

Academic Session: 2021-22

ResoNET-2021

# SAMPLE PAPER

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

**FOR STUDENTS MOVING IN CLASS- VIII\_IN 2021-2022  
(PRESENTLY STUDYING IN CLASS – VII\_IN 2020-2021)**

COURSE NAME : PARADISE

COURSE CODE : PZ

**Duration: 1 Hours | Max. Marks: 210**



Name : \_\_\_\_\_

Application Form Number : \_\_\_\_\_

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

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## IMPORTANT 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 2021-22

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
		<b>Total</b>	<b>70</b>			<b>210</b>

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

# 1. MATHEMATICS

## Straight Objective Type

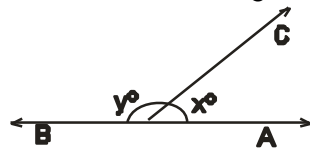
This section contains 25 questions. Each question has 4 choices (A), (B), (C) and (D) for its answer, out of which **ONLY ONE** is correct.

1. Which one of the following is commutative property?  
(A)  $a + b = b + a$       (B)  $a \times b + c = a + b \times c$       (C)  $\frac{a}{b} = \frac{b}{a}$       (D)  $a - b = b - a$
2. The given rational numbers are  $\frac{1}{2}, \frac{-4}{5}, \frac{-7}{8}$ . If the numbers are arranged in the ascending order or descending order, then the middle number is  
(A)  $\frac{1}{2}$       (B)  $\frac{-7}{8}$       (C)  $\frac{-4}{5}$       (D) both  $\frac{-4}{5}$  and  $\frac{-7}{8}$
3.  $\frac{-3}{5} \times \frac{35}{7} \times \frac{-1}{9}$  is equal to  
(A)  $\frac{-1}{3}$       (B) 3.      (C)  $\frac{1}{3}$       (D)  $\frac{2}{3}$
4. An angle is  $14^\circ$  more than its complementary angle then angle is:  
(A)  $38^\circ$       (B)  $52^\circ$       (C)  $50^\circ$       (D) None of these
5. The following figure is made by using two triangles. Find the value of  $\angle P + \angle Q + \angle R + \angle S + \angle T + \angle U$ .
- 
- (A)  $180^\circ$       (B)  $175^\circ$       (C)  $360^\circ$       (D)  $285^\circ$
6. Among two congruent angles, one has measure  $80^\circ$ , what is the measure of the other angle?  
(A)  $40^\circ$       (B)  $60^\circ$       (C)  $80^\circ$       (D)  $90^\circ$
7.  $(49)^a = (7)^{a+5}$ ,  $(64)^b = (2)^{4b+2}$ . Find value of  $2^{a+b} \Rightarrow ?$   
(A) 8      (B) 16      (C) 32      (D) 64

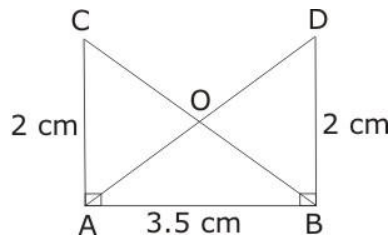
Space for Rough Work

8. The expression, which should be subtracted from  $2p + 9q + 100$  to get  $-5p + 7q + 50$ , is  
 (A)  $-7p + 2q + 50$ . (B)  $-7p - 2q - 50$ . (C)  $7p - 2q - 50$ . (D)  $7p + 2q + 50$ .
9. The difference of the pair of positive integers gives a positive integer is  
 (A)  $-1, 2$ . (B)  $-3, -1$ . (C)  $5, 4$ . (D)  $4, 5$ .
10. Out of a tank which is  $\frac{3}{4}$ th full, 21 litres of water is drawn out. The tank is now  $\frac{2}{5}$ th full, then the capacity of the tank is (in litres)  
 (A) 40. (B) 60. (C) 120. (D) 200.
11. The standard form of  $\frac{-63}{99}$  is  
 (A)  $\frac{-7}{9}$  (B)  $\frac{7}{9}$  (C)  $\frac{-7}{11}$  (D)  $\frac{8}{11}$

