17.

Calendar/Clock

Type - 1

1. What day would it be on 1ˢᵗ March 2020?
  (a) Monday (b) Saturday
  (c) Friday (d) Sunday

RRB ALP & Tec. (29-08-18 Shift-I)

Ans : (d)

Year	2020
Dividing by 4	505
1 march	1
Code of march month	3

_____
                                    2529

odd days $= \dfrac{2529}{7}$

= 2 (code of the Sunday)

So it will be Sunday on 1 March 2020.

2. What day would it be on 1 September 2020?
  (a) Tuesday (b) Wednesday
  (c) Thursday (d) Friday

RRB ALP & Tec. (21-08-18 Shift-III)

Ans : (a) odd days = (2000) years + 19 years + January to September 1, 2020

= (2000) years + 4 leap years + 15 Normal years + January to September 1, 2020

        = 0+8+15+3+1+3+2+3+3+1
        = 44 days

odd days = 2 day   ($\dfrac{44}{7}$ Remainder on Division)

Hence September 1, 2020 will be Tuesday.

3. 15ᵗʰ February 2018 is a Thursday. On what day will 18ᵗʰ April 2019 fall ?
  (a) Saturday (b) Thursday
  (c) Friday (d) Wednesday

RRB ALP & Tec. (17-08-18 Shift-I)

Ans : (b) ∵ 15-02-2018 → Thursday

∴   15-02-2019 → Friday

No. of Remaining Days =13+31+18 = 62

No. of odd days = 6 $\left(\dfrac{62}{7} \text{ Remainder on Division}\right)$

Hence 18-04-2019 day = Friday + 6 days

⇒ Thursday

4. Aizaz was born on 5ᵗʰ January 2015, while Faiz was born 553 days later. On which date was Faiz born ?
  (a) 11ᵗʰ July 2016
  (b) 10ᵗʰ July 2016
  (c) 9ᵗʰ July 2016
  (d) 12ᵗʰ July 2016

RRB ALP & Tec. (17-08-18 Shift-II)

Ans : (a) Birth of Ajaz = 5 January 2015

Remaining days in 2015 =365–5=360⇒31 December

Remaining days =553–360=193

Year 2016⇒Jan+Feb+Mar+April+May+June+July
=31+29+31+30+31+30+11=193

Hence Faiz was born on 11 July 2016.

5. Arzoo was born on 25ᵗʰ January 2015, while Aastha was born 554 days later. On which date was Aastha born?
  (a) 3 August, 2016 (b) 1 August, 2016
  (c) 31 July, 2016 (d) 2 August, 2016

RRB ALP & Tec. (31-08-18 Shift-II)

Ans. (b) : ∵ Arju's date of birth = 25 January 2015

∴ Astha will be born = 25 January 2015 + 554 days after

$\begin{bmatrix} 1 \text{ year} = 365 \text{ days} \\ 554 - 365 = 189 \end{bmatrix}$

= 25 January 2015 + 1 year + 189 days

= 25 January 2016 + 189 days

= 1 August 2016

6. What day would it be on 15ᵗʰ March 2020?
  (a) Saturday (b) Sunday
  (c) Tuesday (d) Monday

RRB ALP & Tec. (14-08-18 Shift-I)

Ans : (b) odd days = 2000 year + 19 year + till 15 march 2020

= 0+4 leap year +15 normal year + January + February + 15 March

        = 8 + 15 + 3 + 1 + 1 = 28 days
        = 0 (odd day)

Hence, 15 March 2020 will be Sunday.

7. 3ʳᵈ January 2018 was a Wednesday. Which of the following years will also have 3ʳᵈ January on a Wednesday?

(a) 2022   (b) 2023

(c) 2024   (d) 2020

RRB ALP & Tec. (10-08-18 Shift-III)

Ans : (c) 3 January 2018 $\rightarrow$ Wednesday

Hence from the option −

(a) Day on 3 January 2022 −

$$\text{Odd day} = \frac{\text{Total No. of odd days}}{7}$$

$$= \frac{1+1+2+1+3}{7} = 1 \text{ odd day} \rightarrow \text{(Monday)}$$

Similarly,

(b) on January 3, 2023 day $\rightarrow$ Tuesday

(c) on January 3, 2024 day $\rightarrow$ Wednesday

(d) on January 3, 2020 day $\rightarrow$ Friday

Therefore, in 2024, Wednesday will be on 3 January.

8. What was the day of the week on 17 August, 1947?

(a) Saturday   (b) Tuesday

(c) Monday   (d) Sunday

RRB Group-D – 24/10/2018 (Shift-II)

Ans. (d) : Day on August 17, 1947 = ?

1600 year + 300 year + 46 year + January + February + March + April + May + June + July + 17 August

odd days in 1600 years	= 0
300 ,, ,,	= 1
46 ,, ,,	= 11 leap year + 35 normal year
	= 11×2 + 35×1
	= 22 + 35
	= 57
	= 1
odd days in January	= 3
February ,, ,,	= 0
March ,, ,,	= 3
April ,, ,,	= 2
May ,, ,,	= 3
June ,, ,,	= 2
July ,, ,,	= 3
17 August ,, ,,	= 3

Total odd days−

0+1+1+3+0+3+2+3+2+3+3 = 21

$$\text{Remaining odd days} = \frac{21}{7} = 0 \text{ (Remaining)} = 0 \text{ दिन}$$
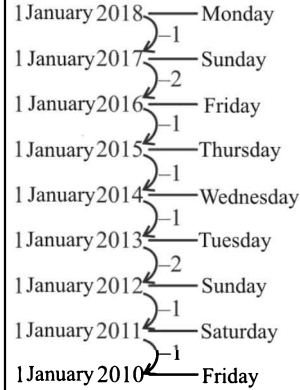
$\because$ Code of Sunday = 0

Hence, August 17, 1947 was a Sunday

9. 1 January 2018 was Monday. Which day of the week was 1 January 2010?

