**
➤ Darken the bubble **ONLY** if you are sure of the answer.
➤ The correct way of darkening a bubble is as shown here : ●
➤ There is **NO** way to erase or "un-darkened bubble.
➤ The marking scheme given at the beginning of each section gives details of how darkened and **not darkened** bubbles are evaluated.
   Marks distribution of questions is as follows.

Reso NET 2023-24

S.No.	Subject	Nature of Questions	Marks to be awarded			
			No. of Questions	Correct	Wrong	Total
1 to 25	PART-I (Maths)	Single Choice Questions (SCQ)	25	3	0	75
26 to 35	PART-II (Physics)	Single Choice Questions (SCQ)	10	3	0	30
36 to 45	PART-III (Chemistry)	Single Choice Questions (SCQ)	10	3	0	30
46 to 55	PART-IV (Biology)	Single Choice Questions (SCQ)	10	3	0	30
56 to 70	PART-V (Mental Ability)	Single Choice Questions (SCQ)	15	3	0	45
		Total	70			210

Zero marks '0' If none of the options is chosen (i.e. the question is unanswered).

Syllabus of Class-VIII_ Reso NET

Mathematics :

- ❖ Squares & Square roots
- ❖ Linear equation in one variable
- ❖ Rational numbers
- ❖ Algebraic identities

- ❖ Cubes & Cube roots
- ❖ Quadrilaterals
- ❖ Algebraic expressions

Physics :

- ❖ Force
- ❖ Friction

- ❖ Pressure
- ❖ Sound wave

Chemistry :

- ❖ Synthetic fibres and plastics

- ❖ Metals and non-metals

Biology :

- ❖ Crop production & management
- ❖ Conservation of plants & animals

- ❖ Micro-Organism friend & foe
- ❖ Cellular level of organization

Mental Ability :

- ❖ Number series
- ❖ Letter repeating series
- ❖ Mathematical operations
- ❖ Coding-decoding
- ❖ Seating arrangement
- ❖ Puzzle test

- ❖ Alphabet series
- ❖ Missing term in figures
- ❖ Alphabet test
- ❖ Direction sense test
- ❖ Blood relations
- ❖ Venn diagram

1. Factorise $x^2 - \dfrac{13}{24}x - \dfrac{1}{12}$

(A) $\dfrac{1}{24}(3x-2)(8x+1)$

(B) $\dfrac{1}{8}(3x-2)(8x+1)$

(C) $\dfrac{1}{24}(3x+2)(8x+1)$

(D) $\dfrac{1}{24}(3x-2)(8x-1)$

2. What is the remainder when $(x^4 + 1)$ is divided by $(x - 2)$?

(A) 17   (B) 15

(C) 7   (D) 1

3. If $\dfrac{(a^2b^3c)^4 \cdot (abc)^3}{(a^3bc^{-1})^2} = \sqrt{a^m b^n c^p}$ then $m + n + p$ has the value equal to

(A) 24   (B) 54

(C) 27   (D) 34

4. The value of $\sqrt{27} - \dfrac{9}{\sqrt{3}} - 4\sqrt{\dfrac{1}{9}} + 4\sqrt[3]{\dfrac{1}{27}}$ will be –

(A) $\sqrt{3}$ (B) $2\sqrt{3}$

(C) 0   (D) $3\sqrt{3}$

5. Find three consecutive integers such that four times the first plus one-half the second minus twice the third is equal to 24-

(A) 11, 12 and 13   (B) 12, 13 and 14

(C) 13, 14 and 15   (D) 10, 11 and 12

6. What is the difference between the biggest and the smallest fraction among $\dfrac{2}{3}, \dfrac{3}{4}, \dfrac{4}{5}$ and $\dfrac{5}{6}$?

(A) $\dfrac{1}{6}$ (B) $\dfrac{1}{12}$

(C) $\dfrac{1}{20}$ (D) $\dfrac{1}{30}$

7. What number should be subtracted from – 5 to get $\dfrac{8}{9}$.

(A) $\dfrac{-53}{9}$ (B) $\dfrac{37}{9}$

(C) $\dfrac{9}{37}$ (D) $\dfrac{-9}{37}$

8. Let n be a 3 digit number such that n = sum of the squares of the digits of n. The number of such n is

(A) 0   (B) 1

(C) 2   (D) More than 2

9. The ratio of a two digit number and the sum of its digits is 4 : 1. IF the digit in the units place is 3 more than the digit in the tens place, then the number is.

