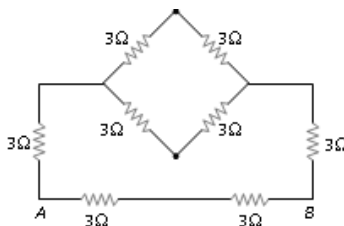


Section - I
MATHEMATICS

1. $2022^3 - 2021 \times 2022 \times 2023 =$ _____
 (a) 2021 (b) 2022 (c) 1 (d) 0
2. Real numbers a, b, c satisfying the equations $a + b + c = 26$ and $\frac{1}{a} + \frac{1}{b} + \frac{1}{c} = 28$ then the value of $\frac{a}{b} + \frac{b}{c} + \frac{c}{a} + \frac{a}{c} + \frac{c}{b} + \frac{b}{a} =$
 (a) 746 (b) 625 (c) 728 (d) 725
3. Given 3 different prime numbers p, q, r such that $p + q + r = 100$ and $p < q < r$. If r is the largest possible value then the value of $(-1)^{p-1}(p-1) + (-1)^q(q) + (-1)^{r+1}(r+1)$ is
 (a) 77 (b) 60 (c) 82 (d) 75
4. If $a^b = 125$, where a & b are prime, then the value of $(a - b)^{a+b-4}$ is
 (a) 16 (b) 18 (c) 25 (d) 9
5. If $A(-2, -1)$, $B(a, 0)$, $C(4, b)$ and $D(1, 2)$ are the vertices of a parallelogram, then $a + b =$
 (a) 2 (b) -2 (c) 4 (d) -4
6. The units digit of $(1+9+9^2+9^3+9^4+\dots+9^{2022})$ is
 (a) 0 (b) 1 (c) 9 (d) 3
7. If 3, 5, x are the sides of an integer sided obtuse angle triangle, the number of such triangles is
 (a) 0 (b) 3 (c) 4 (d) infinite
8. If $f(x) = x^4 + x^3 + x^2 + x + 1$, then the remainder when $f(x^{11})$ is divided by $f(x)$ is
 (a) 0 (b) x (c) $x + 1$ (d) $x^2 + 2x + 1$
9. If $\left(x + \frac{1}{x}\right) = 3$, then $\left(x^5 + \frac{1}{x^5}\right)$ is equal to
 (a) 192 (b) 198 (c) 195 (d) 243
10. In $\triangle ABC$, $BC = a$, $CA = b$, $AB = c$. and h_a, h_b, h_c are the heights from A, B, C to the opposite sides BC, CA, AB respectively. If $\frac{2}{h_b} = \frac{1}{h_a} + \frac{1}{h_c}$ then the value of $\frac{(a-b)^2 + (b-c)^2}{(a-c)^2}$ is
 (a) 1 (b) $\frac{1}{2}$ (c) 2 (d) $\frac{1}{4}$

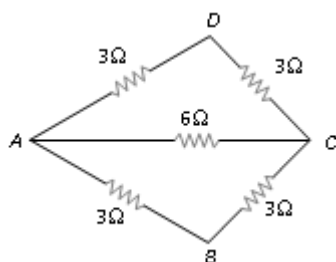
Section - II
PHYSICS

11. Equivalent resistance between A and B will be -



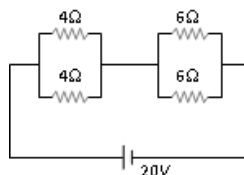
- (a) 2 ohm (b) 18 ohm
(c) 6 ohm (d) 3.6 ohm

12. The effective resistance between the points A and B in the figure is –



- (a) 5 Ω (b) 2 Ω
(c) 3 Ω (d) 4 Ω

13. Four resistances are connected in a circuit in the given figure. The electric current flowing through 4 ohm and 6 ohm resistance is respectively –



- (a) 2 amp and 4 amp (b) 3 amp and 2 amp
(c) 1 amp and 1 amp (d) 2 amp and 2 amp

14. An electric lamp is marked 60 W, 230 V. The cost of a 1 kWh of energy is Rs. 1.25. The cost of using this lamp 8 hrs a day for 30 day is ____.

- (a) Rs. 10 (b) Rs. 16
(c) Rs. 18 (d) Rs. 20

15. A concave mirror is used to focus the image of a flower on a nearby well 120 cm from the flower. If a lateral magnification of 16 is desired, the distance of the flower from the mirror should be –

- (a) 8 cm (b) 12 cm (c) 80 cm (d) 120 cm

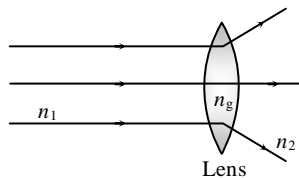
16. Radius of curvature of concave mirror is 40 cm and the size of image is twice as that of object, then the object distance is ____.