(a) Thursday   (b) Monday

(c) Tuesday   (d) Friday

RRB Group-D – 17/09/2018 (Shift-I)

Ans : (d)

1 January 2018 ——— Monday }−1
1 January 2017 ——— Sunday }−2
1 January 2016 ——— Friday }−1
1 January 2015 ——— Thursday }−1
1 January 2014 ——— Wednesday }−1
1 January 2013 ——— Tuesday }−2
1 January 2012 ——— Sunday }−1
1 January 2011 ——— Saturday }−1
1 January 2010 ——— Friday

Hence it will be Friday on 28 January 2010.

10. Thursday is on 15 November, 2018. Which day will be on 15 November 2021?

(a) Saturday   (b) Monday

(c) Sunday   (d) Friday

RRB Paramedical 20.07.2019 Shift : I

Ans : (b) 15 November 2018 = Thursday

$$\text{Actual Day} = \frac{15+4+18+4+6}{7} = \frac{47}{7} \text{ Remaining}$$

$$= 5 \text{ Thursday}$$

15 Nov 2018 – Thursday

15 Nov 2019 – Friday

15 Nov 2020 – Sunday (Leap year)

15 Nov 2021 – Monday

Hence It will be Monday on 15 November, 2021.

11. What was the day of the week on 2 October 2010?

(a) Friday   (b) Thursday

(c) Saturday   (d) Sunday

RRB Group-D – 20/09/2018 (Shift-III)

Ans : (c) Day of October 2, 2010 = ?

Total odd days till October 2, 2010 = 2000 year + 9 year + January + February + March + April + May + June + July + August + September + 2 October

$= 0 + 11 + 3 + 0 + 3 + 2 + 3 + 2 + 3 + 3 = 2 + 2$

$= 34$

$\therefore$ Remaining odd days $= \frac{34}{7} = 6$

The remaining odd day represents 6 Saturday.

So on 2 October 2010 it was a Saturday.

12. **What day will it be on 29 March, 2020?**
  (a) Sunday   (b) Monday
  (c) Saturday   (d) Friday

Ans : (a) Number of odd days in 2019 = 4 leap year + 15 normal year = 4 × 2 + 15 = 23 days

odd day in January 2020 = 3

odd day in February 2020 = 1

till 29 march 2020 odd days = 1

  Total odd day = 23 + 3 + 1+ 1 = 28

$$= \frac{28}{7} = 0 \text{ Remaining day}$$

Hence it will be Sunday on 29 March 2020.

13. **Sita celebrated her birthday on a Wednesday in the month of December 2017, what date can be this day?**
  (a) 9   (b) 13
  (c) 16   (d) 22

Ans : (b) Day on 9 December 2017 = ?

Total odd days till 9 December 2017 = 2000 year + 16 year + From January to 9 days

= 0 + 20 + 3 + 0 + 3 + 2 + 3 + 2 + 3 + 3 + 2 + 3 + 2 + 2

= 48

= 6 (Remaining odd Days)

on 9 December 2017 Day = Saturday

on 13 December 2017 Day = Saturday + 4 odd day = Wednesday

14. **It was monday on 5 February 2018, which day of the week was on 5 February 2009?**
  (a) Monday   (b) Thursday
  (c) Friday   (d) Tuesday

Ans : (b) On February 5, 2018 day = Monday on going backwards to 5 February 2009 respectively –

  Day on 5 February 2018 — Monday

  Day on 5 February 2017 — Sunday

  Day on 5 February 2016 — Friday (leap year)

  Day on 5 February 2015 — Thursday

  Day on 5 February 2014 — Wednesday

  Day on 5 February 2013 — Tuesday

  Day on 5 February 2012 — Sunday (leap year)

  Day on 5 February 2011 — Saturday

  Day on 5 February 2010 — Friday

  Day on 5 February 2009 — Thursday

15. **If 9 November 2018 is Thursday then what day will it be on 29 November 2021?**
  (a) Sunday   (b) Saturday
  (c) Monday   (d) Friday

Ans : (c)

odd day from 29 November 2018 to 29 November 2019 = 1

odd day from 29 November 2019 to 29 November 2020 (leap year) = 2

odd day from 29 November 2020 to 29 November 2021 = 1

Total odd days = 4

Desired day = Thursday + 4 = Monday

16. **If Saturday was 21 January 2017, then what was the day on 31 August 2011?**
  (a) Wednesday   (b) Saturday
  (c) Thursday   (d) Tuesday

Ans : (a) Day on 21 January 2017 = Saturday

21 January 2016 will be day = (Saturday –2)

        = Thursday

21 January 2015 will be day = (Thursday –1)

        = Wednesday

21 January 2014 will be day = (Wednesday –1)

        = Tuesday

21 January 2013 will be day = (Tuesday –1)

        = Monday

21 January 2012 will be day = (Monday –2)

        = Saturday

21 January 2011 will be day = (Saturday –1)

        = Friday

21 January 2011 will be day = Friday

Total odd days from 21 January 2011 to 31 August 2011.

  = 10 + 0 + 3 + 2 + 3 + 2 + 3 + 31

$$= \frac{54}{7} = 5 \text{ (odd day)}$$

Hence the day on 23 August 2011 = Friday + 5 day = Wednesday

17. **What day will be on 31 March 2020?**
  (a) Monday   (b) Saturday
  (c) Tuesday   (d) Sunday

Ans : (c) Day on 30 march 2020 —

year	= 2020
year/4	= 505
Date	= 31
Code of March month	= 3
+	
	= 2559

So $\dfrac{2559}{7} = 4$ (Remainder)

4 is code is Tuesday. Hence it will be Tuesday on 23 March 2020.

18. If 15 February 2018 was Thursday, then whatt day would it be on 18 April 2019?
   (a) Wednesday   (b) Tuesday
   (c) Monday   (d) Thursday

Ans : (d)

15 February 2018 ⇒ Thursday⎤
15 February 2019 ⇒ Friday ⎦ +1

18 April, 2019 ⇒ $\dfrac{13+31+18}{7}$

⇒ $\dfrac{62}{7}$ ⇒ 6

Hence, 18 April, 2019 ⇒ Saturday + 6

⇒ Thursday

19. It was a Saturday on 18 October 2003. Which day will it be on 18 October 2005?
   (a) Sunday   (b) Friday
   (c) Monday   (d) Tuesday

Ans : (d)

18 October, 2003 -- Saturday ⎫ +2
18 October, 2004 -- Monday ⎬
18 October, 2005 -- Tuesday ⎭ +1

Hence, 18 October 2005 will be Tuesday.