(A) 24   (B) 36

(C) 27   (D) 34

10. If $\dfrac{p}{q} = 1 + \dfrac{5}{1 + \dfrac{4}{1 + \dfrac{3}{1 + \dfrac{1}{2}}}}$ where p, q have no common factors, then p + q
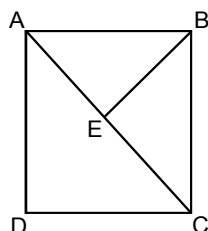
(A) 29   (B) 36

(C) 27   (D) 34

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11. x is $1\frac{1}{6}$ of $3\frac{3}{4}$ and y is $2\frac{1}{3}$ of $2\frac{1}{6}$.
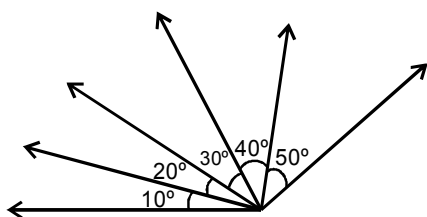
Then
(A) 2x = y   (B) y < x
(C) x < y   (D) x = y

12. ABCD is a square ∠ABE = 2 ∠DAE= 30°.
The sides of the square are 10 cm each.
Then the length EC is

(A) greater than 10 cm.
(B) equal to 10 cm
(C) Less than 10 cm
(D) NOt possible to calculate with the given information

13. The number of acute angles formed by the rays at the vertex P is _____
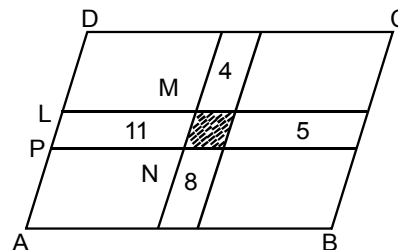

(A) 9   (B) 10
(C) 7   (D) 5

14. Find fraction form of rational number 0.37

(A) $\frac{37}{100}$ (B) $\frac{400}{95}$

(C) $\frac{433}{99}$ (D) $\frac{100}{33}$

15. In the adjoining figure ABCD is a parallelogram of perimeter 21. It is subdivided into smaller parallelograms by drawing lines parallel to the sides. The numbers shown are the respective perimeters of the parallelograms in which they are marked. (For example the perimeter of the parallelogram LMNP is 11). Find the perimeter of the shaded parallelogram.

(A) 4   (B) 15
(C) 7   (D) 12

16. If $\frac{p}{a}+\frac{q}{b}+\frac{r}{c}$ = 1 and $\frac{a}{p}+\frac{b}{q}+\frac{c}{r}$ = 0 then the value of $\frac{p^2}{a^2}+\frac{q^2}{b^2}+\frac{r^2}{c^2}$ is :

(A) 0   (B) –11
(C) 9   (D) 1

17. If a = 2012, b = 2011, c = 2010 then the value of $a^2 + b^2 + c^2 - ab - bc - ca$ is :
(A) 0   (B) 2012
(C) 3   (D) 4024

18. Three teams of wood-cutters take part in a competition. The first and the third teams put together produced twice the amount cut by the second team. The second and the third team put together yielded a three-fold output as compared with the first team. Which of the teams won the competition?
(A) first team   (B) second team
(C) third team   (D) there is a tie

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19. In following couples which rational numbers are equal :

(A) $\dfrac{-9}{13}$ and $\dfrac{8}{-12}$

(B) $\dfrac{-32}{-40}$ and $\dfrac{40}{50}$

(C) $-\dfrac{7}{21}$ and $\dfrac{3}{9}$

(D) $\dfrac{-8}{-14}$ and $\dfrac{13}{21}$

20. $1.7 \times 1.7 + 0.7 \times 0.7 - 2 \times 1.7 \times 0.7 =$

(A) 1   (B) 2

(C) 0   (D) –1

21. If $\dfrac{\sqrt{1296}}{x} = \dfrac{x}{2.25}$ then value of x is

(A) 0.9   (B) 0.09

(C) 9   (D) 1.9

22. Three angles of quadrilateral are in the ratio 3 : 4: 5. The difference of the least and the greatest of these angles is 45°. All the four angles of the quadrilateral are __ .

