TEST # IX - 03, Aug 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

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Invigilator Sign

Test is just a crosscheck of our learning during the month! So, be honest with thyself!
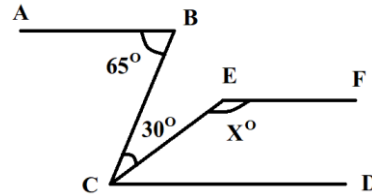
SECTION – A (MATHEMATICS)

PART - I

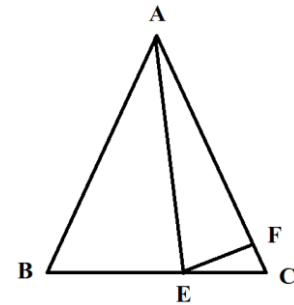**SINGLE OPTION CORRECT (+ 4, – 1, 0)**

1. Consider $4x + \dfrac{6}{y} = 15$ & $3x - \dfrac{4}{y} = 7$. If $y = ax - 4$ then value of a is _____

   (A) 7/2   (B) 2   (C) 4/3   (D) - 2

2. What value of x will make CD || EF, and AB || CD?

   (A) 150°   (B) 145°

   (C) 140°   (D) 135°

3. If $\left(\sqrt[3]{4}\right)^{2x+\frac{1}{2}} = \dfrac{1}{32}$, then x =

   (A) - 2   (B) 4   (C) - 6   (D) – 4

4. In the given figure, ABC is an isosceles triangle with AB = AC. If AE = AF and $\angle BAE = 40°$, then the measure of $\angle FEC$ is __
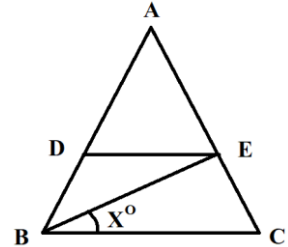
   (A) 15°   (B) 20°

   (C) 40°   (D) 60°

5. The value of $\sqrt{3 + 2\sqrt{2}} - \sqrt{3 - 2\sqrt{2}}$ is equal to

   (A) 2   (B) 1   (C) $2\sqrt{2}$ (D) $\sqrt{6}$

ROUGH SPACE

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6. The sum of a two-digit number and the number obtained by interchanging the digits of the number is 121. If the digits of the number differ by 3, then product of digits is _____

(A) 11   (B) 14   (C) 28   (D) None of these

7. If angles of a triangle are in the ratio 2 : 4 : 9, then the difference of the two smaller exterior angles of the triangle is _____

(A) 24°   (B) 30°   (C) 44°   (D) 60°

8. In the given $\triangle ABC$, DE || BC, and BE bisects $\angle DEC$. If $\angle C = 80°$, then the value of x is ____

(A) 45   (B) 35

(C) 50   (D) 65

9. The value of $\left(\dfrac{64}{125} \right)^{-2/3} \div \dfrac{1}{\left(\dfrac{256}{625} \right)^{1/4}} + \left(\dfrac{\sqrt{25}}{\sqrt[3]{64}} \right)^{0}$ is _____

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

10. Given that $x = 2$; $y = 1$ is the solution of system $\begin{cases} ax + by = 7, \\ bx + cy = 5, \end{cases}$ then the relation between a and c is

(A) 4a + c = 9   (B) 2a + c = 9   (C) 4a - c = 9   (D) 2a – c = 9

ROUGH SPACE

↤~■ : ☺ ☺ Best of Luck! ☺ ☺ : ■~↦

PART – II

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

11. For given system of equations: $\begin{cases} \dfrac{x-y}{5} - \dfrac{x+y}{4} = \dfrac{1}{2} \\ 2(x-y) - 3(x+y) + 1 = 0 \end{cases}$

    (A) $y = \dfrac{9}{4}$ (B) $x = \dfrac{59}{4}$ (C) $y = -\dfrac{11}{4}$ (D) $x = -\dfrac{51}{4}$

12. Select the correct factorizations

    (A) $4(x+y)^2 - 3(x+y) = (x+y)(4x+4y-3)$

    (B) $12 - (x+x^2)(8-x-x^2) = (1-x)(2+x)(2-x)(3-x)$

    (C) $16a^4 - b^4 = (4a^2 + b^2)(2a-b)(2a+b)$

    (D) $a^2 + \dfrac{1}{a^2} - 18 = \left(a - \dfrac{1}{a} + 4\right)\left(a + \dfrac{1}{a} - 4\right)$