12. In the given figure,  $x$  is greater than one fifth of a right angle then:



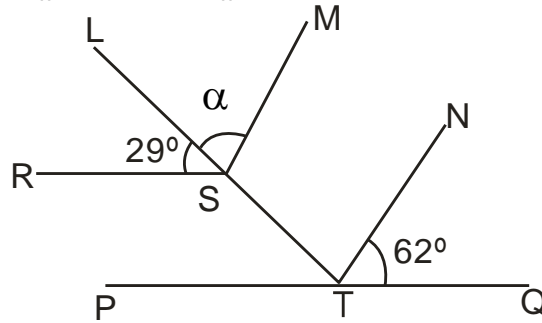
- (A)  $y > 162^\circ$  (B)  $y \geq 162^\circ$  (C)  $y \leq 162^\circ$  (D)  $y < 162^\circ$
13. The three angles of a triangle are in the ratio 1:2:3. The least angle of the given triangle is  
 (A)  $30^\circ$ . (B)  $60^\circ$ . (C)  $120^\circ$ . (D)  $180^\circ$ .
14. In the given figure, pair of triangles which are congruent is



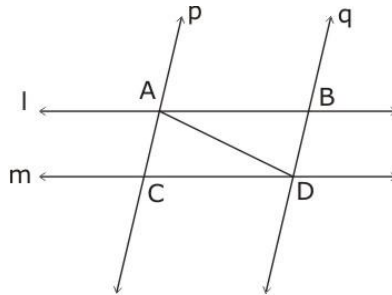
- (A)  $\triangle AOB$  is congruent to  $\triangle ACO$ . (B)  $\triangle AOC$  is congruent to  $\triangle ABO$ .  
 (C)  $\triangle ADB$  is congruent to  $\triangle BCA$ . (D)  $\triangle OAB$  is congruent to  $\triangle BOD$ .
15. If  $2 \times (\sqrt{2})^5 \times (\sqrt{2})^{-2/3} = (\sqrt{2})^{x+1}$ , then the value of  $x$  is:  
 (A)  $\frac{2}{3}$  (B)  $1\frac{1}{3}$  (C)  $4\frac{1}{3}$  (D)  $5\frac{1}{3}$
16. The product of  $(-2a^7)$  and  $(-5a^4)$  is  
 (A)  $-10a^3$ . (B)  $10a^{11}$ . (C)  $-10a^{11}$ . (D)  $10a^3$ .

Space for Rough Work

17. The simplified value of the given expression  $[12 + \{6 - (5 \times 2 - 5) - 7 + 2 \times 3\} + 8]$  is  
 (A) 12. (B) 15. (C) 20. (D) 24.
18.  $\frac{2}{5} \times 5\frac{1}{3} =$   
 (A)  $2\frac{2}{15}$  (B)  $3\frac{2}{15}$  (C)  $1\frac{2}{15}$  (D)  $2\frac{3}{11}$
19. The rational number whose denominator is the smallest 2-digit number and the numerator is the greatest 3-digit number is  
 (A)  $\frac{99}{100}$  (B)  $\frac{100}{99}$  (C)  $\frac{999}{10}$  (D)  $\frac{10}{999}$
20. In the figure shown  $PQ \parallel RS$  and  $SM \parallel TN$ . Then measure of angle  $\alpha$  is :



- (A)  $58^\circ$  (B)  $118^\circ$  (C)  $89^\circ$  (D)  $91^\circ$
21. Pythagoras property holds in .....  
 (A) Isosceles triangle (B) Right triangle (C) Equilateral triangle (D) Scalene triangle
22. In the given figure, there are two pairs of line. If  $p \parallel q$  and  $l \parallel m$  and  $\triangle ACD \cong \triangle DBA$ , then which of the congruency criteria is not applicable for the given figure.



- (A) ASA. (B) RHS. (C) SAS. (D) SSS.

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Space for Rough Work

23. The simplified form of  $\frac{4^{2^3} \times 4^0 \times 4^{-1}}{2^8}$  is  
 (A)  $2^2$  (B)  $2^6$  (C)  $2^4$  (D)  $2^{10}$
24. If  $A = 2p + q + r$ ,  $B = -3p - 7q + 6r$  and  $C = 22p + 12q - 3r$ , then  $C - (A + B)$  is:  
 (A)  $-23p - 18q + 10r$ . (B)  $23p + 18q + 10r$ . (C)  $23p + 18q - 10r$ . (D)  $23p - 18q - 10r$ .
25.  $\left(\frac{x^{5\gamma-3} \times x^{3-2\gamma}}{x^{4\gamma-6} \times x^{2\gamma-9}}\right)^{-\frac{4}{3}} = \underline{\hspace{2cm}}$   
 (A)  $x^{3\gamma-15}$  (B)  $x^{13-3\gamma}$  (C)  $x^{4\gamma-20}$  (D)  $x^{4\gamma+18}$

## 2. PHYSICS

### Straight Objective Type

This section contains 10 questions. Each question has 4 choices (A), (B), (C) and (D) for its answer, out of which **ONLY ONE** is correct.