20. Imran was born on 9 January 2015, while Irfan was born 549 days later. On which date Irfan was born?
   (a) 9 July 2016   (b) 10 July 2016
   (c) 11 July 2016   (d) 12 July 2016

Ans : (c) Date of birth Irfan = 549 days after 9 January 2015

= 9 January to 31 December + January 2016 to July 11, 2016

It is clear that 549 days will be complete on July 11, 2016. Hence Irfan was born on 11 July 2016.

21. What day of the week was on 25 May 1666?
   (a) Tuesday   (b) Thursday
   (c) Monday   (d) Wednesday

Ans. (a) : Day of 25 may 1666
year-odd Day

	year	Code of months	Date	Total
	1600+65 0+65 No. year / Leap 0+16+65	3 0 3 2	25	
odd day	81	8	25	114

odd days in 100 years = 5
odd days in 200 years = 3
odd days in 300 years = 1
odd days in 400 years = 0
Total odd Days = 114
Remaining odd Days = 2 Remainder
Remaining odd Day 2 = Tuesday
Hence 25 May, 1666 was Tuesday.

22. If today is Monday then what day will it be after 63 days?
   (a) Monday   (b) Friday
   (c) Tuesday   (d) Wednesday

Ans : (a)

Total is Monday

after 63 Days $= \dfrac{63}{7} = 0$ Days

Hence It will be Monday after 63 days.

23. What was the day of the week on 6 January, 2014?
   (a) Wednesday   (b) Monday
   (c) Friday   (d) Tuesday

Ans : (b) 6 January 2014

odd Days $= \dfrac{2000\,year + 13\,year + 6\,Day}{7}$

$= \dfrac{0\,Day + 16\,Day + 6\,Day}{7} = \dfrac{22}{7} = 1$ odd Day = Monday

24. If today is Monday, then find the day after 61 days.
   (a) Saturday   (b) Tuesday
   (c) Friday   (d) Monday

Ans. (a) : Total odd Days $= \dfrac{61}{7} = 5$ (Remaining odd Day)

$\therefore$ Monday, after 61 Days + 5 = Saturday

25. Thursday is 25 Janury 2018. On which day will it be 25 June, 2019?
   - (a) Wednesday
   - (b) Monday
   - (c) Sunday
   - (d) Tuesday

RPF Constable 25.01.2019 Shift : I

Ans. (d) :

It is Thursday on 25 Jan 2018.

Hence It will be Friday on 25 Jan 2019.

Deferent of the year $-$ 2019$-$2018 $=$ 1

Remaining Days of month-

January (31$-$25)$=$	6
February $=$	0
March $=$	3
April $=$	2
May $=$	3
June $=$	4

Total $=$ 6+0+3+2+3+4 $= \dfrac{18}{7}$ Remaining$\to$ 4

Hence It will be Tuesday on 25 June 2019.

26. Monday is 19 February 2018 which day will be on 19 April, 2019.
   - (a) Thursday
   - (b) Friday
   - (c) Saturday
   - (d) Wednesday

RRB Group-D – 20/09/2018 (Shift-I)

Ans. (b) : Day on 19 February 2018 = Monday

Day on 19 February 2019 = Monday + 1 = Tuesday

odd day from 19 February 2019 to 19 April 2019

$\qquad$ = 9 + 31 + 19

$\qquad$ = 59 Day

$\qquad \dfrac{59}{7}$

$\qquad$ = 3 Remaining Days

Hence Day on 19 April 2019 – Tuesday + 3 Day

$\qquad$ = Friday

27. Which of the following days will be on 19 April, 2020.
   - (a) Tuesday
   - (b) Monday
   - (c) Saturday
   - (d) Sunday

RRB Group-D – 25/09/2018 (Shift-I)

Ans : (d)

Code of Month	Code of Day	Code of Century
0$\to$ January	0$\to$ Sunday	2000 to 2099 $\to$ 6
3$\to$ February	1$\to$ Monday	2100 to 2199 $\to$ 4
3$\to$ March	2$\to$ Tuesday	2200 to 2299 $\to$ 2
6$\to$ April		
1 $\to$ May	3 $\to$ Wednesday	2300 to 2399 $\to$ 0
4 $\to$ June	4 $\to$ Thursday	2400 to 2499 $\to$ 6
6 $\to$ July	5$\to$ Friday	
2 $\to$ August		
5 $\to$ September	6 $\to$ Saturday	
0$\to$ October		
3 $\to$ November		
5 $\to$ December		

Day of 19 April 2020

Formula,

$$= \dfrac{\text{Date} + \text{month code} + \text{year} + \text{leap year} + \text{century code}}{7}$$

leap year $= \dfrac{20}{4} = 5$

$$= \dfrac{19 + 6 + 20 + 5 + 6}{7}$$

$$\Rightarrow \dfrac{56}{7} = 0 \text{ (Remainder)}$$

Hence It will be Sunday on 19 April 2020.

28. What was the day of the week on 7 Janury, 2011?
   - (a) Tuesday
   - (b) Friday
   - (c) Wednesday
   - (d) Monday

RRB Group-D – 25/09/2018 (Shift-I)

Ans : (b) For 7 January 2011

Leap year $= \dfrac{11}{4} = 2$

$$\text{Day} = \dfrac{\text{Date} + \text{month code} + \text{year} + \text{leap year} + \text{century code}}{7}$$

$$\Rightarrow \dfrac{7 + 0 + 11 + 2 + 6}{7} = \dfrac{26}{7} = 5 \text{ (Remainder)}$$

5 $\to$ Friday

Hence It was Friday on 7 January 2011.

