

Part – III
MATHEMATICS

Choose the correct answer:

1. Find the differential of $\sin 4x$:
(a) $4 \cos 4x$ (b) $4 \tan 4x$
(c) 1 (d) $-4 \cos 4x$
2. What is the square root of 33489369 ?
(a) 5887 (b) 5787
(c) 3787 (d) 4787
3. A new car cost Rs 3,60,000 if its price depreciate at the rate of 15% annually, what will be its price after 5 years ?
(a) 1,79,000 (b) 1,59,700
(c) 1,55,700 (d) None of these
4. Calculate the simple interest on Rs. 400 for $\frac{1}{2}$ years at 5% interest per annum :
(a) 100 (b) 10
(c) 75 (d) 25
5. Evaluate $60^3 \times 6$:
(a) 1269000 (b) 21600
(c) 129600 (d) 3600
6. A 225 mtr long train crossed a 275 mtr long tunnel in 1 minute. Find the speed of the train in km/h?
(a) 20 km/h (b) 15 km/h
(c) 30 km/h (d) 25 km/h
7. A field measures 450 mtr in length and 250 mtr in width. What will be the cost of erecting a fence along its perimeter if the rate of fencing is chargeable at 50 paise per meter :
(a) Rs 700 (b) Rs 650
(c) Rs 750 (d) None of these
8. If a train is running at the speed of 86.4 km per hour, then how much distance will it cover in 10 minute?
(a) 1.44 km (b) 14.0 km
(c) 0.140 km (d) 14.4 km
9. If the sum of two numbers is 97 and their difference is 37. What is the product of the numbers ?
(a) 2378 (b) 840
(c) 2010 (d) 1736
10. If $a + b = 9$ and $ab = 20$ then find the value of $a^2 + b^2$?
(a) 21 (b) 41

- (c) 60 (d) None of these
11. Sum of $5 + 8 + 11 + 14 + \dots + 22^{\text{nd}}$ term will be ?
 (a) 1003 (b) 803
 (c) 903 (d) 703
12. The perimeter of an equilateral triangle is 18 cm . find its area :
 (a) $9\sqrt{3}$ (b) 7 cm^2
 (c) 36 cm^2 (d) $8\sqrt{2} \text{ cm}^2$
13. How many diagonals can be drawn in a polygon with n sides ?
 (a) $n(n - 3)^2$ (b) $n(n - 3)^3$
 (c) $n(n + 3)^2$ (d) None of these
14. A trader marks the price of an article 20% above its cost. He gives discount to his customers and gains 8% what is the discount?
 (a) 21% (b) 10%
 (c) 4% (d) None of these
15. If the radius of a circle is tripled, its perimeter will increase how many time to its previous perimeter?
 (a) One third (b) Three times
 (c) Two times (d) None of these

Part – IV
CHEMISTRY

Choose the correct answer:

1. Which of the following is/the lightest metal? (Ans A)
 (a) Mercury (b) Silver
 (c) Lithium (d) Lead
2. What is laughing gas ? (Ans D)
 (a) Carbon dioxide (b) Sulphur Dioxide
 (c) Hydrogen Peroxide (d) Nitrous oxide
3. The filament of an electric bulb is made of (Ans C)
 (a) Iron (b) Nichrome
 (c) Tungsten (d) Graphite
4. Washing soda is the common name for (Ans C)
 (a) Calcium carbonate (b) Calcium bicarbonate
 (c) sodium carbonate (d) Sodium bicarbonate
5. Atom bomb is based on the principle of (Ans B)
 (a) Nuclear fusion (b) Nuclear Fission

- (c) Both (a) and (b) (d) None of these

6. Heavy water is (Ans B)

- (a) Sea water (H_2O + Salt)
(b) D_2O
(c) H_2O_2
(d) H_2O alongwith Ca and Mg carbonates

7. The gas liberated during the reaction of copper with dilute nitric acid is (Ans C)

- (a) N_2O (b) N_2O_5
(c) O_2 (d) NO

8. The highest grade of coal whose surface is shining and has highest calorific value is (Ans C)

- (a) Bituminous (b) Lignite
(c) Anthracite (d) Peat

9. The final product of combustion of ethane are (Ans A)

- (a) Carbon and Oxygen (b) Ethylene and Hydrogen
(c) Water and Carbon monoxide (d) Carbon dioxide and water

10. Production of chlorofluorocarbons (CFC) gas which is proposed to be banned in India, is used in which of the following domestic product ? (Ans D)

- (a) Television (b) Tube light
(c) Cooking gas (d) Refrigerator