26. The standard quantity used for comparison while measuring a physical quantity is called the  
 (A) Fundamental quantity (B) Derived quantity  
 (C) Unit (D) None of these
27. Sunitha can type 1800 words in half an hour. What is her typing speed in words per minute?  
 (A) 60 (B) 600 (C) 750 (D) 3000
28. Why do cooking vessels usually have copper bottoms?  
 (A) Copper has low melting point. (B) Copper is an insulator of heat.  
 (C) Copper is a good conductor of heat. (D) Copper is cheap.
29. Angle of incidence is \_\_\_\_\_ to the angle of reflection in reflection of sound.  
 (A) equal (B) not equal (C) both (a) and (b) (D) none of these
30. The fundamental unit among the following is  
 (A) Kelvin (B) Pascal (C) Newton (D) Watt
31. Which of the following does NOT show oscillatory motion?  
 (A) Swing (B) Fan (C) See-saw (D) Pendulum
32. Conduction of heat does not take place in  
 (A) copper. (B) iron. (C) aluminium. (D) vacuum.
33. Sound travels fastest in following :  
 (A) Air (B) Water (C) Iron (D) Vacuum

Space for Rough Work

34. With what speed should a car travel so that it can cover a distance of 5 km in 5 min?  
(A) 1 km/h (B) 5 km/h (C) 12 km/h (D) 60 km/h
35. Sound waves cannot pass through:  
(A) A solid liquid mixture (B) A liquid gas mixture  
(C) An ideal gas (D) A perfect vacuum

### 3. CHEMISTRY

#### *Straight Objective Type*

This section contains 10 questions. Each question has 4 choices (A), (B), (C) and (D) for its answer, out of which **ONLY ONE** is correct.

36. Number of valence electrons and valence shell in magnesium is :-  
(A) 3, M (B) 1, M (C) 2, M (D) 4, M
37. Natural fibres are obtained from:  
(A) Plant (B) Animal (C) Both (A) & (B) (D) None
38. Acids are the substances which :  
(A) Liberate hydrogen ions in solution (B) Liberate hydroxyl ions in solution  
(C) Accept hydrogen ions in solution (D) Accept hydroxyl ions in solution
39. Atomicity of phosphorous in  $P_4$  is :  
(A) 2 (B) 1 (C) 4 (D) 0
40. Which type of soil is used for growing cotton and jute plant?  
(A) Loamy soil, Black soil (B) Black soil, Loamy soil  
(C) Black soil, alluvial soil (D) sandy soil, Loamy soil
41. The molecular mass of  $CaCO_3$  is :  
(A) 40 (B) 100 (C) 110 (D) 60
42. Number of protons, neutrons and electrons in sulphide ion are respectively :  
(A) 16, 16 and 18 (B) 17, 16 and 18 (C) 18, 17 and 16 (D) 18, 16 and 17
43. Wool can be obtained from :  
(A) Angora goat (B) Merino sheep (C) Camel (D) All of the above
44. When magnesium ribbon is heated in a flame, it burns with \_\_\_\_\_ flame to form \_\_\_\_\_ ash  
(A) pale yellow, yellow (B) blue, green (C) dazzling, white (D) bluish green, white
45.  $NaOH + HCl \rightarrow \text{_____} + H_2O + \text{_____}$   
Fill in the blanks by choosing correct option:-  
(A) NaOH, 57.1 kJ (B) NaCl, 57.1 J (C) NaCl, 57.1 kJ (D) 2 NaCl, 37.1 kJ

Space for Rough Work

## 4. BIOLOGY

### *Straight Objective Type*

This section contains 10 questions. Each question has 4 choices (A), (B), (C) and (D) for its answer, out of which **ONLY ONE** is correct.

