

Clocks by Dinesh Kaushik

Chapter Rating: 3*

No. of questions asked in CSAT over the years

2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	Total
0	0	0	1	1	0	2	0	1	0	1	2	0	8

TYPE-1 PROBLEMS ON ANGLES

Ex 1. 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? **(UPSC 2000)**

- (a) 150 (b) 144
(c) 168 (d) 180

Q1. Through how many - degrees does the hour hand in a clock move as the time changes from 3h and 12 min to 6h? **(CAPF 2013)**

- (a) 105 (b) 99
(c) 90 (d) 84

Q2. An accurate clock shows the time as 3:00. After hour hand has moved 135° , the time would be **(UPSC 1998)**

- (a) 7:30 (b) 6:30
(c) 8:00 (d) 9:30

TYPE-2 ANGLE BETWEEN HANDS

Ex 2. The angle between the hour hand and the minute hand of a clock at 10 minutes past 3 is **(CPF 2018)**

- (a) 30 (b) 35
(c) 37.5 (d) 40°

Ex 3. At what time between 8 and 9 the hour hand and minute hand of the clock will be together?

- (a) 8:45:10 (b) 8:43:38
(c) 8:38:54 (d) 8:50:25

Ex.4. At what time between 5:30 and 6:00 0'clock will the hands of clock be at right angle?

- (a) $43\frac{3}{11}$ min past 5

(b) $43\frac{7}{11}$ min past 5

(c) 40 min past 5

(d) 45 min past 5

Q3. At 7 : 20, the hour hand and the minute hand of a clock form an angle of

(a) 60° (b) 100°

(c) 30° (d) 50°

Q4. When the time in the wall clock is 3:25 pm the acute angle between the hours-hand and the minutes-hand is

(UPSC 2002)

(a) 60 (b) $52\frac{1}{2}$

(c) $47\frac{1}{2}$ (d) 42

Q5. At what time between 9 and 10 o'clock will the hands of a watch be together?

(a) 46 min. past 9

(b) 48 min. past 9

(c) $49\frac{1}{11}$ min. past 9

(d) $48\frac{2}{11}$ min. past 9

Q6. At what time, in minutes, between 3 O'clock and 4 O'clock, will both the hands of a clock coincide with each other? **(PPSC 2013)**

(a) $5\frac{1}{11}$ min. past 3

(b) $12\frac{4}{11}$ min. past 3

(c) $13\frac{4}{11}$ min. past 3

(d) $16\frac{4}{11}$ min. past 3

Q7. At what time between 2 and 3 will the hour and minute hands of a clock be 12 min divisions apart? **(CAPF 2015)**

(a) 20 minutes past 2

(b) 24 (5/11) minutes past 2

(c) 24 minutes past 2

(d) 24 (12/13) minutes past 2

Q8. Consider the following statements:

1. Between 3:16 p.m. and 3:17 p.m., both hour hand and minute hand coincide.

2. Between 4:58 p.m. and 4:59 p.m., both minute hand and second hand coincide.

Which of the above statements is / are correct? **(CSAT 2022)**

(a) 1 only (b) 2 only

(c) Both 1 and 2 (d) Neither 1 nor 2

Q9. Between 6 PM and 7 PM the minute hand of a clock will be ahead of the hour hand by 3 minutes at what time? **(CSAT 2015)**

- (a) 6: 15 PM (b) 6: 18 PM
(c) 6: 36 PM (d) 6: 48 PM

Q10. At which one of the following times, do the hour hand and minute hand of the clock make an angle of 180° with each other? **(CSAT 2021)**

- (a) At 7: 00 hours
(b) Between 7: 00 hours and 7: 05 hours
(c) At 7:05 hours
(d) Between 7: 05 hours and 7: 10 hours

TYPE-3 MIRROR IMAGE TIME

Ex 5. A clock with only dot markings 3, 6, 9 and 12 positions has been kept alongside a mirror. The time in the mirror image is 7:26, what will be the correct time?

- (a) 5 :34 (b) 4 :34
(c) 4 :26 (d) 4 :26

Q11. Time in a clock is 3 : 13. What time will appear in mirror ?

- (a) 3 : 17 (b) 8 : 47
(c) 7 : 47 (d) 2 : 13

Q12. A watch showed a time of fourteen minutes past nine (9hrs and 14 minutes)/ The positions of the hour-hand and the minute hand of the watch is closest to which one of the following?

(UPSC 2006)

- (a) Twelve minutes to three
(b) Thirteen minutes to three
(c) Fourteen minutes to three
(d) Fifteen minutes to three

TYPE-4 NO. OF MEETINGS OF HANDS

Q13. How many times in a day, the hands of a clock are straight?

- (a) 24 (b) 34
(c) 44 (d) 54

Q14. The number of times in a day the Hour-hand and the minute-hand of a clock are at right angles is?

(UPSC 1997)

- (a) 44 (b) 48
(c) 24 (d) 12

Q15. How many times are hour hand and minute hand of a clock at right angles during their motion from 4:00 p.m to 10 p.m ?

- (a) 9 (b) 10
(c) 11 (d) 20

TYPE-5 PROBLEMS ON FAULTY CLOCKS

Ex. 6 The minute hand of a clock overtakes the hour hand at intervals of 65 minutes of the correct time. How much does the clock gain or lose in a day?

- (a) $10\frac{10}{143}$ min. (b) $12\frac{10}{11}$ min.
(c) $14\frac{10}{11}$ min. (d) $14\frac{1}{4}$ min.

