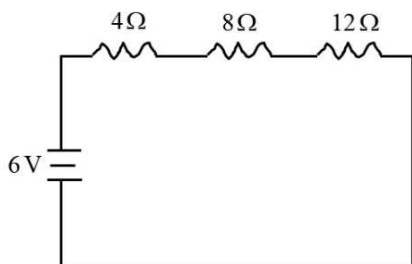
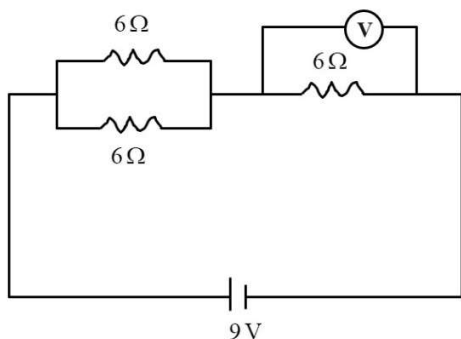


**PHYSICS**

1. Which of the following statement is correct?
(a) Ammeter connected in series and voltmeter connected in parallel.
(b) Voltmeter is connected in series and ammeter is connected in parallel
(c) Both can be connected in any way
(d) All of the above
2. Electric resistivity of a given metallic wire depends upon.
(a) it's length
(b) it's thickness
(c) it's shape
(d) nature of material
3. An electric heater of resistance $20\ \Omega$ takes a current 5 amp. The heat developed in 30 second will be
(a) 4.8 Joule
(b) 4.8×10^6 Joule
(c) 4.8×10^5 Joule
(d) 48×10^6 Joule
4. The current in the circuit will be



- (a) 4 amp
(b) 0.25 amp
(c) 0.5 amp
(d) 1 amp
5. A wire of resistance 'R' cut in 4 equal parts and all are connected in parallel, if the effective resistance is R'. Find $\frac{R}{R'}$.
(a) $\frac{1}{16}$
(b) $\frac{1}{4}$
(c) 4
(d) 16
 6. The reading of voltmeter 'V' will be



- (a) 3 V
(b) 6 V
(c) 9 V
(d) 5 V

7. The strength of magnetic field inside a long current carrying straight solenoid is
(a) more at the ends
(b) minimum at the middle
(c) same at all points
(d) found to increase from one end to other
8. Which of the following property of a proton doesn't changes while moving inside a uniform magnetic field?
(a) velocity
(b) momentum
(c) kinetic energy
(d) can't say
9. A positively charged particle projected towards east is deflected towards north by a magnetic field. The direction of magnetic field will be
(a) south
(b) east
(c) downward
(d) upward
10. When light passes through a glass prism it forms a multicolour spectrum here
(a) Indigo bends through maximum angle
(b) green is in the middle of spectrum
(c) violet bends through minimum angle
(d) red is most visible
11. Refractive index of diamond with respect to glass is 1.6 and absolute refractive index of glass is 1.5. Find out the absolute refractive index of diamond.
(a) 1.4
(b) 2.4
(c) 3.4
(d) 1.5
12. Which is incorrect.
(a) myopia – excessive curvature of eye lense
(b) hypermetropia – eye ball becomes small
(c) presbiopia – weakening of ciliary muscle
(d) none of these
13. Where will be the image formed if the object is placed at infinity.
(a) at centre of curvature
(b) at focus
(c) don't form image
(d) backside of mirror
14. A spherical mirror and a thin lense have each a focal length of -15 cm . The mirror and the lense are likely to be
(a) both concave
(b) both convex
(c) the mirror is concave and the lense is convex
(d) the mirror is convex but the lense is concave



15. Which of the following lenses would you prefer to use while reading small letters found in a dictionary?
- (a) A convex lense of focal length 50 cm
 - (b) A concave lense of focal length 50 cm
 - (c) A convex lense of focal length 5 cm
 - (d) A concave lense of focal length 5 cm