13. Consider $N = 25^3 + 50^3 - 75^3 = -2^x \cdot 3^y \cdot 5^z$. Then

    (A) $x + y + z = 9$ (B) $2x + 2y = z$

    (C) Rationalizing factor of $y + \sqrt{z}$ is $3 - \sqrt{6}$

    (D) Number of zeroes at the end of N when express in decimal system is 1

14. Consider the figure as shown.
    Select the correct option(s)

    (A) x = 4.2

    (B) y = 4.5

    (C) z = 9.3

    (D) w = 3.5

$$\boxed{x} \;+\; \boxed{y} = 8$$
$$+ \qquad\qquad +$$
$$\boxed{z} \;-\; \boxed{w} = 6$$
$$||\qquad\qquad ||$$
$$13 \qquad\quad 8$$

15. Select the correct Congruency criteria for two triangles

    (A) AAA   (B) SSS   (C) ASA   (D) RHS

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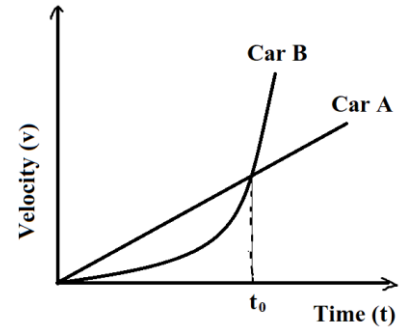↢~■: ☺ ☺ Best of Luck! ☺ ☺ :■~↣

SECTION – B (SCIENCE)

PART – I (PHYSICS)

SINGLE OPTION CORRECT (+ 3, – 1, 0)

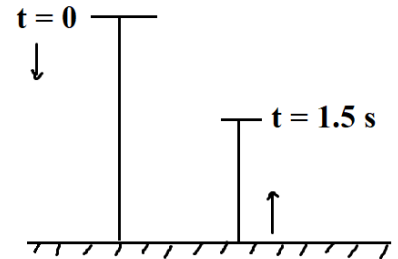16. The velocity-time graph of motion of two cars A and B is shown in the figure. Choose the correct statement.

    (A) Acceleration of two cars are equal to each other at time $t = t_0$

    (B) Acceleration of two cars are equal to each other at an instant greater than t_0

    (C) Acceleration of two cars are equal to each other at an instant earlier than t_0

    (D) At no instant in the interval $0 \le t \le t_0$, the two acceleration are equal.

17. A ball released from rest at time $t = 0$ hits the ground. It rebounds inelastically with a velocity 5 m/s and reaches the top at $t = 1.5$ s, what is the net displacement of the ball from its initial position after 1.5s? ($g = 10$ m/s²)

    (A) 1.25 m   (B) 3.75 m

    (C) 5.00 m   (D) 6. 25 m

    Note: speed after hitting the ground are different in inelastic collision.

18. Select the wrong statement(s)

    (A) SI Unit of Force is Newton   (B) 1 N = 10⁷ Dyne

    (C) 1 Newton is equivalent to weight of 102 g mass (D) $\vec{F} = \dfrac{\Delta \vec{P}}{\Delta t}$, P is linear moment.

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CLASS – 9th

FOUNDATION TEST SERIES

19. Select the Wrong statement

(A) Gravitational force is a non-contact force

(B) Friction force is a contact force

(C) The momentum is proportional to speed

(D) if $F_{net} = 0$, then speed of object is zero

20. Select the correct conversion

(A) 20 m/s = 200 cm/s

(B) 1 N = 1 Kg m/s

(C) P = 25 Kg m/s = 2500000 g m/s

(D) 10^6 Dyne = 100 Newton

21. The maximum speed of a train is 80 km/h. It takes 10 hours to cover a distance of 400 km. find the ratio of its maximum speed to its average speed.
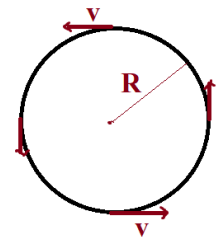
(A) 3   (B) 2   (C) 1   (D) 4

22. A bicycle increases its velocity from 10 km/h to 15 km/h in 6 seconds. The average acceleration of bicycle is _____

(A) 3000 km/h²   (B) 300 km/h²   (C) 1000 km/h²   (D) 50 km/h²

23. Consider the figure as shown. Select the correct option for object of mass m kg.

(A) Uniform circular motion is an example of non-accelerated motion

(B) Time period of object moving with uniform speed along circular path = $\dfrac{2\pi R}{v}$

(C) Centripetal force = $\dfrac{mv^2}{R}$, Radially Outward

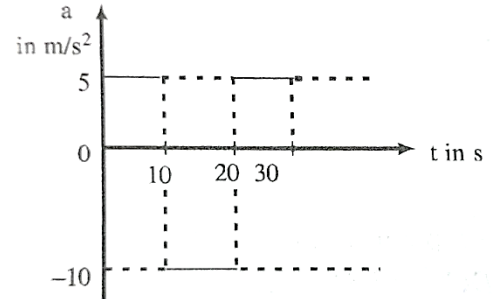(D) Velocity is constant in given uniform circular motion

ROUGH SPACE

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24. A car travels at a speed of 80 km/hr for 15 minutes and then at a speed of 40 km/hr for next 15 minutes. The average speed of the car is _____

(A) 15.7 ms⁻¹   (B) 16.7 ms⁻¹   (C) 17.7 ms⁻¹   (D) 18.7 ms⁻¹

25. Suppose that the acceleration versus time graph of a particle that starts from rest at t = 0 is as shown in the figure.

