
TEST # IX - 01, May 2023

NAME: _____

Total. Time: 1:30 Hr

M.M: 130

INSTRUCTIONS

1. The paper consists of two sections A & B. Section A – Mathematics & Section B - Science.
2. The objective paper is designed by considering School Exam, NTSE & IIT Foundation.
3. The marking scheme is given just before the start of the Part in each section.
4. Blank papers, clipboards, log tables, slide rules, calculators, cameras, cellular phones, pagers and electronic gadgets are NOT allowed during exam.
5. The maximum mark allotted to the paper is 130.
6. Total time allotted for the exam is 1:30 Hours.
7. SECTION – A (MATHEMATICS) Questions No's: 1 – 15.
SECTION – B (SCIENCE) Questions No's 16 – 45.

Mathsarc Test Series

Office Work

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Invigilator Sign

Test is just a crosscheck of our learning during the month! So, be honest with thyself!

SECTION - A (MATHEMATICS)

PART - I

SINGLE OPTION CORRECT (+ 4, - 1, 0)

1. If $x = 2$ and $y = 4$ then $\left(\frac{x}{y}\right)^{x-y} + \left(\frac{y}{x}\right)^{y-x} =$ _____
(A) 4 (B) 8 (C) 12 (D) 2
2. If $\frac{5-\sqrt{3}}{2+\sqrt{3}} = x + y\sqrt{3}$, then (x, y) is
(A) (13, -7) (B) (-13, 7) (C) (-13, -7) (D) (13, 7)
3. If $\frac{3^{5x} \times (81)^2 \times 6561}{3^{2x}} = 3^7$, then $x =$ _____
(A) 3 (B) -3 (C) $-\frac{1}{3}$ (D) $\frac{1}{3}$
4. If $\left[\left\{ \left(\frac{1}{7^2} \right)^{-2} \right\}^{\frac{1}{3}} \right]^{\frac{1}{4}} = 7^m$, then $m =$ _____
(A) $-\frac{1}{3}$ (B) $\frac{1}{4}$ (C) -3 (D) 2
5. If $x = 2 + \sqrt{3}$, then value of $x^2 + \frac{1}{x^2}$ is
(A) 16 (B) 14 (C) 12 (D) None of these

ROUGH SPACE

←~■: ☺ ☺ Best of Luck! ☺ ☺ :■~→

6. Simplest form of $15\sqrt{6} - \sqrt{216} + \sqrt{96}$ is
(A) $11\sqrt{6}$ (B) $12\sqrt{3}$ (C) $5\sqrt{6}$ (D) $13\sqrt{6}$
7. Ascending order of $\sqrt{2}$, $\sqrt[3]{3}$ & $\sqrt[4]{5}$ is
(A) $\sqrt{2} < \sqrt[4]{5} < \sqrt[3]{3}$ (B) $\sqrt{2} < \sqrt[3]{3} < \sqrt[4]{5}$ (C) $\sqrt[4]{5} < \sqrt{2} < \sqrt[3]{3}$ (D) None of these
8. If $\sqrt{5} = 2.236$ & $\sqrt{2} = 1.414$, then approximate value of $\frac{3}{\sqrt{5} + \sqrt{2}} + \frac{4}{\sqrt{5} - \sqrt{2}}$ is _____
(A) 6.452 (B) 4.746 (C) 5.146 (D) 5.689
9. The value of x, if $5^{x-3} \times 3^{2x-8} = 225$, is
(A) 2 (B) 3 (C) 1 (D) 5
10. $\left(\frac{a}{b}\right)^{x-1} = \left(\frac{b}{a}\right)^{x-3}$, where $a \neq b$, $a \neq 0$, $b \neq 0$ then value of x is _____
(A) $1/2$ (B) 1 (C) 2 (D) $7/2$

ROUGH SPACE

←~■: ☺ ☺ Best of Luck! ☺ ☺ :■~→

PART - II

MULTI OPTION CORRECT (+ 4, -1, 0).

11. 120^3 Can be written as

- (A) $(2^3)^3 \cdot 27 \cdot (5)^3$ (B) $(2^3)^3 \cdot (3)^3 \cdot (5)^3$ (C) $(40)^3 \cdot (3)^3$ (D) $2^{27} \cdot (3)^3 \cdot (5)^3$

12. Which of the statements are true

- (A) Every Integer is a Natural Number (B) Every whole number is an Integer
(C) Every Integer is Rational Number (D) Every Rational number is not an Integer

13. Select the correct statement

- (A) The sum of the digits of the number $2^{2000}5^{2002}$ in decimal system is 7.
(B) $2 - \sqrt{3}$ is an irrational number
(C) $\sqrt[3]{27}$ is an irrational Number
(D) denominator's Rationalizing factor for $\frac{2}{3 - \sqrt{3}}$ is $3 + \sqrt{3}$.

14. If $N = \sqrt{3 - 2\sqrt{2}}$, Then

- (A) $N - \sqrt{2}$ is an irrational Number
(B) $N - \sqrt{2}$ is a rational Number
(C) $N - \sqrt{3}$ is a rational number
(D) if $N = p + q\sqrt{r}$, where p, q, r are integers, Then $p + q + r = 2$.