- (a) 60 cm (b) 20 cm (c) 40 cm (d) 30 cm

17. A point object is placed at a distance of 30 cm from a convex mirror of focal length 30cm. The image will form at

- (a) Infinity (b) Focus (c) Pole (d) $f/2$

18. A person sees his virtual image by holding a mirror very close to the face. When he moves the mirror away from his face, the image becomes inverted. What type of mirror he is using?
- (a) Plane mirror (b) Convex mirror
(c) Concave mirror (d) None of these
19. Two lenses are placed in contact with each other and the focal length of combination is 80 cm. If the focal length of one is 20 cm, then the power of the other will be –
- (a) 1.66 D (b) 4.00 D
(c) -1.00 D (d) - 3.75 D
20. The ray diagram could be correct –
- (a) If $n_1 = n_2 = n_g$
(b) If $n_1 = n_2$ and $n_1 < n_g$
(c) If $n_1 = n_2$ and $n_1 > n_g$
(d) Under no circumstances



Section – III CHEMISTRY

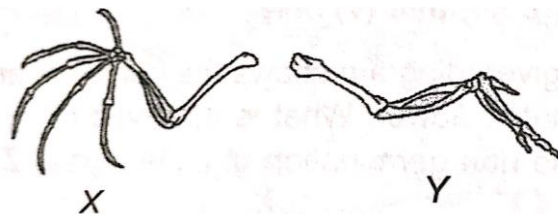
21. Which of the following is not a combination reaction?
- (a) $C + O_2 \longrightarrow CO_2$ (b) $H_2 + O_2 \longrightarrow H_2O$
(c) $CH_4 + O_2 \longrightarrow CO_2 + H_2O$ (d) All of these
22. Which will be an endothermic reaction?
- (a) $N_2 + 3H_2 \longrightarrow 2NH_3$ (b) $CaO + CO_2 \longrightarrow CaCO_3$
(c) $SO_3 \longrightarrow SO_2 + O_2$ (d) $H_2 + O_2 \longrightarrow H_2O$
23. Zinc sulphide heating with Aluminum phosphide gives zinc phosphide and aluminium sulphide. On balancing this reaction, the coefficient of Zinc sulphide and Aluminum phosphide, will be in the ratio
- (a) 1 : 1 (b) 2 : 1
(c) 3 : 2 (d) 2 : 3
24. $FeC_2O_4 + KMnO_4 + H_2SO_4 \longrightarrow Fe_2(SO_4)_3 + K_2SO_4 + MnSO_4 + CO_2 + H_2O$
- On balancing this reaction, with smallest possible whole numbers, the coefficient of CO_2 will be
- (a) 2 (b) 12
(c) 24 (d) 20
25. $SO_2 + O_2 \longrightarrow SO_3$ In the above reaction
- (a) Sulphur is oxidised (b) Oxygen is oxidised
(c) Oxygen is reduced (d) Both (a) and (c)
26. $Fe_2O_3 + Cr \longrightarrow Cr_2O_3 + Fe$ in the above reaction, reducing agent is

- (a) Iron
(c) Oxygen
- (b) Chromium
(d) It is not a redox reaction

27. Which of the following reaction will change the color of the solution to colourless?
(a) $\text{CuSO}_4 + \text{Fe}$ (b) $\text{FeSO}_4 + \text{Cu}$ (c) $\text{CuSO}_4 + \text{Zn}$ (d) $\text{FeSO}_4 + \text{Ag}$
28. Which among the following metals has as the least oxidising properties?
(a) Fe (b) Zn (c) Al (d) Cu
49. The solution which turns blue litmus to red may have a pOH of
(a) 13 (b) 7 (c) 2 (d) All of these
30. The acidic salt among the following is
(a) Na_2CO_3 (b) KHCO_3 (c) NaHSO_4 (d) NH_4NO_3

Section – IV**BIOLOGY**

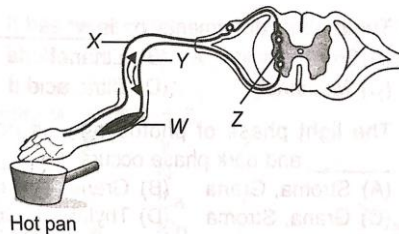
31. The product of fermentation is _____
(a) Formic acid (b) Ethanol
(c) Methanol (d) Citric acid
32. Refer to the given figure. It shows bones of wings of two animals X and Y. These wings are Z structures.



