NARAYANA
IIT-JEE / NEET / FOUNDATIONS
(A Unit of NSPIRA Management Services Pvt. Ltd.)

43 YEARS OF EXCELLENCE

N-SCORE-2022

CLASS – XI: - (Mental Ability, Mathematics, Physics & Chemistry)
(Class X Moving to XI - PCM)

(SET-2)

N-SCORE TEST

Time Duration: 1 Hour ***Maximum marks: 140***

Please read the instructions carefully. You are allotted 5 minutes specifically for this purpose.

INSTRUCTIONS:

1. This question paper contains **35** questions: **Mental Ability (Q. No. 1 to Q. No. 7), Mathematics (Q. No. 8 to Q. No. 17), Physics (Q. No. 18 to Q. No. 26), and Chemistry (Q. No. 27 to Q. No. 35).**
2. There will be individual qualifying cut-offs for all sections.
3. **For Each correct answer 4 marks will be awarded. No Negative Marking.**
4. Use OMR-Sheet for answering
5. Use HB Pencil / Pen to darken the circles.
6. If you wish to change your answer, erase the already darkened circle completely and then darken the appropriate circle.
7. Use of a calculator and mobile phone is strictly prohibited during the exam.

TO BE FILLED IN CAPITAL LETTERS

NAME OF THE STUDENT : _____

FATHER'S NAME : _____

CONTACT NUMBER:_____ **SCHOOL NAME :**_____

ROLL NO. :_____ **TEST CENTRE :** _____

I have read all the instructions and shall abide by them	I have verified all the information filled in by the Candidate
……..……	……..……
Signature of Candidate	**Signature of Invigilator**

MENTAL ABILITY (MAT)

1. In an examination, a student scores 4 marks for every correct answer and loses 1 mark for every wrong answer. If he attempts all 75 questions and secures 125 marks, the number of questions he attempts correctly, is
(A) 35 (B) 40 (C) 42 (D) 46

2. If HAND is written as EXRI, ROTE is then written as
(A) LPJX (B) OLXJ (C) LJPX (D) LXJP

3. Pointing to a man on the stage, Rita said, "He is the brother of the daughter of the wife of my husband. "How is the man on the stage related to Rita?
(A) Son (b) Husband (C) Cousin (D) Nephew

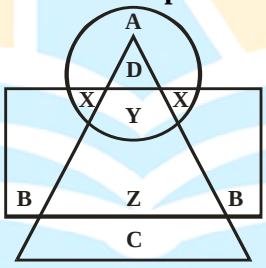
Directions (Questions No. 4): In each of the following number series, either one term is missing or is wrong which has been given as one of the four alternatives under it. This alternative is your answer.

4. 24, 27, 31, 33, 36
(A) 24 (B) 27 (C) 31 (D) 33

Directions (Questions No. 5): Which sequence of letters when placed at the blanks one after the other will complete the given letter series?

5. _ aabb _ abba _ b
(A) bab (B) aba (C) abb (D) baa

Directions (Questions No. 6): In the following diagram, the circle represents colleges professors, the triangle stands for surgical specialists, and medical specialist are represented by the rectangle.



6. College professors who are also surgical specialists are represented by
(A) A (B) B (C) C (D) D

Directions (Questions No. 7): Select the correct alternative from the given choices.

7. In a certain code language, if the word "PERMIT" is coded as TIMREP, then how will you code the word "REJECTION" in that language?
(A) NOICTEJRE (B) NOITCEJER (C) NOITECJER (D) NOIETCJER

Space for Rough Work

MATHEMATICS

8. The height h meters of a stone, t seconds after being thrown vertically upwards is given by $h = 40t - 5t^2$. At what time is the stone at a height of 60 metre?
(A) $1\,\text{sec}$ (B) $3\,\text{sec}$
(C) $6\,\text{sec}$ (D) $7\,\text{sec}$

9. If $\left(\frac{x-2}{x+2}\right)^2 - 4\left(\frac{x-2}{x+2}\right) + 3 = 0,\ x \neq -2$, then x =
(A) 4 (B) -4
(C) 3 (D) Do not exist