Ex 7. A clock is set right at 5 a.m. The clock loses 16 minutes in 24 hours. What will be the true time when the clock indicates 10 p.m. on 4th day?

- (a) 12 p.m. (b) 10 p.m.
(c) 9 p.m. (d) 11 p.m.

Ex 8. A watch loses 2 minutes per day (24 hr) while another watch gains 2 minutes per day (24 hr). At a particular instant the two watches showed an identical time. When will two watches show the identical time again?

(CAPF 2004)

- (a) on completion of 7 days
- (b) on completion of 30 days
- (c) on completion of 120 days
- (d) on completion of 180 days

Ex 9. Mahesh sets his grandfather's clock to the right time at 2:00 am on Thursday. But he didn't know that the clock gains 200 sec for every 54 hours. What will the clock indicate on Friday night 6:30 pm?

- (a) 6:32:46 pm (b) 6:32:00 pm
- (c) 6:34:30 pm (d) 6:38:56 pm

Ex 10. The minute hand of a faulty clock overtakes the hour hand in 66 minutes. How much time in a day does the clock gain or lose?

- (a) $10\frac{109}{121}$ min. (b) $12\frac{109}{121}$ min.
- (c) $11\frac{109}{121}$ min. (d) $9\frac{109}{121}$ min.

Q16.How much does a watch gain/lose per day, if its hands coincide every 64 minutes?

- (a) $32\frac{8}{11}$ (b) $30\frac{5}{11}$
(c) 90 minutes (d) 95 minutes

Q17.There are two clocks, both set to show correct time at 10 a.m. One clock loses 3 minutes in one hour while the other gains 2 minutes in one hour. By how many minutes do the two clocks differ at 2 p.m on the same day?

- (a) 10 minutes (b) 20 minutes
(c) 15 minutes (d) 25 minutes

Q18.A watch gains 12 minutes per day. If the watch was slow by 5 minutes at 7:00 a.m. on Monday, what time will this watch show at 7:00 p.m. on next Monday? **(MPPSC 2018)**

- (a) 5:25 p.m. (b) 5:30 p.m.
(c) 8:25 p.m. (d) 8:30 p.m.

TYPE-6 MISCELLANEOUS

Q19. At an enquiry office on a railway station, a passenger was told that a train for Delhi had left 15 minutes ago. But after every 45 minutes a train leaves for Delhi. The next will leave at 8:30 p.m. At what time was this information given to the passenger? **(UPPSC 2013)**

- (a) 7:45 p.m. (b) 8:00 p.m.
(c) 8:15 p.m. (d) 8:05 p.m.

Q20. A bus left 10 minutes back and the next bus is at 10:40 a.m. If my watch is 5 minutes late and it is showing 10:20 a.m. at present. What is the time period between successive buses?

- (a) 20 minutes (b) 30 minutes
(c) 35 minutes (d) 25 minutes

Q21. A man started from home at 14:30 hours and drove to village, arriving there when the village clock indicated 15:15 hours. After staying for 25 minutes, he drove back by a different route of length 1.25 times the first route at a rate twice as fast reaching home at 16:00 hours. As compared to the clock at home, the village clock is **(CSAT 2022)**

- (a) 10 minutes slow
(b) 5 minutes slow
(c) 10 minutes fast
(d) 5 minutes fast

Q22. A clock rings for once at 1.00 O'clock, for twice at 2.00 O'clock & so on at every hour. For how many times in a day it rings?

- (a) 156 (b) 78
(c) 200 (d) 180

Q23. If a clock strikes 12 in 33 seconds, it will strike 6 in how many seconds?

- (a) 12 (b) 22
(c) $\frac{33}{2}$ (d) 15

Q24. A clock strikes once at 1 o'clock, twice at 2 o'clock and thrice at 3 o'clock, and so on. If it takes 12 seconds to strike at 5 o'clock, what is the time taken by it to strikes at 10 o'clock?
(CSAT 2017)

- (a) 20 seconds (b) 24 seconds
(c) 27 seconds (d) 30 seconds

Q 25. Assume that

1. the hour and minute hands of a clock move without jerking.
2. The clock shows a time between 8 o'clock and 9 o'clock.
3. The two hands of the clock are one above the other.

After how many minutes (nearest integer) will the two hands be again lying one above the other? **(CSAT 2014)**

- (a) 60 (b) 62
(c) 65 (d) 67

Q26. A watch loses 2 minutes in every 24 hours while another watch gains 2 minutes in every 24 hours. At a particular instant, the two watches showed an identical time. Which of the following statements is correct if 24-hours clock is followed? **(CSAT 2017)**

- (a) The two watches show the identical time again on completion of 30 days.
- (b) The two watches show the identical time again on completion of 90 days.
- (c) The two watches show the identical time again on completion of 120 days.
- (d) None of the above statements is correct.

Q27. A wall clock moves 10 minutes fast in every 24 hours. The clock was set right to show the correct time at 8:00 a.m. on Monday. When the clock shows the time 6:00 p.m. on Wednesday, what is the correct time?

(CSAT 2019)

- (a) 5:36 p.m. (b) 5:30 p.m.
- (c) 5:24 p.m. (d) 5:18 p.m.

EXERCISE ANSWER KEYS AND SOLUTIONS

(उत्तर कुंजी और समाधान)

1. D	2. A	3. B	4. C	5. C
6. D	7. C	8. C	9. C	10. D
11. B	12. C	13. C	14. A	15. C
16. A	17. B	18. C	19. B	20. D
21. D	22. A	23. D	24. C	25. C
26. D	27. A			