(A) 63°,84°, 105°, 108°

(B) 60°,75°,120°, 105°

(C) 65°,80°,100°, 110°

(D) 85°,95°,100°, 130°

23. The diagonals of a parallelogram ABCD intersect at O. If ∠BOC = 90° and ∠BDC = 50°, then ∠ACD is __

(A) 10°   (B) 40º

(C) 50°   (D) 90°

24. Multiplicative inverse of $\dfrac{3}{5}$ is :

(A) 1   (B) 0

(C) $\dfrac{-3}{5}$ (D) $\dfrac{5}{3}$

25. The diagonals of a quadrilateral are equal and bisect each other. The quadrilateral has to be:

(A) any parallelogram   (B) any rectangle

(C) any trapezium   (D) any rhombus

26. Force is a :

(A) Vector quantity   (B) Scalar quantity

(C) Both (A) & (B)   (D) None of these

27. On drawing water from a well, a force of _____ is applied on the rope.

(A) pull   (B) push

(C) push or pull   (D) none of these

28. A camel can walk/run in deserts very easily as compared to horse, donkey etc, because its :

(A) feet are smaller   (B) weight is lesser

(C) feet are broader   (D) body is heavier

29. The atmosphere exerts a pressure P on the surface of earth. Here P is equal to

(A) 1.01×10^5 Nm^{-2}

(B) 1.01×10^{-5} Nm^{-2}

(C) 1.01×10^7 Nm^{-2}

(D) 1.01×10^{-7} Nm^{-2}

30. Forces of adhesion are caused due to :

(A) Magnetic attractions

(B) Gravitational attractrions

(C) Electrostatic attractions

(D) Frictional forces

31. A ball is thrown vertically upwards. Force of friction offered by wind to the ball will act :

(A) downwards

(B) upwards

(C) perpendicular to the direction of motion of force

(D) none of these

32. The frequency of the object making 10 oscillations in 1 second is equal to

(A) 1 Hz.   (B) 5 Hz.

(C) 8 Hz.   (D) 10 Hz.

33. We are unable to hear the sound

(A) of an electric bell.

(B) inside an evacuated glass jar.

(C) having frequency of 100 Hz.

(D) through water.

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34. When we play mridangam, we strike the
(A) string.
(B) membrane.
(C) air-column.
(D) whole instrument.

35. Sound is produced by vibrations in a medium which are carried in
(A) downward direction only.
(B) opposite direction only.
(C) upward direction only.
(D) all directions.

36. Rayon was obtained by the chemical treatment of
(A) paper.   (B) wood pulp.
(C) fruit pulp.   (D) cloth.

37. Parachutes and ropes used for climbing a mountain are made of
(A) rayon.   (B) polyester.
(C) acrylic.   (D) nylon.

38. Metals found in free state are known to be in
(A) solid state.   (B) liquid state.
(C) gaseous state. (D) native state.

39. The thin wire seen inside the bulb is made of
(A) tungsten.   (B) nickel.
(C) tin.   (D) silver.

40. One of the best solution to get rid of non - biodegradable wastes is _____
(A) burning   (B) dumping
(C) burying   (D) recycling

41. Which of the following is / are non biodegradable waste :
(A) Metal   (B) Diamond
(C) Plastic toys   (D) All

42. The reaction of acids with a base to form salt and water is termed as
(A) oxidation.   (B) reduction.
(C) neutralization. (D) crystallisation.

43. An example of physical change is
(A) rusting of iron.
(B) dissolution of sugar in water.
(C) cooking of food.
(D) burning of magnesium ribbon.

44. Gold is mixed with copper to :
(A) make gold soft
(B) make gold hard
(C) make gold more yellowish
(D) give gold lustre

45. The process of giving a coating of _____ to copper or brass is called tinning.
(A) zinc   (B) copper
(C) tin   (D) iron

46. Fertilisers are used to improve crop yields, as they
(A) are rich in inorganic nutrients.
(B) are rich in organic nutrients.
(C) are rich in humus.
(D) are rich in chemicals that kill weeds.

47. The micro-organism used in the preparation of idli, dosa, bread, etc., is
(A) bacteria.   (B) virus.
(C) algae   .(D) yeast.

48. Sepration of chaff from grains occur through
(A) Winnowing   (B) Ploughing
(C) Broadcasting   (D) None of these

49. Continuous growing of crops make the soil poorer and less-fertile, we can replenish soil by following method-
(A) Crop-rotation
(B) Using weedicides
(C) Levelling
(D) Ploughing

50. An unicellular micro-organism is
(A) protozoa.   (B) mould.
(C) mushroom.   (D) rhizopus.

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51. The first Reserve Forest of India is
(A) Satpura national park.
(B) Panchmarhi park.
(C) Kaziranga sanctuary.
(D) Great Biosphere Reserve.

52. Removal of weeds is necessary for plant growth because weeds
(A) compete with crop for nutrition.
(B) cause diseases in crop.
(C) delay the harvesting time of the crop.
(D) attract the insects and birds towards the crop.

53. The simplest protozoan is
(A) Amoeba.　　　　(B) Paramecium.
(C) Euglena.　　　　(D) Plasmodium.

54. The activity not prohibited in a protected area meant for protection of plants and animals is
(A) hunting.　　　　(B) poaching.
(C) cultivation.　　　(D) tourism.

