TEST # VIII - 02, July 2023

NAME: _____   Total. Time: 1:30 Hr   M.M: 150

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 system 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 150.

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.

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Office Work

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2nd Floor Axis Vertiga

Mohammad wadi, Near DPS, Pune MH– 411060

Contact: +91- 8484948623 / 8007267089

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. Which of the following numbers is a rational number?

   (A) $\sqrt{2}$ (B) Π (C) 3.14   (D) - 5/7

2. What is the reciprocal of the rational number -2/9?

   (A) - 9/2   (B) - 9/18   (C) - 9/4   (D) 9/2

3. Evaluate: $\left(\frac{1}{2}\right)^3$

   (A) 1/8   (B) 2   (C) 1/6   (D) 3/2

4. What is the value of $\left(\sqrt{3} + \sqrt{5}\right)^2$?

   (A) $8 + 2\sqrt{15}$ (B) $8 + 4\sqrt{15}$ (C) $8 + 2\sqrt{3} + 2\sqrt{5}$ (D) $8 + 2\sqrt{3} + 2\sqrt{5} + 5$

5. Simplify: $\left(\frac{2}{3}\right) + \left(\frac{1}{4}\right) - \left(\frac{5}{6}\right) \times \left(\frac{3}{5}\right)$

   (A) - 17/60   (B) - 7/12   (C) 5/12   (D) - 5/12

6. Evaluate: $\left(\frac{3}{4}\right) - \left(\frac{1}{3}\right) \times \left(\frac{2}{5}\right) \div \left(\frac{2}{3}\right) + \left(\frac{1}{2}\right)$

   (A) 1/60   (B) - 5/20   (C) 21/20   (D) None of these

7. Evaluate: $\left(\left(\frac{1}{2}\right) \times \left(\frac{1}{4}\right)\right) + \left(\left(\frac{1}{2}\right) \times 6\right)$

   (A) 25/8   (B) 25/4   (C) 26/14   (D) 19/8

ROUGH SPACE

⟻~■: ☺ ☺ Best of Luck! ☺ ☺ :■~⟼

8. Simplify$\left(\left(\frac{3}{2}\right) \times \left(\frac{1}{6}\right)\right) + \left(\left(\frac{5}{3}\right) \times \left(\frac{7}{2}\right) - \left(\frac{13}{8}\right) \times \left(\frac{4}{3}\right)\right)$

   (A) 47/12   (B) 12/47   (C) 45/47   (D) 43/47

9. If $x = -\frac{8}{3}$, $y = \frac{5}{6}$, $z = -\frac{13}{12}$ then x × (y + z) =

   (A) 2   (B) 2/3   (C) 3/2   (D) 3

10. Simplify: $-\frac{5}{4} \times \left(\left(\frac{8}{5}\right) + \left(\frac{16}{5}\right)\right)$

    (A) 4   (B) - 4   (C) 6   (D) - 6

11. If 24 trousers of equal size can be prepared in 54 meters of cloth, what length of cloth is required for each trouser?

    (A) 9/4 m   (B) 9/3 m   (C) 7/4 m   (D) 9/7 m

12. Divide the sum of 65/12 and 12/7 by their difference.

    (A) 45/10   (B) 599/311   (C) 563/123   (D) 1

13. Divide the sum of -13/5 and 12/7 by the product of - 31/7 and - 1/2.

    (A) 31/35   (B) -2/5   (C) -11/5   (D) 2/3

14. The cost of $2\frac{1}{3}$ meters of cloth is Rs 75 ¼. Find the cost of cloth per meter.

    (A) 32   (B) 32.25   (C) 35.50   (D) 36

15. If $x = $ ¼, $y = \frac{3}{2}$ then (x + y) ÷ (x − y) =

    (A) 7/5   (B) - 7/5   (C) 5/7   (D) - 5/7

ROUGH SPACE

↤~■: ☺ ☺ Best of Luck! ☺ ☺ :■~↦

SECTION – B (SCIENCE)

PART – I (PHYSICS)

SINGLE OPTION CORRECT (+ 3, – 1, 0)

16. Which of the following is not a correct statement?

    (A) A force can change the state of rest or motion of a body.

    (B) A force can change the direction of a body

    (C) A force can change the chemical properties of a body

    (D) A force can change the dimensions of the body.

17. If no external force acts on a body, it will

    (A) move with more speed

    (B) change its shape

    (C) break into pieces

    (D) either remain in its state of rest or uniform motion

18. _____ is a measure of the gravitational force acting on an object.

