

# CLOCK

**Q1** How many degrees will the minute hand move, in the same time in which the second hand move  $480^\circ$ ?

- (A)  $6^\circ$
- (B)  $9^\circ$
- (C)  $4^\circ$
- (D)  $8^\circ$

**Q2** An accurate clock shows 8 o'clock in the morning. Through how many degrees will the hour hand rotate when the clock shows 2 o'clock in the afternoon?

- (A)  $144^\circ$
- (B)  $180^\circ$
- (C)  $168^\circ$
- (D)  $154^\circ$

**Q3** What is the reflex angle between 7: 10?

- (A) 220
- (B) 260
- (C) 205
- (D) 215

**Q4** How many times in a day, needles are coincide of each other?

- (A) 11
- (B) 12
- (C) 22
- (D) 24

**Q5** How many times hour hand and minute hand makes a right angle in the twelve hours?

- (A) 48
- (B) 36
- (C) 22

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(D) 24

**Q6** How many times in a day, are the hands of clock in straight line but opposite in direction?

(A) 20

(B) 24

(C) 22

(D) 48

**Q7** The reflex angle between the hands of a clock at 10.25 is:

**A.**  $180^\circ$

**B.**  $192\frac{1}{2}$

**C.**  $195^\circ$

**D.**  $197\frac{1}{2}$

**Q8** At 3:40, the hour hand and the minute hand of a clock form an angle of:

**A.**  $120^\circ$

**B.**  $125^\circ$

**C.**  $130^\circ$

**D.**  $135^\circ$

**Q9** At what time between 7 and 8 o'clock will the hands of a clock be in the same straight line but, not together?

**A.** 5 min. past 7

**B.**  $5\frac{2}{11}$  min. past 7

**C.**  $5\frac{3}{11}$  min. past 7

**D.**  $5\frac{5}{11}$  min. past 7

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**Q10** At what time between 5.30 and 6 will the hands of a clock be at right angles?

- A.**  $43\frac{5}{11}$  min. past 5
- B.**  $43\frac{7}{11}$  min. past 5
- C.** 40 min. past 5
- D.** 45 min. past 5

**Q-11** How many times in a day, are the hands of a clock in straight line but opposite in direction?

- A.** 20
- B.** 22
- C.** 24
- D.** 48

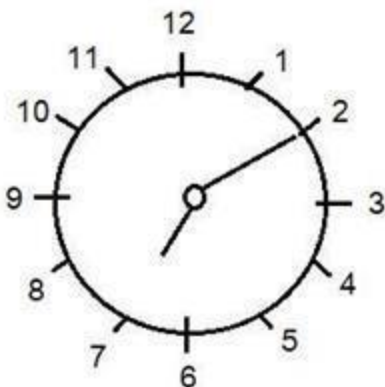
**Solution :**

**Q1.**(D)  $480/60=8$

**Q2.**(B) Angle traced by the hour hand in 6 hours =  $(\frac{360}{12} \times 6)^\circ = 180^\circ$

**Q3.**(C)

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$$\theta = 30 \times H - 11/2 \times M = 30 \times 7 - 11/2 \times 10 = 210 - 55 = 155$$

$$\text{Reflex Angle} = 360 - 155 = 205$$

**Q4.(C)** Between 11 to 1 only one time needles are coincide and also 5 to 7 only one time needles are coincide.

**Q5.(C)** In one hour 2 time both hands show right angle. Then in the 12 hour right angle make  $11 \times 2 = 22$  times. (2 to 3 and 8 to 10 only one-one right angle are framed).

**Q6.(C)** The hands of a clock point in opposite direction (in the same straight line) 11 times in every 12 hours (Because between 5 and 7 they point in opposite direction at 6 o'clock only) So, in a day, the hands point in the opposite direction 22 times.

