

MATHEMATICS QUESTIONS

SECTION A – MCQ

1. A watch gains 5 minutes in one hour and was set right at 7 a.m. What time will it show at 6 p.m. on the same day?

- (a) Wednesday
- (b) Monday
- (c) Saturday
- (d) Tuesday

2. A watch loses 3 minutes in one hour and was set right at 7 a.m. on Monday. What time will it show at 7 a.m. on Tuesday (i.e. next day)?

- (a) 8:12 a.m.
- (b) 8:00 a.m.
- (c) 6:12 a.m.
- (d) 5:48 a.m.

3. The angle between two hands of a clock at 8:30 a.m. is

- (a) 75°
- (b) 80°
- (c) 85°
- (d) 45°

4. At what time between 7 O'clock and 8 O'clock will the hands of a clock make an angle of 10° ?

- (a) 07:35
- (b) 07:40
- (c) 07:45
- (d) 07:48

5. In a day, how many times is a straight angle formed between minute hand and hour hand?

- (a) 11
- (b) 22
- (c) 33
- (d) 44

6. In a day, how many times is a right angle formed between minute hand and hour hand?

- (a) 11
- (b) 22
- (c) 33

(d) 44

7. India is 9 hours and 30 minutes ahead of Ottawa, Canada. What is time in Canada when it is 01:25 a.m. in India?

(a) 02:45 p.m.

(b) 03:55 p.m.

(c) 03:45 p.m.

(d) 02:55 p.m.

SECTION B – OTHER QUESTIONS

8. Infinite terms of the series $\sqrt{2} - 1/\sqrt{2} + 1/(2\sqrt{2}) - 1/(4\sqrt{2}) + \dots$

9. If A and G are A.M. and G.M. between two positive numbers, prove that the numbers are $A \pm \sqrt{A^2 - G^2}$.

10. How many terms of the G.P. 32, 16, 8, ... are needed to give the sum $63 \frac{3}{4}$?

11. The sum of the first two terms of a G.P. is 36 and the product of first term and third term is 9 times the second term. Find the sum of first 8 terms.

12. Evaluate $3 \times 3^{1/2} \times 3^{1/4} \times 3^{1/8} \times \dots$ to ∞ .

13. Find the sum of the following series to n terms: (i) $7 + 77 + 777 + \dots$

14. The government through a subsidy program infuses 10 lakh crore to boost the sagging economy. If we assume each State or Union Territory spends 80% of what is received on infrastructure, health and industry and in turn each institution or agency spends 80% of what is received and so on. How much total increase in spending results from this government action?