29. 2 February, 2019 is Saturday, which day will be on 4 October, 2019.
   - (a) Thursday
   - (b) Friday
   - (c) Saturday
   - (d) Sunday

RRB Group-D – 25/09/2018 (Shift-III)

Ans. (b) : 2 February 2019 = Saturday

February + March + April + May + June + July + August + September + October

$5 + 3 + 2 + 3 + 2 + 3 + 3 + 2 + 4 = \dfrac{27}{7}$

Odd day = 6

∴ Day on 4 October, 2019 = Saturday + 6 Day

= Friday

30. It was Friday on 5 January 2018. In which of the following years, again on 5 January will be Friday?
 (a) 2024 (b) 2022
 (c) 2023 (d) 2023

RRB Group-D – 27/09/2018 (Shift-I)

Ans. (a) Friday on 5 January 2018, Then

It will be Saturday on 5 January 2019.
It will be Sunday on 5 January 2020.
It will be Tuesday on 5 January 2021.
 (∵ 2020 is leap year)
It will be Wednesday on 5 January 2022.
It will be Thursday on 5 January 2023.
It will be Friday on 5 January 2024.

31. What day would it be on 1 October 2020?
 (a) Tuesday (b) Thursday
 (c) Friday (d) Wednesday

RRB Group-D – 27/09/2018 (Shift-III)

Ans : (b) Day on 1 October 2020 = ?

Code of Month	Code of Day	Code of Century
0 → Jan	Sun → 0	2000 से 2099 → 6
3 → Feb	Mon → 1	2100 से 2199 → 4
3 → Mar	Tue → 2	2200 से 2299 → 2
6 → Apr	Wed → 3	2300 से 2399 → 0
1 → May	Thu → 4	2400 से 2499 → 6 (again)
4 → Jun	Fri → 5	
6 → July	Sat → 6	
2 → Aug		

5 → Sep
0 → Oct
3 → Nov
5 → Dec

$= \dfrac{\text{Date} + \text{month code} + \text{year} + \text{leap year} + \text{century code}}{7}$

Leap year $= \dfrac{20}{4} = 5$

$\Rightarrow \dfrac{1 + 0 + 20 + 5 + 6}{7} = \dfrac{32}{7} \Rightarrow 4\,(\text{Remainder})$

Hence, Day = Thursday

32. What day will be on 1 November, 2020?
 (a) Sunday (b) Saturday
 (c) Friday (d) Thursday

RRB Group-D – 05/10/2018 (Shift-I)

Ans. (a) : 1 November 2020 =?

Month Code –

0 3 3 6 1 4 6 2 5 0 [3] 5

November ↓

20th century ⟶ 6
21th century ⟶ 4
22th century ⟶ 2
23th century ⟶ 0
24th century ⟶ 6 (again)

Leap year $= \dfrac{20}{4} = 5$

Formula- $= \dfrac{\text{Date} + \text{month code} + \text{year} + \text{leap year} + \text{century code}}{7}$

$\dfrac{1 + 3 + 20 + 5 + 6}{7} = \dfrac{35}{7} = 0$

0 → Sunday

Hence It will be Sunday on 1 Nov., 2020.

33. What was the day of the week on 16-03-2007?
 (a) Wednesday (b) Friday
 (c) Thursday (d) Tuesday

RRB Group-D – 11/10/2018 (Shift-III)

Ans : (b) Number of odd days till 2006 = 7

Number of odd days 2007 = 3 + 2 = 5

Total odd days $= 7 + 5 = \dfrac{12}{7}$ (5 Remainder)

Hence It will be Friday on 16 March, 2007.

34. If 17 January, 2004 was a Saturdaay then what was the day of the week on 10 April 2013?
 (a) Tuesday (b) Thursday
 (c) Monday (d) Wednesday

RRB Group-D – 16/10/2018 (Shift-II)

Ans : (d)

17 January 2004 = Saturday
17 January 2005 = Monday
17 January 2006 = Tuesday
17 January 2007 = Wednesday
17 January 2008 = Thursday
17 January 2009 = Saturday
17 January 2010 = Sunday
17 January 2011 = Monday
17 January 2012 = Tuesday
17 January 2013 = Thursday

∵ It is Thursday on 17 January 2013.

Number of odd days from 17 January to 10 April 2013.

= 14 + February + March + 10

$$= \frac{14 + 28 + 31 + 10}{7}$$

= 0 + 0 + 3 + 3

= 6

Hence

Day on 10th April = Thursday + 6 Day = Wednesday

35. **It was Friday on 22 February 2002. On which day of the week was 15 March, 2008?**
(a) Monday   (b) Sunday
(c) Saturday   (d) Friday

RPF SI 11.01.2019 Shift : II

Ans : (c)

22 February 2002 ——— Friday
22 February 2003 ——— Saturday
22 February 2004 ——— Sunday
22 February 2005 ——— Tuesday
22 February 2006 ——— Wednesday
22 February 2007 ——— Thursday

22 February 2008 ——— Friday

Now, the number of odd days from 22 February 2008 to

$$15 \text{ March } 2008 = \frac{(29-22)+15}{7} = \frac{7+15}{7} = \frac{22}{7}$$

= 1 (Remainder)

Hence Day on 15 March 2008 – Friday + 1 = Saturday

36. **What day was 29 January, 1950?**
(a) Monday   (b) Saturday
(c) Friday   (d) Sunday

RRB Group-D – 24/10/2018 (Shift-II)

Ans. (d) : odd day on 29 January 1950 = ?

1600 + 300 + 12 leap year + 37 Normal year + 29 day On the odd day out−

odd days in 1600 years   = 0

,,   ,,   300   = 1

odd days in 12 leap years $= \frac{12 \times 2}{7} \Rightarrow 3$

odd days in 37 Normal year $= \frac{37}{7} \Rightarrow 2$

odd days in 29 days $= \frac{29}{7} \Rightarrow 1$

Total odd day = 0+1+3+2+1 = 7

Remaining odd day $= \frac{7}{7} = 0$ (Remainder)

Hence day on 29 January 1950 = Sunday

37. **What day will it be on 19 June, 2020?**
(a) Friday   (b) Thursday
(c) Wednesday   (d) Saturday

RPF Constable 25.01.2019 Shift : II

Ans : (a) 2019 = 2000 + 19

= 0 + 4 × 2 + 15 × 1

= 23 days

January = 3, February = 1, March = 3, April = 2, May =3, June = 19

Total odd day = 23 + 3 + 3 + 2 + 3 + 19 + 1

$= \frac{54}{7}$ (5 odd day)

Hence It will be Friday on 20 June 2020.