CHEMISTRY

16. Which among the following statement(s) are true? Exposer of silver chloride to sun light for a long duration turns grey due to
- (i) the formation of silver by decomposition of silver chloride
 - (ii) sublimation of silver chloride
 - (iii) decomposition of chloride gas from silver chloride
 - (iv) oxidation of silver chloride
- (a) (ii) and (iii) (b) (i) and (iii)
(c) only (iv) (d) only (i)
17. Action of slaked lime, Ca(OH)_2 on litmus test
- (a) Blue litmus to red
 - (b) Red litmus to blue
 - (c) Do not effects on litmus paper
 - (d) None of the above
18. If the following equation is balanced, then find the value of X and Y.
- $$\text{K}_2\text{Cr}_2\text{O}_7 + \text{XSO}_2 + \text{H}_2\text{SO}_4 \longrightarrow \text{Cr}_2(\text{SO}_4)_3 + \text{YK}_2\text{SO}_4 + \text{H}_2\text{O}$$
- (a) 1, 3 (b) 2, 2
(c) 2, 4 (d) 3, 1
19. Write the chemical formulae of bleaching powder and gypsum.
- (a) $\text{CaSO}_4 \cdot \frac{1}{2}\text{H}_2\text{O}$, $\text{CaSO}_4 \cdot 2\text{H}_2\text{O}$
 - (b) $\text{CaSO}_4 \cdot 2\text{H}_2\text{O}$, $\text{CaSO}_4 \cdot \frac{1}{2}\text{H}_2\text{O}$
 - (c) CaOCl_2 , $\text{CaSO}_4 \cdot 2\text{H}_2\text{O}$
 - (d) None of the above
20. Which of the following don't effect the colour of litmus paper.
- (a) Moistured NH_3
 - (b) Lemon Juice
 - (c) Soap
 - (d) Dry HCl gas
21. Ratio of HNO_3 and HCl in aquarazia
- (a) 1 : 1 (b) 3 : 1
 - (c) 3 : 2 (d) 1 : 3

22. Galvanisation is a method of protecting iron from rusting by coating it a thin layer of
- (a) Gallium (b) Aluminium
 - (c) Zinc (d) Silver
23. The soap molecules has a
- (a) hydrophilic head and a hydrophobic tail
 - (b) hydrophobic head and a hydrophilic tail
 - (c) hydrophobic head and a hydrophobic tail
 - (d) hydrophilic head and a hydrophilic tail
24. No of co-valent bonds in Benzene
- (a) 14 (b) 15 (c) 16 (d) 18
25. Vinegar is a solution of
- (a) 50% - 60% acetic acid is alcohol
 - (b) 5% - 8% acetic acid is alcohol
 - (c) 5% - 8% acetic acid is water
 - (d) 50% - 60% acetic acid is water
26. Which type of acid ionise completely in water.
- (a) mostly in all organic acid
 - (b) mostly in all mineral acid
 - (c) mostly in all carboxylic acid
 - (d) depending on source of water
27. No of hydrogen present in first member of Ketone group.
- (a) 4 (b) 5 (c) 6 (d) 7
28. Formulae of rust (X, stands for any natural number)
- (a) $\text{Fe}_2\text{O}_3 \cdot \text{XH}_2\text{O}$
 - (b) $\text{Fe}_2\text{O}_3 \cdot \text{FeO}$
 - (c) $\text{FeO} \cdot \text{XH}_2\text{O}$
 - (d) All of these depending on condition
29. After forming 4-bonds, carbon attends the electronic configuration of
- (a) Helium (b) Carbon
 - (c) Neon (d) Krypton
30. IUPAC name of glacial acetic acid.
- (a) Ethanol (b) Ethyl ethanoate
 - (c) Ethanoyl chloride (d) None of these

BIOLOGY

31. In amoeba, food is digested in the
- (a) Food vacuole (b) Mitochondria
 - (c) Pseudopodia (d) Chloroplast
32. In which of the following groups of organisms are food materials broken down outside the body and absorbed?
- (a) Mushroom, green plants, amoeba
 - (b) Yeast, mushroom, bread mould
 - (c) Paramecium, amoeba, cuscuta
 - (d) cuscuta, lice, tapeworm



33. The contraction and expansion movement of the walls of the food pipe is called
(a) Translocation (b) Transpiration
(c) Peristaltic movement (d) Digestion
34. What are the products obtained by anaerobic respiration in plants?
(a) Lactic acid + energy
(b) Carbon dioxide + water + energy
(c) Ethanol + carbon dioxide + energy
(d) Pyruvate
35. When a few drops of iodine solution are added to rice water, the solution turns blue-black in colour. This indicates that rice water contains
(a) Fats (b) Complex proteins
(c) Starch (d) Simple proteins
36. How is this process advantageous for amoeba?
(a) Capturing food takes less time
(b) Complex food can be digested easily
(c) More amount of food can be consumed
(d) Fast distribution of nutrition within the body
37. A plant gets rid of excess water through transpiration. What is the method used by plants to get rid of solid waste products?
(a) Shortening of stem
(b) Dropping down fruits
(c) Shedding of yellow leaves
(d) Expansion of roots into the soil
38. Chemicals present in tobacco smoke lead to the breakdown of the elastic tissue in the alveoli. Name this specific condition
(a) Heart disease (b) Emphysema
(c) Bronchitis (d) Lung cancer
39. How will information travel within a neuron?
(a) Dendrite → Cell body → Axon → Nerve ending
(b) Dendrite → Axon → Cell body → Nerve ending
(c) Axon → Dendrite → Cell body → Nerve ending
(d) Axon → Cell body → Dendrite → Nerve ending
40. Which parts of brain control blood pressure?
(a) Spinal cord, skull, hypothalamus
(b) Cord, skull, cerebrum
(c) Pons, medulla, cerebellum
(d) Pons, medulla, pituitary