10. The hypotenuse of a right angle triangle is $3\sqrt{10}\ cm$. If the smaller leg is tripled and longer leg doubled, new hypotenuse becomes $9\sqrt{5}\ cm$, then the sum of the lengths of legs of the triangle?
(A) $14\ cm$ (B) $7\ cm$
(C) $12\ cm$ (D) $6\ cm$

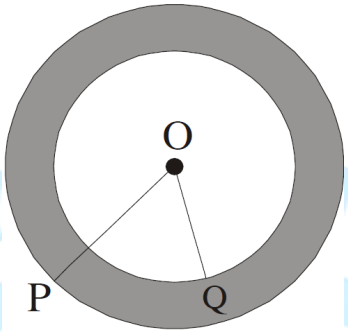
11. The sum of reciprocals of two consecutive numbers is $\frac{23}{132}$, then the sum of the numbers is
(A) 12 (B) 11
(C) 132 (D) 23

12. If the sum of first n terms of an AP is $2n^2 + 5n$, then its nth term is
(A) $4n+3$ (B) $4n-3$
(C) $3n-4$ (D) $3n+4$

13. The length of the tangent from a point P to a circle of radius $3\ cm$ is $4\ cm$. The distance of P from the center of the circle is :
(A) $7\ cm$ (B) $\sqrt{7}\ cm$
(C) $25\ cm$ (D) $5\ cm$

14. The area of the shaded region of the adjoining figure will be x square metres, given that $OP = 14\ cm$ and $OQ = 10.5\ cm$ then the value of x will be

Space for Rough Work



(A) $\frac{7^2}{2^3}\pi$ (B) $7^3\pi$

(C) $2^2 \times 7^3\ \pi$ (D) $\frac{7^3}{2^2}\pi$

15. The sum of the radius of the base and the height of a solid cylinder is 12 cm. Then its circumference, if its total surface area is $540\ cm^2$

(A) $45\ cm$ (B) $40\ cm$

(C) $35\ cm$ (D) $42\ cm$

16. The mean of n observation is $\bar{X}$. If the first item is increased by 1, seconds by 2 and so on, then the new mean is

(A) $\bar{X} + n$ (B) $\bar{X} + \frac{n}{2}$ (C) $\bar{X} + \frac{n+1}{2}$ (D) None of these

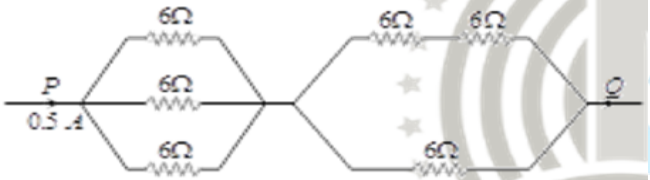
17. A bag contains 10 red balls and some white balls. If the probability of drawing a white ball is double that of a red ball, then number of white balls in the bag will be

(A) 10 (B) 15 (C) 20 (D) 25

Space for Rough Work

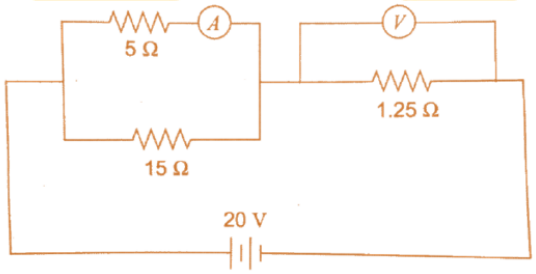
PHYSICS

18. Resistances of 6 ohm each are connected in the manner shown in adjoining figure. With the current 0.5 ampere as shown in figure, the potential difference between P and Q is:



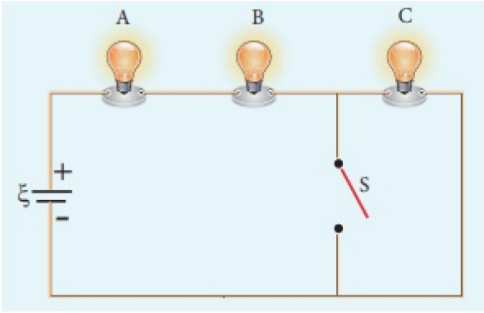
(A) 3.6 V (B) 6.0 V
(C) 3.0 V (D) 7.2 9V

19. An ideal ammeter (zero resistance) and an ideal voltmeter (infinite resistance) are connected as shows in figure. The ammeter and the voltmeter readings are?



