

[9] MISCELLANEOUS QUESTIONS

1. If $abc = 1$; then $\frac{1}{1+a+b^{-1}} + \frac{1}{1+b+c^{-1}} + \frac{1}{1+c+a^{-1}}$

(a) 0 (b) $\frac{1}{2}$ (c) $\frac{1}{3}$ (d) 1

2. If $a+b+c = 2s$; then find the value of

$$(s-a)^3 + (s-b)^3 + 3(s-a)(s-b)c$$

(a) c (b) c^2 (c) c^3 (d) $2c^3$

3. If $x = \sqrt[3]{28}$ and $y = \sqrt[3]{27}$; then find the value of $x+y - \frac{1}{\frac{1}{x^2} + \frac{1}{y^2} + \frac{1}{xy}}$ = ?

(a) 1 (b) 4 (c) 2 (d) 6

4. Find the values of α and β for which the following system of linear equation has infinite no. of solution:

(a) $\alpha = 3; \beta = 8$ (b) $\alpha = 9; \beta = 8$ (c) $\alpha = 8; \beta = 4$
 (d) $\alpha = 1; \beta = 2$

5. In the expression xy^2 ; the values of both variables x and y are decreased by 20%. By this; the value of the expression is decreased by

(a) 40% (b) 80% (c) 48.8% (d) 51.2%

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6. Two pipes A and B can fill a water tank in 20 & 24 mins. respectively & a third pipe C can empty at the rate of 3 gallon per min. If A, B & C opened together fill the tank in 15 min; the capacity of the tank is:

- (a) 180g (b) 150g (c) 120g (d) 60g

7. By selling 14 Watches of equal cost price at the rate of ₹ 450 each, there is a profit equal to CP of 4 Watches. The CP of a Watch is

- (a) ₹ 350 (b) ₹ 360 (c) ₹ 375 (d) ₹ 400

8. The marked price of a radio is ₹ 3840. The Shopkeeper allows a discount of 10% and gains 8%; if no discount is allowed his gain percent would be.

- (a) 20% (b) 25% (c) 40% (d) 35%

9. The sum of all natural no. between 100 to 200; which are multiples of 3 is

- (a) ~~5000~~ (b) ~~4950~~ (c) 4980 (d) 4900

10. In a swimming pool measuring 90m by 40m. 150 men take a dip. If average displacement of water by a man is 8 m^3 ; What will be the rise in water level?

- (a) 30 cm (b) 33.33 cm (c) 20 cm (d) 25 cm

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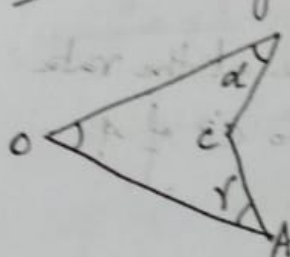
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11. If a regular tetrahedron, each edge is 6 cm. Find the Volume of this tetrahedron.

- (a) $9\sqrt{2}$ cc (b) $\frac{9\sqrt{2}}{4}$ cc (c) $36\sqrt{2}$ cc (d) $18\sqrt{2}$ cc

12. In the given fig; find $x = ?$



- (a) $x + \beta - \gamma$ (b) $x = \beta + \gamma$
(c) $x + \beta + \gamma$ (d) $x + \gamma = \beta$

13. If $\sin \theta + \cos \theta = a$ and $\sec \theta + \operatorname{cosec} \theta = b$; then the value of $b(a^2 - 1)$ is equal to

- (a) $2a$ (b) $3a$ (c) 0 (d) $2ab$

14. $\cos^2 5^\circ + \cos^2 10^\circ + \cos^2 15^\circ + \dots + \cos^2 90^\circ = ?$

- (a) $8\frac{1}{2}$ (b) $6\frac{1}{2}$ (c) $7\frac{1}{2}$ (d) $9\frac{1}{2}$

15. When rate of interest in saving bank is reduced from 4% to 3%; a man withdraws ₹ 500 from his deposit. If the annual interest received by him is reduced by ₹ 32.50. Find the Original deposit.

- (a) ₹ 1000 (b) ₹ 1750 (c) ₹ 3000 (d) ₹ 3500

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16. A man sitting in a train travelling at the rate of 50 km/hr observes that it takes 9 sec. for a goods train travelling in the opposite direction to pass him. If the goods train is 187.5 m long. Find its speed:
 (a) 25 km/hr (b) 40 km/hr (c) 35 km/hr (d) 36 km/hr

17. A can do a work in 9 days and B can do a same work in 12 days. They work for an alternate day and A begins the work. In how many days the total work will be finished?
 (a) $10\frac{1}{4}$ (b) $9\frac{3}{4}$ (c) $3\frac{4}{5}$ (d) $12\frac{3}{4}$

18. A post office head clerk saves 20% of his monthly salary. On account of dearness of things he increases his monthly expenses by 20% and is able to save only £1000/month. What is the monthly salary?
 (a) £27,000 (b) £25,000 (c) £35,000 (d) £47,000

19. Find the least no. which when divided by 8, 12, & 16 leaves 3 as remainder in each case, but when divided by 7 leaves no remainder.

(a) 99 (b) 147 (c) 294 (d) None of these

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