15. Select the correct statements

- (A) $N = \{1, 2, 3, 4, 5, \dots\}$ (B) $W = \{0, 1, 2, 3, 4, 5, \dots\}$
(C) $Z^+ = \{1, 2, 3, 4, 5, \dots\}$ (D) $Q = R - Q^c$

ROUGH SPACE

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SECTION - B (SCIENCE)

PART - I (PHYSICS)

SINGLE OPTION CORRECT (+ 3, - 1, 0)

16. Which one is a scalar quantity.

- (A) Velocity (B) Displacement (C) Acceleration (D) Light Year

17. Convert Speed of a train 360 Km/hour into m/s

- (A) 100 m/s (B) 150 m/s (C) 6000 m/s (D) 60 m/s

18. Unit Vector of $\vec{a} = 2\hat{i} + 3\hat{j} - 6\hat{k}$ is

- (A) $\hat{a} = \frac{2\hat{i} + 3\hat{j} - 6\hat{k}}{-1}$ (B) $\hat{a} = \frac{2\hat{i} + 3\hat{j} - 6\hat{k}}{7}$ (C) $\hat{a} = \frac{2\hat{i} + 3\hat{j} - 6\hat{k}}{8}$ (D) None of these

19. Distance travelled by a body in 5 minutes if its travels with uniform speed of 20ms^{-1} is

- (A) 60 m (B) 600 m (C) 6 km (D) 3600 m

20. A vector quantity possesses

- (A) Direction only (B) Magnitude only
(C) Both direction and Magnitude (D) None of these

21. The S.I. unit of retardation is

- (A) Km/h^2 (B) ms^2 (C) ms^{-1} (D) ms^{-2}

ROUGH SPACE

←~■: ☺ ☺ Best of Luck! ☺ ☺ :■~→

22. Select the correct statement

- (A) Magnitude of velocity and speed is same (B) Magnitude of distance & displacement is same
(C) Speed of object remain same in uniform motion (D) None of these

23. Motion of a car in a crowded street is an example of:

- (A) Uniform Speed (B) Uniform Velocity
(C) Variable Acceleration (D) Uniform Acceleration

24. Convert 15 m/s into km/h

- (A) 54 km/h (B) $\frac{25}{6}$ km / h (C) 25 km/h (D) 6.25 km/h

25. A car covers 30 km at a uniform speed of 60 km/h and the next 30 km at a uniform speed of 40 km/h.
The total time taken by car is _____

- (A) 1 hour (B) 1 h 30 min (C) 1 h 15 min (D) None of these

ROUGH SPACE

←~■: ☺ ☺ Best of Luck! ☺ ☺ :■~→

PART – II (CHEMISTRY)**SINGLE OPTION CORRECT (+ 3, - 1, 0)**

26. At what temperature does the Celsius and Fahrenheit scales show the same reading?
(A) $-40^{\circ}\text{C}/-40^{\circ}\text{F}$ (B) $-273^{\circ}\text{C}/-459^{\circ}\text{F}$ (C) $0^{\circ}\text{C}/32^{\circ}\text{F}$ (D) $100^{\circ}\text{C}/212^{\circ}\text{F}$
27. Which of the following is a physical change?
(A) Burning of paper (B) Rusting of iron (C) Melting of ice (D) Cooking an egg
28. The process of conversion of solid directly into gas is called:
(A) Sublimation (B) Evaporation (C) Condensation (D) Fusion
29. The boiling point of water is:
(A) 0°C (B) 100°C (C) 273 K (D) None of the above
30. The change of state from liquid to solid is called:
(A) Melting (B) Sublimation (C) Freezing (D) Evaporation
31. Which of the following is a characteristic of particles of matter in the gaseous state?
(A) They have a fixed shape (B) They have a fixed volume
(C) They are closely packed (D) They move randomly in all directions
32. The process of conversion of a liquid into vapours at any temperature below its boiling point is called:
(A) Evaporation (B) Sublimation (C) Condensation (D) Melting
33. Which of the following substances has the highest boiling point?
(A) Water (B) Alcohol (C) Gasoline (D) Mercury
34. The process of conversion of a gas into a liquid is called:
(A) Sublimation (B) Evaporation (C) Condensation (D) Fusion
35. Which of the following is a characteristic of particles of matter in the solid state?
(A) They have a definite shape and volume
(B) They have a definite volume but no definite shape
(C) They have no definite shape or volume
(D) They move randomly in all directions

PART – III (BIOLOGY)

FILL IN THE BLANK (+ 1, 0, 0)

36. Living cells were discovered by _____
37. Cell arise from pre- existing cells was stated by _____
38. Cell theory was given by _____
39. Cell wall is present in _____ cell
40. Cells were discovered by _____ in the year _____
41. Cell wall is mainly composed of _____
42. Movement of gases across cell membrane takes place by _____
43. _____ has an ever-changing shape.
44. The structure from which all multicellular organisms develop is called _____
45. Membranes that does not allow substance to pass through is called _____ while which allows all kind of substance to pass is called _____



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Congrats!

Subject	NTA Score
Physics	97.7093865
Chemistry	76.6587201
Mathematics	90.9208410
Total	95.2263327

Ira Kulkarni
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Good Managements
last seen today at 12:05 PM

Nathan
Sir I got 62 in maths

Shlok Singh
Sir I got 40/10 in my maths prelim 1 exam