38. **What date was November, 2000 on thursday?**
(a) 21 November
(b) 2 November
(c) 10 November
(d) 2 and 16 November

RRB Group-D – 31/10/2018 (Shift-I)

Ans : (d) Number of odd days till 1999 =

400 × 4 + 300 + 99 (24 leap year + 75 Normal year)

= 0 + 1 + 48 + 75 = 124 Days

= Number of odd days till 1 Nov 2000 =

3 + 1 + 3 + 2 + 3 + 2 + 3 + 3 + 2 + 3 + 1 = 26 Days

= Total Number of days =

$124 + 26 = \frac{150}{7} = 3$ Remainder

= That is, it will be Wednesday on 1 Nov 2000

= Date of Thursday in November = 2, 9, 16, 23, 30

Hence It will be Thursday on the 2nd and 16th.

39. **What day was it on 18 April, 2008?**
(a) Friday   (b) Monday
(c) Sunday   (d) Saturday

RRB Group-D – 31/10/2018 (Shift-I)

Ans : (a) What day was April 18, 2008?

odd 2007 till 2007 = 2000 year + 7 year

= 2000 + 1 (Leap year) + 6 (Norm. year)

= 0 + 1 × 2 + 6 × 1 = 8 days (odd)

odd day till 18 April, 2008 = 3 + 1 + 3 + 18

= 25 (odd)

Total odd day = 25 + 8 = 33 Day

$= \frac{33}{7} = 5$ (Remaining day)

5th day = Friday

Hence It was Friday on 18 April, 2008.

40. What day was on 25 January 1948?
    (a) Wednesday   (b) Monday
    (c) Friday   (d) Sunday

RRB Group-D – 06/12/2018 (Shift-II)

Ans. (d) :

$$\text{Century Year} \quad \text{Date}$$

$$1948 = 1900 + 47 + \frac{25}{7} \text{ Odd day } (4)$$

(47 normal year and 11 leap year)
$$= 1 + 47 + 11 + 4$$
$$\Rightarrow \frac{63}{7} = 0 \text{ Remainder} \Rightarrow \text{Sunday}$$

Hence It was Sunday on 25 January, 1948.

41. Thursday is on 6 December 2018. Which day will be on 6 December, 2021?
    (a) Sunday   (b) Monday
    (c) Saturday   (d) Friday

RRB Group-D – 03/12/2018 (Shift-II)

Ans : (b) Thursday on 6 December 2018.
    Friday on 6 December 2019.
    Sunday on 6 Dec. 2020 (leap year)
    Monday on 6 Dec. 2021
Note– The first and last day of Normal year is the Same and the last day in the leap year is increased by 1 day.

42. If 1 August, 2000 was a Tuesday, then what day would it be on 1 March, 2001?
    (a) Wednesday   (b) Monday
    (c) Tuesday   (d) Thursday

RRB Group-D – 03/12/2018 (Shift-II)

Ans : (d) Tuesday, 1 August 2000.
Then by dividing the number of days in the month from 1 August 2000 to 1 march 2001 by 7.
$$= \frac{1}{7}[30 + 30 + 31 + 30 + 31 + 31 + 28 + 1]$$
$$= \frac{212}{7} = 2 \text{ (Remainder)}$$
= Tuesday + 2 Day = Thursday
Hence It will be Thursday on 1 March 2001.

43. If today is Saturday, what will be the 59th day from today?
    (a) Monday   (b) Wednesday
    (c) Tuesday   (d) Sunday

RRB Group-D – 01/12/2018 (Shift-II)

Ans : (c) Today is Saturday.

$$7 \overline{)59} \quad \begin{array}{r} 8 \\ \underline{56} \\ 3 \end{array}$$

Here odd day = 3
That is, 56th day is Saturday, 57, 58, 59th day will be Sunday, Monday, Tuesday respectively.

44. If 12 August, 2011 was a Friday, then what day was on 21 December 2011?
    (a) Thursday   (b) Wednesday
    (c) Monday   (d) Saturday

RRB Group-D – 15/11/2018 (Shift-I)

Ans : (b) Number of odd day from 12 August to 21 Dec. 2011 - $\frac{131}{7} = 5$ (Remainder)

Friday + 5 Day = Wednesday
Hence It was Wednesday on 21 Dec. 2011.

45. What day will it be on 25 January, 1950?
    (a) Sunday   (b) Saturday
    (c) Monday   (d) Wednesday

RRB Group-D – 12/11/2018 (Shift-III)

Ans : (d) Day on 25 Jan. 1950 = ?

Month Code	Century Code
0 → January	16 Century → 6
3 → February	17 Century → 4
3 → March	18 Century → 2
6 → April	19 Century → 0
1 → May	20 Century → 6 (again)
4 → June	
6 → July	
2 → August	
5 → September	
0 → October	
3 → November	
5 → December	

Leap year $= \frac{50}{4} = 12$ (Quatient)

Formula-
$$\frac{\text{Date} + \text{monthly code} + \text{year} + \text{leap year} + \text{century code}}{7}$$
$$\Rightarrow \frac{25 + 0 + 50 + 12 + 0}{7} = \frac{87}{7} \rightarrow 3\text{day remain}$$

3 → Wednesday
Hence, It was Wednesday on 25 Jan. 1950.

46. What was the day on 5 August, 1987?
    (a) Tuesday   (b) Thursday
    (c) Saturday   (d) Wednesday

RRB Group-D – 05/11/2018 (Shift-I)

Ans. (d) : Number of odd days in 1600 years = 0
Number of odd days in 300 years = 1
Number of odd days in 86 years = 21 leap year + 65 Normal year
$$= 42 + 65 = 107$$
$$= 2 \text{ Extra day}$$

Odd days from 1 January to 5 August

$$= 3+0+3+2+3+2+3+5$$

$$= 21 \Rightarrow 0 \text{ Extra day}$$

Total odd day $= 0+1+2+0 = 3$ Day

Hence It was Wednesday on 5 Aug. 1987.