    (A) mass   (B) weight   (C) pressure   (D) none of these

19. If two equal forces act on the body in opposite direction, then the resultant force on the body will be

    (A) More   (B) Zero   (C) Less   (D) None of these

ROUGH SPACE

↤~■: ☺ ☺ Best of Luck! ☺ ☺ :■~↦

20. What principal is used in a newton spring balance?

(A) The mass of an object depends on its density.

(B) The mass of an object depends on the gravity pulling it.

(C) The weight of an object is directly proportional to its mass

(D) The extension of the spring is directly proportional to the weight pulling it, and weight depends upon mass.

21. The state of motion of a body is described by its _____ and direction of motion.

(A) force   (B) pressure   (C) speed   (D) none of these

22. In CGS system, the unit of force is

(A) Newton   (B) Pascal   (C) dyne   (D) meter

23. A coin flicked across a table will stop, because

(A) it is heavy   (B) no force is acting on it

(C) earth attracts the coin   (D) table exerts a frictional force.

24. The force of freely falling body is directly proportional to

(A) mass of body   (B) acceleration of body

(C) velocity of body   (D) both (A) and (B) options

25. A block of mass 4 kg and dimensions 10 cm × 20 cm × 30 cm rest on the floor. If g = 10 ms^{-2}, then the maximum pressure the block can exert on the floor is

(A) 2000 Nm^{-2} (B) 1000 Nm^{-2} (C) 4000 Nm^{-2} (D) 1333 Nm^{-2}

ROUGH SPACE

↤~∎: ☺☺ Best of Luck! ☺☺ :∎~↦

PART – II (CHEMISTRY)

SINGLE OPTION CORRECT (+ 3, – 1, 0)

26. Polyester is a synthetic fiber made from:

    (A) Natural plant fibers   (B) Natural animal fibers

    (C) Petroleum-based chemicals   (D) Wood pulp

27. Which of the following is a commonly used plastic polymer?

    (A) Cellulose   (B) Rubber   (C) Polyethylene   (D) Silk

28. What is the process called by which small monomer units are chemically bonded together to form a large polymer?

    (A) Polymerization   (B) Crystallization   (C) Sublimation   (D) Saponification

29. Which of the following metals is liquid at room temperature?

    (A) Gold   (B) Silver   (C) Mercury   (D) Copper

30. Which of the following is a property of metals?

    (A) Brittle   (B) Dull appearance

    (C) Good conductor of electricity   (D) Low melting point

31. Which of the following is a fossil fuel?

    (A) Natural gas   (B) Solar energy   (C) Wind energy   (D) Coal

32. What is the main constituent of natural gas?

    (A) Methane   (B) Ethanol   (C) Propane   (D) Butane

33. The process of separating different components of crude oil is called:

    (A) Combustion   (B) Distillation   (C) Oxidation   (D) Filtration

34. Which of the following is a non-renewable resource?

    (A) Solar energy   (B) Wind energy   (C) Coal   (D) Biomass

35. Sodium (Na) is a _____, with _____ no of electron(s) in outermost shell.

    (A) Metal, 7   (B) Non-Metal, 1   (C) Metal, 1   (D) Non – Metal, 7

PART – III (BIOLOGY)

SINGLE OPTION CORRECT (+ 3, – 1, 0)

36. Which of the following tools would a farmer use to remove weeds from the field

    (A) Hoe   (B) Axe   (C) Plough   (D) Cultivator

37. The term used for the process of separation of grains from chaff is

    (A) Sieving   (B) winnowing   (C) Threshing   (D) Hand picking

38. The monsoon season in our country is during the months

    (A) April to December   (B) November to March   (C) June to September   (D) January to May

39. Pathogenic microorganisms present in host cells are killed by

    (A) Pain Killer   (B) antibiotics   (C) vaccines   (D) antibodies

40. The System of irrigation where in the water is supplied drop by drop near the roots of the plants is called

    (A) Pulley system   (B) Sprinkler system   (C) drip system   (D) lever system

41. The process of loosening and turning of soil is called

    (A) irrigation and manuring   (B) tilling and ploughing

    (C) digging and winnowing   (D) harvesting and storage

42. The process of conversion of sugar into alcohol is

    (A) fermentation   (B) crystallization   (C) sedimentation   (D) filtration

43. Who discovered penicillin

    (A) Alexander Fleming   (B) Louis Pasteur   (C) Edward Jenner   (D) None of these

44. Which of the following statements is not true for organic manure

    (A) It enhances water holding capacity of soil   (B) It has a balance of all plant nutrients

    (C) It provides humus to soil   (D) it improves texture of soil

45. Which one of following methods of preserving food pasteurization

    (A) sugar   (B) preservatives

    (C) Heat and cold treatments   (D) chemical method

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