46. The plant which traps and feeds on insects is-  
(A) Cuscuta (B) China rose (C) Pitcher plant (D) Neem
47. Which of the following pair of teeth differ in structure but are similar in function?  
(A) Canines and incisors (B) Molars and premolars  
(C) Incisors and molars (D) Premolars and canines
48. Which of the following options are amphibious adaptations?  
(A) Feet serve as paddles for swimming  
(B) Skin helps in breathing  
(C) Show Hibernation  
(D) All of these
49. Yeast is used in wine and beer industries because it respire -  
(A) Aerobically producing oxygen (B) Aerobically producing alcohol  
(C) Anaerobically producing alcohol (D) Anaerobically producing oxalic acid
50. The function of blood is to transport -  
(A) The digested food from small intestine to other parts of body.  
(B) Digested food from the parts of the body to the large intestine  
(C) Digested food from small intestine to large intestine  
(D) Digested food from large intestine to small intestine
51. Factors affecting photosynthesis are -  
(A) Light (B) Temperature (C) CO<sub>2</sub> (D) All of these
52. Which of the following statements is incorrect?  
(A) Humans being is an omnivorous organism. (B) Tongue gives the sense of taste  
(C) Duodenum is part of large intestine (D) Liver is the largest gland of the body.
53. Which of the following is adaptation of polar bear?  
(A) White fur coat (B) Sensitive nose  
(C) Webbed feet and paws (D) All of these
54. Which of the following is false for anaerobic respiration?  
(A) Oxygen is not required (B) The number of ATP produced is 2  
(C) Toxic to higher organisms (D) None of these

Space for Rough Work





55. Read the following statements -  
 (i) The vascular tissues in plants are also called conducting tissues.  
 (ii) Transportation of food in plants is called transpiration  
 (iii) Humidity decreases transpiration  
 (iv) Transportation through xylem is unidirectional and transportation through phloem is bidirectional  
 Which of the above statements are true?  
 (A) (i),(iii),(iv) (B) (i),(ii),(iii) (C) (i),(ii) (D) All are correct

## 5. MENTAL ABILITY

### *Straight Objective Type*

This section contains 15 questions. Each question has 4 choices (A), (B), (C) and (D) for its answer, out of which **ONLY ONE** is correct.

**Directions : (56 to 57)** Find the wrong term.

56. 1, 3, 4, 7, 11, 18, 28, 47  
 (A) 4 (B) 7 (C) 18 (D) 28
57. 0, 0, 1, 3, 5, 10, 15, 21  
 (A) 0 (B) 1 (C) 5 (D) 21

**Directions : (58 to 59)** Find the missing term.

58. AP, CN, EK, GG, ?  
 (A) ID (B) IB (C) IC (D) JB
59. MAAL, AALM, ALMA, LMAA, ?  
 (A) AMLA (B) MAAL (C) AAML (D) LAAM

**Directions : (60 to 61)** Find the missing term in the given figures.

60. 

7	9	11
2	3	2
51	84	?

  
 (A) 125 (B) 100 (C) 123 (D) 64
61. 

5	2	8	6	7
14	5	23	17	?

  
 (A) 18 (B) 20 (C) 22 (D) 28

Space for Rough Work

**Directions : (62 to 63)** Which sequence of letters when placed at the blanks one after the other will complete the given letter series ?

62. \_ei\_u\_e\_ou  
(A) auoi (B) aiou (C) aoai (D) oaie
63. a\_bbc\_aa\_b\_c  
(A) bacb (B) acbc (C) abba (D) caba
64. If the following words are arranged in an alphabetical order, which word will appear in the second?  
(A) Principal (B) Principle (C) Principia (D) Principled
65. If **BOX** is coded as **CDPQYZ**, what will be the last two letters of word in the same code for **HERO**?  
(A) N, M (B) M, N (C) P, Q (D) Q, P
66. A man starts from his office and goes 4 km Northwards, then he turns left and goes 3 km and reaches a point 'X'. At what distance is he from the starting point ?  
(A) 5 km (B) 4 km (C) 3 km (D) 6 km
67. In a group of six children, Q is taller than P but not as tall as L. M is taller than N and O, but not as tall as P. Who is the shortest among them?  
(A) N (B) O (C) M (D) Data inadequate

**Directions : (68)** Answer the questions on the basis of the information given below. If '\$' represents '+', '\*' represents '-', '# represents 'x' and '@' represents '/' then answer the following questions based on the above given representation.