41. Fruits are formed from the
(a) Stamen (b) Stigma
(c) Ovary (d) Ovule
42. Reproduction is essential for living organisms in order to
(a) Keep the individual organism alive
(b) Fulfil their energy requirement
(c) Maintain growth
(d) Continue the species generation after generation
43. The male reproductive parts of a flower, the stamens, are collectively known as
(a) Androecium (b) Filament
(c) Anther (d) Gynoecium
44. Which of the following diseases is transmitted sexually?
(a) Kala Azar (b) Jaundice
(c) Cholera (d) Syphilis
45. In peas, a pure tall (TT) is crossed with a pure short plant (tt). The ratio of pure tall plants to pure short plants in the F₂ generation is
(a) 1 : 3 (b) 3 : 1
(c) 1 : 1 (d) 2 : 1

MATHEMATICS

46. The least number that is divisible by all the numbers from 1 to 10 (both including) is
(a) 10 (b) 100
(c) 504 (d) 2520
47. The largest number which divides 70 and 125, leaving remainders 5 and 8 respectively, is
(a) 13 (b) 32
(c) 35 (d) 75
48. If one zero of the quadratic polynomial $x^2 + 3x + k$ is 2, then the value of k is
(a) 10 (b) -10
(c) 5 (d) -5
49. In a competitive exam, one mark is awarded for each correct answer while $\frac{1}{2}$ mark is deducted for every wrong answer. Ananya answered 120 questions and got 90 marks. How many questions did she answer correctly?
(a) 80 (b) 90
(c) 100 (d) 110



50. A train travels at a certain average speed for a distance of 63 km and then travels a distance of 72 km at an average speed of 6 km/h more than its original speed. If it takes 3 hours to complete the total journey, what is its original average speed?

- (a) 40 km/h (b) 42 km/h
(c) 44 km/h (d) 46 km/h

51. If 7 times of the 7th term of an AP is equal to 11 times its 11th term, then its 18th term will be

- (a) 7 (b) 11
(c) 0 (d) 18

52. $\left(4 - \frac{1}{n}\right) + \left(4 - \frac{2}{n}\right) + \left(4 - \frac{3}{n}\right) + \dots$ upto n terms the sum will be

- (a) $\frac{4n-1}{2}$ (b) $\frac{4n+1}{2}$
(c) $\frac{7n-1}{2}$ (d) $\frac{9n+1}{2}$

53. Corresponding sides of two similar triangles are in the ratio 2 : 3. If the area of the smaller triangle is 48 cm². Find the area of the larger triangle.

- (a) 72 (b) 96
(c) 108 (d) 144

54. The perimeter of a triangle with vertices (0, 4), (0, 0) and (3, 0) is

- (a) 5 (b) 12
(c) 11 (d) $7 + \sqrt{5}$

55. $\tan \theta$ increases faster than $\sin \theta$, if θ

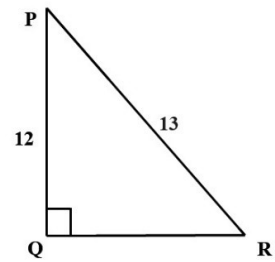
- (a) increases (b) decreases
(c) remain constant (d) none of these

56. If $\sin \theta + \cos \theta = \sqrt{3}$ then find the value of $\tan \theta + \cot \theta$

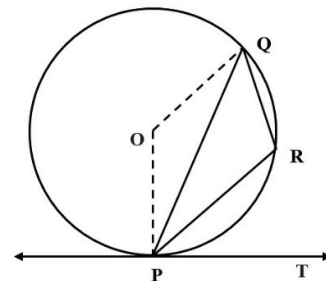
- (a) -1 (b) 1
(c) -2 (d) 2

57. Find the value of $\tan P - \cot R$

- (a) $\frac{-119}{60}$
(b) 0
(c) $\frac{119}{60}$
(d) $\frac{17}{13}$



58. In this figure PQ is a chord of a circle and PT is the tangent at P such that $\angle QPT = 60^\circ$, then $\angle PRQ$ is equal to



- (a) 135° (b) 150°
(c) 120° (d) 110°

59. How many spherical lead shots each of diameter 4.2 cm. can be obtained from a solid rectangular lead piece with dimensions 66 cm, 42 cm and 21 cm.

- (a) 150 (b) 500
(c) 1000 (d) 1500

60. From a deck of playing cards (excluding joker). Find the probability of getting male face card.

- (a) $\frac{1}{13}$ (b) $\frac{2}{13}$
(c) $\frac{3}{13}$ (d) $\frac{4}{13}$

Space For Rough Work