47. **What day was on 3 May, 2008?**

    (a) Sunday   (b) Wednesday

    (c) Saturday   (d) Monday

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RPF SI 11.01.2019 Shift : III

</div>

Ans. (c) : Day on 3 May, 2008–

Number of extra days in 2000 years $= 0$

Number of extra days in 7 years $= 1+1+1+2+1+1+1$

$$= 8 \text{ day}$$

Number of extra days from 1 Jan. 2008 to 3 May 2008

$$= 3+1+3+2+3 = 12$$

Total number of extra days $= 0+8+12 = 20$

Remaining extra days $= \dfrac{20}{7} = 6$ day

The day of May 3, 2008 will be Saturday.

48. **4th of October 2018 is a Thursday. What day would be 2nd of February 2019?**

    (a) Sunday   (b) Saturday

    (c) Friday   (d) Thursday

<div align="right">

RRB Group-D – 05/11/2018 (Shift-III)

</div>

Ans. (b) : Remaining days from 4 Oct.

$= 27 + 30 + 31 + 31 + 2 = 121$

$\dfrac{121}{7} = 2$ Remaining day

Hence day on February 2, 2019 = Thursday + 2 = Saturday

49. **What day was on 29 March, 2008?**

    (a) Sunday   (b) Saturday

    (c) Friday   (d) Monday

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RRB Group-D – 02/11/2018 (Shift-I)

</div>

Ans. (b) Day on 29 March 2008 –

$$= \dfrac{\text{Date} + \text{Month} + \text{Year} + \text{Leap year} + \text{Century Code}}{7}$$

$$= \dfrac{29+3+8+2+6}{7}$$

$$= \dfrac{48}{7} \Rightarrow 6 \text{ (odd day)}$$

Hence It was Saturday on 29 March 2008.

50. **What day was on 2 April, 2008?**

    (a) Wednesday   (b) Saturday

    (c) Sunday   (d) Friday

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RRB Group-D – 01/11/2018 (Shift-II)

</div>

Ans : (a) Number of odd days till 2007 =

2000 year + 7 year $= 400 \times 5 + 7$

$$= 0 + 1 \text{ Leap} + 6 \text{ Normal year}$$

$$= 1 \times 2 + 6 = 8 \text{ day}$$

The number of odd days till 2 April 2008 is as fallow–

    Number of odd days in January = 3

    Number of odd days in February = 1

    Number of odd days in March = 3

    Number of odd days in April = 2

    Total number of odd days $= 8+ 3 + 1 + 3 + 2$

$$= 17$$

$$= \dfrac{17}{7} = 3 \text{ (Remainder)}$$

Hence, It will be Wednesday on 2 April 2008.

51. **If 8 December, 2007 was a Saturday, then what was the day on 12 August, 2008?**

    (a) Wednesday   (b) Monday

    (c) Tuesday   (d) Sunday

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RPF Constable 22.01.2019 Shift : I

</div>

Ans : (c) Number of odd days from 8 Dec. 2007 to 12 Aug. 2008 –

Dec. 2007 $\dfrac{23}{7} = 2$ Remainder

January 2008 $= \dfrac{31}{7} = 3$ Remainder

February 2008 $= \dfrac{29}{7} = 1$ Remainder

March 2008 $= \dfrac{31}{7} = 3$ Remainder

April 2008 $= \dfrac{30}{7} = 2$ Remainder

May 2008 $= \dfrac{31}{7} = 3$ Remainder

June 2008 $= \dfrac{30}{7} = 2$ Remainder

July 2008 $= \dfrac{31}{7} = 3$ Remainder

August 2008 $= \dfrac{12}{7} = 5$ Remainder

$\therefore$ Total Remaining Days $= 24$

$\therefore$ Extra days $= 3$

$\therefore$ Day of 12 Aug. 2008 Saturday + 3 = Tuesday

52. **What day was on 25 March, 2006?**

    (a) Friday   (b) Saturday

    (c) Monday   (d) Sunday

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RRB Group-D – 26/10/2018 (Shift-II)

</div>

Ans : (b)

Month Code	Century Code
0 → January	1600 – 1699 → 6
3 → February	1700 – 1799 → 4
3 → March	1800 – 1899 → 2
6 → April	1900 – 1999 → 0
1 → May	2000 – 2099 → 6 (again)
4 → June	
6 → July	
2 → August	
5 → September	
0 → October	
3 → November	
5 → December	

Leap year $= \dfrac{6}{4} = 1$

Fegure,

$$\frac{Date + Month + Year + Leap\ year + Century\ Code}{7}$$

$$= \frac{25 + 3 + 6 + 1 + 6}{7}$$

$$= \frac{41}{7} = 6 \text{ (Remaining Days)}$$

6 ⇒ Saturday

Hence, It was Saturday on 25 March, 2006.

53. **What day was on 26 January, 2018?**
   (a) Friday   (b) Wednesday
   (c) Tuesday   (d) Saturday
        RRB Group-D – 24/10/2018 (Shift-III)

Ans. (a) : Total Number of odd days till 26 Jan. 2018 –

= 2000 year + 17 year + 26 January

= 400 × 5 + 17 year + 26 January

= 0 + 21 + 26 = 47

∴ Remaining odd day $= \dfrac{47}{7} = 5$ (Remaining Days)

Hence, It was Friday on 26 January 2018.

54. **What day will it be on 30 May, 2020?**
   (a) Monday   (b) Sunday
   (c) Wednesday   (d) Saturday
        RRB Group-D – 24/10/2018 (Shift-III)

Ans. (d) : Total number of odd days till 30 May, 2020

= 2000 year + 19 year + Jan. to 30 May

= 0 + 23 + 3 + 1 + 3 + 2 + 2

= 34

∴ Remaining odd Day = (Remaining Day)

Hence It will be Saturday on 30 May 2020.

55. **22 February, 2002 was Friday on which day was 15 March 2008?**
   (a) Sunday   (b) Friday
   (c) Monday   (d) Saturday
        RRB Group-D – 12/10/2018 (Shift-II)

Ans : (d) Number of odd days from 22 Feb. 2002 from

15 March 2008 $= 1 + 1 + 2 + 1 + 1 + 1 + 22 = \dfrac{29}{7}$

                      = 1 Remaining day

Hence Day on 15 March 2008 = Friday + 1 = Saturday

56. **Arjun was born on 1 January, 2007 on Monday, then what day is on 1 January, 2008?**
   (a) Wednesday   (b) Friday
   (c) Tuesday   (d) Sunday
        RRB Group-D – 04/10/2018 (Shift-I)

Ans. (c) The first and last day of normal year is the same.