**Q7.(D)**

$$\text{Angle traced by hour hand in } \frac{125}{12} \text{ hrs} = \left( \frac{360}{12} \times \frac{125}{12} \right)^\circ = 312\frac{1}{2}^\circ.$$

$$\text{Angle traced by minute hand in 25 min} = \left( \frac{360}{60} \times 25 \right)^\circ = 150^\circ.$$

$$\therefore \text{Reflex angle} = 360^\circ - \left( 312\frac{1}{2} - 150 \right)^\circ = 360^\circ - 162\frac{1}{2}^\circ = 197\frac{1}{2}^\circ.$$

**Q8 Option C**

$$\text{Angle traced by hour hand in 12 hrs.} = 360^\circ.$$

$$\text{Angle traced by it in } \frac{11}{3} \text{ hrs} = \left( \frac{360}{12} \times \frac{11}{3} \right)^\circ = 110^\circ.$$

$$\text{Angle traced by minute hand in 60 min.} = 360^\circ.$$

$$\text{Angle traced by it in 40 min.} = \left( \frac{360}{60} \times 40 \right)^\circ = 240^\circ.$$

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∴ Required angle  $(240 - 110)^\circ = 130^\circ$

## Q9 Option D

When the hands of the clock are in the same straight line but not together, they are 30 minute spaces apart.

At 7 o'clock, they are 25 min. spaces apart.

∴ Minute hand will have to gain only 5 min. spaces.

55 min. spaces are gained in 60 min.

5 min. spaces are gained in  $\left(\frac{60}{55} \times 5\right)_{\text{min}} = 5\frac{5}{11}$  min.

∴ Required time =  $5\frac{5}{11}$  min. past 7.

## Q10

Option B

At 5 o'clock, the hands are 25 min. spaces apart.

To be at right angles and that too between 5.30 and 6, the minute hand has to gain  $(25 + 15) = 40$  min. spaces.

55 min. spaces are gained in 60 min.

40 min. spaces are gained in  $\left(\frac{60}{55} \times 40\right)_{\text{min}} = 43\frac{7}{11}$  min.

∴ Required time =  $43\frac{7}{11}$  min. past 5.

## Q11 Option B

The hands of a clock point in opposite directions (in the same straight line) 11 times in every 12 hours. (Because between 5 and 7 they point in opposite directions at 6 o'clock only).

So, in a day, the hands point in the opposite directions 22 times.

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**Q10** If water image of the clock shows 10:20 then what is the actual time?

- A . 08:00
- B. 08:10
- C. 08:15
- D. 09:30

**Q-11** How many times in a day, are the hands of a clock in straight line but opposite in direction?

- A.** 20
- B.** 22
- C.** 24
- D.** 48

**Solution :**

**Q1.**(D)  $480/60=8$

**Q2.**(B) Angle traced by the hour hand in 6 hours=  $(\frac{360}{12} \times 6)^\circ=180^\circ$

**Q3.**(C)

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$$\therefore \text{Required angle } (240 - 110)^\circ = 130^\circ$$

## Q9 Option D

When the hands of the clock are in the same straight line but not together, they are 30 minute spaces apart.

At 7 o'clock, they are 25 min. spaces apart.

$\therefore$  Minute hand will have to gain only 5 min. spaces.

55 min. spaces are gained in 60 min.

$$5 \text{ min. spaces are gained in } \left( \frac{60}{55} \times 5 \right)_{\text{min}} = 5\frac{5}{11} \text{ min.}$$

$$\therefore \text{Required time} = 5\frac{5}{11} \text{ min. past 7.}$$

## Q10

i) water image of a clock

ii) mirror image of a clock

i) If water image time is given or actual clock time is given, subtract the given time from 18:30 or 17:90.

If minutes given are less than 30, then subtract given time from 18:30 hrs,

And if the minute given are more than 30, then subtract the given time from 17:90 hrs.

ii) If mirror image time is given or actual clock time is given, subtract the given time from 12:00 or 11:60.

If minutes given are 00, then subtract given time from 12:00 hrs,

And if the minute given are more than 00, then subtract the given time from 11:60 hrs.

Here the water image is 10:20, The minutes are less than 30,

Therefore we need to subtract it from 18:30.

thus,  $18:30 - 10:20 = 08:10$ .

The actual time shows 08:10 on the clock.

## Q11 Option B

The hands of a clock point in opposite directions (in the same straight line) 11 times in every 12 hours. (Because between 5 and 7 they point in opposite directions at 6 o'clock only).

So, in a day, the hands point in the opposite directions 22 times.