(A) 6.25A, 3.75V (B) 3.00A, 5V
(C) 3.00A, 3.75V (D) 6.00A, 6.25V

20. Three identical lamps each having a resistance R are connected to the battery of EMF as shown in the figure. Suddenly the switch S is closed. Calculate the current in the circuit when S is open and closed.



(A) ξ/3R, ξ/2R (B) 2 ξ/3R, ξ/2R (C) 2ξ/5R, ξ/2R (D) 2 ξ/5R, 7ξ/2R

Space for Rough Work

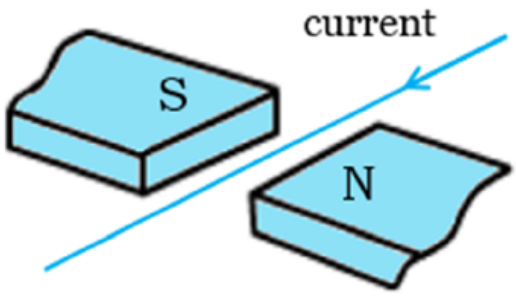
21. In case of a concave mirror, the image of an object is
(A) Real, erect and diminished when the object lies beyond the center of curvature
(B) Real, inverted and of the same size as the object when it lies between the center of curvature and focus
(C) Real, inverted and diminished when the object lies beyond the center of curvature
(D) Not real, large and proportional

22. If the absolute refractive indices of water and glass are 4/3 and 3/2, respectively, then what will be the ratio of velocity of light in water to that in glass?
(A) 2 (B) 8/9 (C) 9/8 (D) 1/2

23. A magnetic field exists around
(A) Iron (B) Copper (C) Aluminum (D) Moving Charges

24. A ray of light is incident on a transparent glass slab of refractive index $\sqrt{3}$. If the reflected and refracted rays are mutually perpendicular, what is the angle of incidence?
(A) 60^0 (B) 90^0 (C) 45^0 (D) 30^0

25. A current flow in a wire running between the S and N poles of a magnet lying horizontally as shown in the figure below: The force on the wire due to the magnet is directed (Current is coming out of the page):



A) Vertically Downwards B) Vertically Upwards
C) From N to S D) From S to N

26. When we enter a cinema hall, we cannot see properly for a short time. This is because
A) Pupil does not open
B) Pupil does not close
C) Adjustment of size of pupil takes some time
D) None of these above

Space for Rough Work

CHEMISTRY

27. 2L of water is used during the electrolytic decomposition of water, if all volume of water gets utilized during the process then the ratio of hydrogen gas to oxygen gas produced will be
(A) 2 : 2 (B) 1 : 1
(C) 1 : 2 (D) 2 : 1

28. Which one of the following species is not formed by the thermal decomposition of lead (II) nitrate?
(A) O_2 (B) N_2O
(C) NO_2 (D) PbO

29. Which one of the following can be used as acid base indicator by visually impaired students?
(A) Litmus solution (B) Turmeric solution
(C) Onion extract (D) Hydrangea extract

30. Which of the following acids can dissolve gold and platinum?
(A) Conc. HCl (B) Conc. H_2SO_4
(C) Conc. HNO_3 (D) none of the above

31. Which of the following substance cannot conduct electricity in solid as well as in aqueous state?
(A) Magnesium chloride (B) Calcium chloride
(C) Glucose (D) Sodium chloride

Q32. Generally metals react with acid to give salt and hydrogen gas. Which of the following acid does not give hydrogen gas on reaction with metals (except manganese and magnesium)
(A) Sulphuric acid (B) Nitric acid
(C) Hydrochloric acid (D) All of the above

Q33. Number of elements present in Mendeleev original periodic table
(A) 33 (B) 56
(C) 63 (D) 94

Q34. The name of scientist who proposed modern periodic law is
(A) Johann Wolfgang döbereiner (B) John Newland
(C) Dmitri Mendeleev (D) Henry Moseley

Q35. Which of the following is known as the Black lead?
(A) Charcoal (B) Diamond
(C) Graphite (D) Fullerenes

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