    1 Jan. 2007 → Monday

    31 Dec. 2007 → Monday

    1 Jan. 2008 → Tuesday

57. **Thursday was 7 June, 1984. Which day was on 7 June, 1983?**
   (a) Monday   (b) Wednesday
   (c) Tuesday   (d) Sunday
        RRB Group-D – 19/09/2018 (Shift-I)

Ans : (c)

7 June 1984 $\xrightarrow{\text{day}}$ Thursday (Leap year)

7 June 1983 $\xrightarrow{\text{day}}$ Tuesday   } -2

58. **If 21 September, 2005 was saturday, then what day of the week would it be on 31 December, 2009?**
   (a) Friday   (b) Thursday
   (c) Sunday   (d) Saturday
        RRB JE - 25/05/2019 (Shift-I)

Ans : (b) 31 Dec. 2005 – Saturday

31 Dec. 2006 – Saturday + 1 = Sunday

31 Dec. 2007 – Sunday + 1 = Monday

31 Dec. 2008 – Monday + 2 = Wednesday

31 Dec. 2009 – Wednesday + 1 = Thursday

Hence, It will be Thursday on 31 Dec.

Type - 2

59. **The calendar for the year 2020 will be the same for the year :**
   (a) 2044   (b) 2076
   (c) 2040   (d) 2096
        RRB ALP & Tec. (17-08-18 Shift-I)

Ans : (b) Number of odd days for the given time 01-01-

$2020 = \dfrac{19 + 4 + 0 + 1}{7} = 3$ odd day

So the year 2020 will start on Wednesday.

We see again from the option (b)

Number of odd days for 1-01-2076

$= \dfrac{75 + 18 + 0 + 1}{7} = 3$ odd day

So the calendar of 2020 will be the same as year 2076.

Note- It 0 is left in a year divided by 4, then that calendar will repeat after 28 years.

Hence $2020 + 28 + 28 = 2076$

---

60. The dates 3rd April 2005, 6th August 2010 and 5th December 2013 when written in Date-Month-Year Form have a unique mathematical property. The Indian Independence Day of which year among the following has the same property?

(a) 2017   (b) 2016
(c) 2018   (d) 2015

RRB ALP & Tec. (20-08-18 Shift-III)

Ans : (a) Just as,

3 April 2005 $\Rightarrow$ 3 – 04 – 2005
$(3)^2 + (4)^2 = (5)^2$

6 August 2010 $\Rightarrow$ 6 – 08 – 2010
$(6)^2 + (8)^2 = (10)^2$

and 5 December 2013 $\Rightarrow$ 5 – 12 – 2013
$(5)^2 + (12)^2 = (13)^2$

Just as

15 August ? $\Rightarrow$ 15 – 08 – 2017
$(15)^2 + (8)^2 = (17)^2$

Similarly,

Hence, the Indian Independence Day of 2017 also has the same feature that is in question.

---

61. 1st January 2018 was a Monday. Which of the following years will also start on a Monday?

(a) 2024   (b) 2023
(c) 2020   (d) 2022

RRB ALP & Tec. (14-08-18 Shift-I)

Ans : (a) 1 January, 2018 – Monday

1 January, 2019 – Monday + 1 = Tuesday

1 January, 2020 – Tuesday + 1 = Wednesday

1 January, 2021 – Wednesday + 2 = Friday

1 January, 2022 – Friday + 1 = Saturday

1 January, 2023 – Saturday + 1 = Sunday

Hence year 2024 will be start from Monday.

---

62. What dates was Friday in March 2005?

(a) 4, 11, 18 and 25
(b) 3, 10, 17 and 24
(c) 5, 12, 19 and 26
(d) 6, 13, 20 and 27

RPF Constable 22.01.2019 Shift : III

Ans : (a) 1 March 2005

Before 1 March 2005

$= \dfrac{1 + 4 + 5 + 1 + 6}{7}$

$\left[\dfrac{\text{Date} + \text{Monthly code} + \text{Year} + \text{Leap year} + \text{Century Code}}{7} \right]$

$= \dfrac{17}{7} = $ Remainder $= 3$

It will be Tuesday on 1 March 2005.

Hence 4, 11, 18 and 25 will be Friday.

---

63. Which year's calendar will be similar to 2005?

(a) 2010   (b) 2008
(c) 2011   (d) 2009

RRB Group-D – 20/09/2018 (Shift-II)

Ans : (c)

वर्ष 2005 ⌐ +1
2006 +1
2007 +1
2008 +2
2009 +1
2010 +1
2011 ⌐

Number of extra days between 2005 to 2011 year

$= 1 + 1 + 1 + 2 + 1 + 1 = 7$

$\Rightarrow \dfrac{7}{7} = 0$ (Remainder)

Hence the calendar of 2005 will be same as the calendar of 2011.

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64. How many leap years are there in a period of 100 years?

(a) 22   (b) 25
(c) 24   (d) 23

RRB Group-D – 22/09/2018 (Shift-I)

Ans : (c) There are 76 normal years and 24 leap years over a period of 100 years.

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65. If the number of leap years in an interval of 100 years in X, then what will be the value of (x-1)?