What is the total distance travelled by the particle during 30 seconds?

(A) 0 m

(B) 500 m

(C) 750 m

(D) 1000 m

ROUGH SPACE

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PART – II (CHEMISTRY)

SINGLE OPTION CORRECT (+ 3, – 1, 0)

26. A mixture of two or more miscible liquids, for which the difference in the boiling points is less than 25 K can be separated by the process called

    (A) Evaporation   (B) Fractional Distillation (C) Condensation   (D) Diffusion

27. Cooking of food and digestion of food:

    (A) are both physical processes

    (B) are both chemical processes

    (C) cooking is physical whereas digestion is chemical

    (D) cooking is chemical whereas digestion is physical

28. Which of the following methods would you use to separate cream from milk?

    (A) Fractional distillation   (B) Distillation

    (C) Centrifugation   (D) Filtration

29. Range of atomic number of Lanthanides series

    (A) 57 - 71   (B) 57 - 70   (C) 89 - 102   (D) 89 - 103

30. Which of the following is not a merits of the modern period table

    (A) It is based on atomic mass   (B) It's based on atomic number

    (C) Position of an element in the table is related to its electronic configuration

    (D) Easier to remember

31. Number of valence electrons _____ as we go down to group

    (A) Increase   (B) Decrease   (C) Remains constant   (D) First increase to 4
    then decrease

32. f-block elements are also known as

    (A) Representative elements   (B) Transition element

    (C) Inner transition element   (D) Inert gases

33. Law of triad was discovered by

    (A) Newland   (B) Dobereiner   (C) William Paul   (D) Mendeleev

34. Valency of SO_4 is

    (A) + 1   (B) - 1   (C) - 2   (D) – 3

35. Molecular mass of sulphuric Acid (H_2SO_4)

    (A) 32 amu   (B) 98 amu   (C) 100 amu   (D) 16 amu

PART – III (BIOLOGY)

SINGLE OPTION CORRECT (+ 3, – 1, 0)

36. Parenchyma cells are:

(A) Relatively unspecified and thin walled

(B) lignified

(C) thick walled and specified

(D) none of these

37. Girth of the stem increases due to :

(A) Intercalary meristem (B) Apical meristem   (C) lateral meristem   (D) vertical meristem

38. Which of the following tissue has dead cells:

(A) Parenchyma   (B) Sclerenchyma   (C) Collenchyma   (D) Epithelial Tissue

39. The rate of water loss in desert plants is reduced by:

(A) Cuticle   (B) stomata   (C) suberin   (D) Lignin

40. The bending of the stem of a plant towards the source of light is caused by a plant hormone called:

(A) Cytokinin   (B) Gibberellin   (C) Abscisic acid   (D) Auxin

41. Which is not a function of epidermis?

(A) Protection from adverse condition

(B) Gaseous exchange

(C) Conduction of water

(D) Transpiration

42. flexibility in plants is due to:

(A) Collenchyma   (B) Chlorenchyma   (C) Parenchyma   (D) Sclerenchyma

43. Aerenchyma is formed by:

(A) Collenchyma   (B) Chlorenchyma   (C) Parenchyma   (D) Sclerenchyma

44. Which of the following does help in the repair of the tissue and fills up the space inside the organ:

(A) Cartilage   (B) Tendon   (C) Areolar   (D) Adipose tissue

45. Meristematic tissues in plants are

(A) Localised and permanent

(B) not limited to certain region

(C) localised and dividing cells

(D) growing in volume

ANSWER KEY

1. B	2. B	3. D	4. B
5. A	6. C	7. D	8. C
9. B	10. C	11. B, C	12. A, C
13. A, B, D	14. B, D	15. B, C, D	16. C
17. B	18. B	19. D	20. C
21. B	22. A	23. B	24. B
25. C	26. B	27. B	28. C
29. A	30. A	31. C	32. C
33. B	34. C	35. B	36. A
37. C	38. B	39. A	40. D
41. C	42. A	43. C	44. C
45. C			