55. Ploughs are used for
(A) harvesting.　　　(B) tilling.
(C) irrigation.　　　(D) sowing.

56. Pointing to a photograph of a girl, Rajan said "She has no sisters or daughters but her mother is the only daughter of my mother." How is the girl in the photograph related with Rajan's mother ?
(A) Sister-in-law
(B) Grand daughter
(C) Daughter-in-law
(D) Cannot be determined

Directions (57) : Read the given information carefully and answer the questions that follow.
Ratan, Anil, Pinku and Gaurav are brothers of Rakhi, Sangeeta, Pooja and Saroj, not necessarily in that order. Each boy has one sister and the names of bothers and sisters do not begin with the same letter. Pinku and Gaurav are not Saroj's or Sangeeta's brothers. Saroj is not Ratan's sister.

57 Pooja's brother is
(A) Ratan　　　　　(B) Anil
(C) Pinku　　　　　(D) Gaurav

Directions (58 to 59) : Two groups of letters to the left side of the sign :: are associated with each other following same rule. You have to select one group of letters from the given alternative that will replace the sign : and form the same associationship with the group given to the right of sign ::

58. 121 : 12 : : 25 : ?
(A) 1　　　　　　　(B) 2
(C) 6　　　　　　　(D) 7

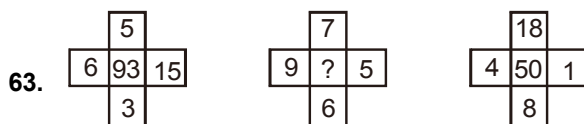**59.** 01 : 08 : : 16 : ?
(A) 25　　　　　　(B) 125
(C) 64　　　　　　(D) 27

60. While facing East you turn to your left and walk 10 m; then turn to your left and walk 10 m, and now you turn 45° towards your right and go straight to cover 25 m. Now, in which direction are you from your starting point?
(A) North-East　　　(B) South-West
(C) South-East　　　(D) North-West

61. If **rains** is called **pink**, **pink** is called **cloud**, **cloud** is called **water**, **water** is called **breeze** and **breeze** is called **moon.** What do you wash your hands with ?
(A) Water　　　　　(B) Rain
(C) Breeze　　　　(D) Moon

62. In a certain code **DELHI** is written as **29874 CULCUTTA** is written as **35835661** then the word **CALICUT** will be coded as :
(A) 3185463　　　(B) 3184635
(C) 3184563　　　(D) 3184356

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Direction : Find the missing number in figure/series

63.

	5	
6	93	15
	3	

	7	
9	?	5
	6	

	18	
4	50	1
	8	

(A) 5   (B) 19
(C) 27   (D) 89

64. 111, 114, 120, 123, 129, ?
(A) 136   (B) 138
(C) 141   (D) 145

65. 0, 6, 20, 42, 72, ?
(A) 106   (B) 112
(C) 110   (D) 108

66. Arrange the following group such that when arranged in a specific order, meaningful word is formed.
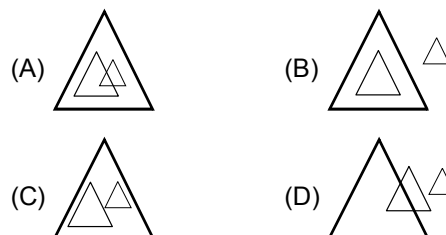
R A C E T
1 2 3 4 5

(A) 1, 2, 3, 4, 5   (B) 3, 2, 1, 4, 5
(C) 5, 2, 3, 4, 1   (D) 5, 1, 2, 3, 4

67. Given interchanges : signs + and × ; numbers 1 and 3.
(A) 31 + 34 × 31 = 1085
(B) 31 + 34 × 31 = 395
(C) 13 + 34 × 13 = 195
(D) 31 + 14 × 13 = 213

68. Which of the following represents the relationship between animals, elephants and lions ?

(A)   (B)

(C)   (D)

Directions : (69 to 70)

(i) J, K, L, M, N, O, P, and Q are sitting in a line facing towards East.
(ii) J is fourth to the right of N.
(iii) Q is fourth to the left of M.
(iv) L and O are not at the ends and are neighours of K and P respectively.
(v) Q is next to the left of J and J is the neighbour of K.

69. What is the position of O ?
(A) To the right of N
(B) Next to the right of L
(C) Next to the right of M
(D) Between P and J

70. Which of the following is true ?
(A) P is the neighbourer of Q and J
(B) L is next to the right of J
(C) N is at left end
(D) M is next to the left of K

ANSWER KEY

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