68. Which of the following has the value equivalent of  $5 \$ 6 \# 2 \$ 8 @ 4$ ?  
(A) 17 (B) 18 (C) 19 (D) 20
69. Ramesh started from his house, walked 2 km North then 3 km West then 6 km South. How far away from his house was he then?  
(A) 2 km (B) 3 km (C) 4 km (D) 5 km
70. Rohan ranked eleventh from the top and twenty-seventh from the bottom among the students who passed the annual examinations in a class. If the number of students who failed in the exam was 12, how many students did appear for the examinations ?  
(A) 48 (B) 49 (C) 50 (D) Can't be determined

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Space for Rough Work

# RESO-NET-2021-22

## ANSWER KEY\_CLASS – VIII

DATE: 7-11-20

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

## HINTS AND SOLUTIONS

- 4 Let the angle be  $(x + 14)^\circ$ .  
 $\therefore$  The complement is  $(x)^\circ$ .  
As both are complementary  $\angle$ s,  
 $x + x + 14 = 90^\circ$   
 $2x = 76^\circ$   
 $x = \frac{76^\circ}{2}$   
 $x = 38^\circ$   
The angle =  $x + 14^\circ$   
 $= 38^\circ + 14^\circ = 52^\circ$   
 $\therefore$  (B)  $52^\circ$
5. By the given figure  
In  $\triangle POR$   
 $\angle P + \angle Q + \angle R = 180^\circ$  [Angle sum property]  
In  $\triangle STU$   
 $\angle S + \angle T + \angle U = 180^\circ$  [Angle sum property]  
 $\angle P + \angle Q + \angle R + \angle S + \angle T + \angle U = 180^\circ + 180^\circ = 360^\circ$
7.  $(49)^a = (7)^{a+5}$   
 $\Rightarrow (7)^{2a} = (7)^{a+5}$   
 $\Rightarrow 2a = a + 5$   
 $\Rightarrow a = 5$   
 $\Rightarrow (64)^b = (2)^{4b+2}$   
 $\Rightarrow (2)^{6b} = (2)^{4b+2}$   
 $\Rightarrow 6b = 4b + 2$   
 $\Rightarrow b = 1$

Now,  $2^{a+b} = 2^{5+1} = 2^6 = 64$

12. Given information,

$$\angle x > \frac{1}{5} \times 90$$

$$\angle x > 18^\circ$$

$$\angle y = 180^\circ - \angle x$$

$$\therefore \angle y < 162 \quad (\text{As. } x > 18^\circ)$$

$$\therefore \text{(D) } y < 162^\circ$$

[Linear pair]

15.  $2 \times (\sqrt{2})^5 \times (\sqrt{2})^{-2/3} = (\sqrt{2})^{x+1}$

$$2 \times 2^{5/2} \times 2^{-\frac{2}{3} \times \frac{1}{2}} = 2^{\frac{x+1}{2}}$$

$$2 \times 2^{5/2} \times 2^{-1/3} = 2^{\frac{x+1}{2}}$$

$$2^{1+\frac{5}{2}-\frac{1}{3}} = 2^{\frac{x+1}{2}}$$

$$2^{\frac{6+15-2}{6}} = 2^{\frac{x+1}{2}}$$

$$2^{\frac{19}{6}} = 2^{\frac{x+1}{2}}$$

$$\frac{x+1}{2} = \frac{19}{6}$$

$$6x + 6 = 38$$

$$6x = 32$$

$$x = \frac{32}{6}$$

$$x = \frac{16}{3}$$

$$x = 5\frac{1}{3}$$

20.  $\angle \text{LSR} = \angle \text{STP} = 29^\circ$

[corresponding angles]

$$\angle \text{STN} = 180^\circ - 29^\circ - 62^\circ = 89^\circ$$

$$\angle \text{STN} = \angle \text{LSM}$$

[corresponding angles]

$$\angle \text{LSM} = \alpha = 89^\circ$$

25. 
$$\left( \frac{x^{5\gamma-3} \times x^{3-2\gamma}}{x^{4\gamma-6} \times x^{2\gamma-9}} \right)^{-\frac{4}{3}} = \left( \frac{\frac{x^{5r}}{x^3} \times \frac{x^3}{x^{2r}}}{\frac{x^{4r}}{x^6} \times \frac{x^{2x}}{x^9}} \right)^{-\frac{4}{3}}$$

$$\left( \frac{x^{3\gamma}}{x^{6\gamma}} \right)^{-\frac{4}{3}} = \left( \frac{x^{15}}{x^{3\gamma}} \right)^{-\frac{4}{3}} = \left( \frac{x^\gamma}{x^5} \right)^{\frac{4}{3}} = x^{4\gamma-20}$$