Select the option that correctly identifies X, Y and Z

- | X | Y | Z |
|----------|--------|------------|
| (a) Bat | Bird | Analogous |
| (b) Bat | Insect | Homologous |
| (c) Bird | Bat | Homologous |
| (d) Bird | Insect | Analogous |
33. Which of the following statements is incorrect?
(a) Placenta allows exchange of materials between mother and foetus
(b) The foetal part of the placenta consists of the cells of the chorion which produce projections called chorionic villi
(c) Antibody cannot cross the placenta from mother to foetus
(d) Placenta secretes pregnancy hormones required for supporting foetal growth and metabolic changes in mother during pregnancy

34. The given figure shows the pathway of a nerve impulse in a reflex action. Which part serves as a link between neurons?



- (a) W (b) X (c) Y (d) Z
35. Humans inherit colour of their eyes from their parents. Brown-eyed couple has three blue-eyed children. Which of the following statements gives correct explanation of this situation?
- (i) Each parent has an allele for brown eyes and an allele for blue eyes.
 (ii) The allele for blue eyes is recessive
 (iii) The probability that their next child will have blue eyes is 0.75.
 (iv) The probability that their next child will have brown eyes is 0.5.
- (a) (i) and (ii) only (b) (i) and (iii) only
 (c) (ii) and (iv) only (d) (iii) and (iv) only
36. Select the incorrect statement.
- (a) Economic development is linked to environmental conservation
 (b) Sustainable development encourages development for current generation and conservation of resources for future generations.
 (c) Sustainable development does not consider the view points of stakeholders
 (d) Sustainable development is a long, planned and persistent development
37. The table below lists some information about the trophic levels of a food chain.

Trophic level	Number of organisms	Energy in the trophic level (arbitrary units)
P	100	10,000
Q	1	100
R	1000	100,000
S	10	1000

Which of the following food chains is correct?

- (a) P → Q → R → S (b) P → S → Q → R
 (c) R → P → S → Q (d) R → Q → S → P
38. The given figure shows a food web in a forest area. In the forest, large amounts of insecticides are blown with wind from a nearby field. What will be the effect on given food web?

RISE SCHOLARSHIP – ADMISSION TEST – SAMPLE PAPER

CLASS – 10th to 11th



- (a) $17\frac{1}{2}$ (b) 19 (c) $20\frac{1}{4}$ (d) $22\frac{3}{4}$
42. Find the missing number/letter.
9360, 1560, 312, 78, 26, ?
(a) 4 (b) 13 (c) 2 (d) 5
43. Find the missing number/letter.
NOS, OQV, PSY, QUB, ?
(a) SWE (b) RWE (c) RVE (d) RWF
44. Find the missing number/letter.
X L R, Y K S, Z J T, A I U, ?
(a) B H V (b) C H V (c) B I V (d) B H W
45. Find the missing number/letter.
-- s t L L t s -- L t -- L - t s t -
(a) L s t s L t L s (b) L t L t s t L t (c) L t t L s t L L (d) L L L t s t L t
46. Find the odd-numeral pair.
(a) 8 - 27 (b) 125 - 216 (c) 343 - 512 (d) 1009 - 1331
47. Find the odd-numeral pair.
(a) 72 - 45 (b) 51 - 24 (c) 47 - 20 (d) 32 - 13
48. Find the odd-numeral pair.
(a) 13 - 21 (b) 19 - 27 (c) 15 - 23 (d) 16 - 24
49. In a certain code language, STRING is written as % = *4+÷ and PRAISE as ?*@4%x How will the word GRAPES be written in that code language,?
(a) ÷*@x?% (b) ÷@*? x %
(c) ÷*@ ?x% (d) ÷*-?x%
50. Analogy find the missing the number 20 : 11 :: 102 : ?
(a) 49 (b) 52 (c) 61 (d) 98

1. C	2. D	3. B	4. A	5. C	6. B	7. B	8. A	9. C	10. B
11. D	12. B	13. D	14. C	15. A	16. D	17. D	18. C	19. D	20. C
21. C	22. C	23. C	24. D	25. D	26. B	27. C	28. C	29. A	30. D
31. B	32. A	33. C	34. D	35. A	36. C	37. C	38. C	39. B	40. D
41. C	42. B	43. B	44. A	45. C	46. D	47. D	48. D	49. C	50. B