(a) 25   (b) 22
(c) 23   (d) 24

RPF SI 11.01.2019 Shift : III

Ans : (c) The number of leap years between the interval of two centuries or 100 year = 4, 8, 12 96

or $\dfrac{96}{4}$ = 24 leap year

then X = 24

∴ X –1 = 24 –1 = 23

66. **On 5 Februry 2018, it was a Monday. In which of the following years would it be Monday on 5 February?**
  (a) 2025   (b) 2021
  (c) 2023   (d) 2024

Ans : (d) 5 February 2018 – Monday

    5 February 2019 – Tuesday

    5 February 2020 – Wednesday (leap year)

    5 February 2021 – Friday

    5 February 2022 – Saturday

    5 February 2023 – Sunday

    5 February 2024 – Monday

67. **On which dates in May 2001 was wednesday?**
  (a) 2nd, 9th, 16th, 23rd, 30th
  (b) 4th, 11th, 18th, 25th,
  (c) 3rd, 10th, 17th, 24th
  (d) 1st, 8th, 15th, 22nd, 29th,

Ans : (a) Number of odd days = odd days in 2000 years + number of odd day from Jan. to April

        = 0 + 3 + 0 + 3 + 2

        = 8

        = 1 (8/7 in remainder)

It will be Monday on April 30. Next to this it will be Wednesday on 2 May.

Hence, 2, 9, 16, 23, 30 will be come on Wednesday.

68. **There is a maximum difference of x years between two consecutive leap years. What is the value of x?**
  (a) 1   (b) 8
  (c) 4   (d) 2

Ans. (c) : There is a difference of 4 years between two consecutive leap years Feburary is 29 days in a leap year and leap years are divided by 4.

69. **The years 2016 was 52 weeks and P days. What is the value of P?**
  (a) 2   (b) 4
  (c) 3   (d) 5

Ans. (a) Number of days in the year 2016 = 366 days

1 week = 7 days

Number of weeks in 366 Days $= \dfrac{366}{7} = 52$ week + 2 Day

that is P = 2 day

70. **Which year's calendar will be similar to 2018 calendar?**
  (a) 2006   (b) 2009
  (c) 2008   (d) 2007

Ans : (d) If the given year is a normal year, then we add 6 years to the year of the given question. If a leap year is found in these 6 years, the calendar will be same as that year. If there is more than one leap year we add 11 years.

71. **The calendar of the year _____ was the same as 2011.**
  (a) 2004   (b) 2008
  (c) 2005   (d) 2009

Ans. (c) : In normal year, the day of a certain date increase by one day in the next year and two days in a leap year.

Suppose it was Saturday on 1 January 2005.

So 1 January, 2005 = Saturday

    1 January, 2005 = Saturday   ┐ +1

    1 January, 2006 = Sunday   ┤ +1

    1 January, 2007 = Monday   ┤ +2

(Leap year) 1 January, 2008 = Wednesday ┤ +1

    1 January, 2009 = Thursday   ┤ +1

    1 January, 2010 = Friday   ┤ +1

    1 January, 2011 = Saturday   ┘

Hence the calendar of year 2005 was same as calendar of year 2011.

72. **How many odd days are there in a leap year?**
  (a) 4   (b) 2
  (c) 1   (d) 3

Ans : (b) One leap year = 366 days

    = 52 weeks and 2 odd days

Hence odd days in a leap year = 2

73. **Odd days in a normal year (non-leap year) are:-**
  (a) 3   (b) 2
  (c) 5   (d) 1

Ans : (d) Normal of days in a normal year = 365

Number of odd days in a normal year $= \dfrac{365}{7}$

$$= 52 \text{ weeks} + 1$$

The number of odd days will be 1 in a normal year.

Note- (1) odd days in a leap year = 2

Number of odd days in 100 years = 5

Number of odd days in 200 years = 3

Number of odd days in 300 years = 1

Number of odd days in 400 years = 0

74. If there is P normal years over a period of 100 years (normal year = 365 days), then the value of P can be:

(a) 76 (b) 74

(c) 72 (d) 71

Ans : (a) Thre are 24 leap years and 76 normal years over a period of 100 years.

Hence, P = 76 years

75. Find the sum of the days of February during the year 1900 to 2000.

(a) 2857 (b) 2853

(c) 2828 (d) 2835

Ans : (b)

Number of days of the month of February during the year 1900 to year 2000

$= 28 \times 101 + 25$ (February has 29 days in a leap year)

$= 2828 + 25$

$= 2853$ days

76. Thursday will be on 5 September, 2019. In which year will it again be Thursday on 5 September?

(a) 2025 (b) 2024

(c) 2023 (d) 2022

Ans. (b) : It is given–

The day of 5 September 2019 = Thursday

∵ Additional day in 5 September 2020 = 2

∴ Day of 5 September 2020 = Saturday

Day of 5 September 2021 = Sunday

Day of 5 September 2022 = Monday

Day of 5 September 2023 = Monday

Additional day in 5 September 2024 = 2

Day of 5 September 2024 = Thursday

77. Which of the following year's calendar year will be similar to 2008 calendar?

(a) 2020 (b) 2036

(c) 2033 (d) 2018

Ans : (b)

∵ Leap year + 28 = Normal Calendar

∴ 2008 + 28 = 2036

Hence, Calendar of 2036 will be same as of 2008.

78. It will be Thursday on 22 August, 2019. Which of the following year will be Thursday on 22 August?

(a) 2023 (b) 2025

(c) 2022 (d) 2024

Ans. (d) : 22 August, 2019 − Wednesday

Additional day in year 2020 = 2 (Because 2020 was a leap year)

Additional day in year 2021 = 1

Additional day in year 2022 = 1

Additional day in year 2023 = 1

Additional day in year 2024 = 1

Total additional days = 1 + 2 + 1 + 1 + 2 = 7

Desired day = Thursday + 7 days = Thursday

Hence in year 2024, 22 August will be on Thursday.

79. It was a Monday on 12 February, 2018. In which of the following year will it be a Monday on 12 February?

(a) 2025 (b) 2023

(c) 2021 (d) 2024

Ans : (d) 12 February 2018 → Monday

12 February 2019 → Tuesday

12 February 2020 → Wednesday

12 February 2021→ Friday

12 February 2022→ Saturday

12 February 2023 → Sunday

12 February 2024 → Monday

80. On 26 February 2018, it was Monday. In which of the following years will it be Monday on 26 February?

(a) 2023 (b) 2021

(c) 2025 (d) 2024

Ans : (d) 26 February 2018 → Monday

26 February 2019 → Tuesday

26 February 2020 → Wednesday

26 February 2021 → Friday

26 February 2022 → Saturday

26 February 2023 → Sunday

26 February 2024 → Monday

81. Sunday is 30 September, 2018. In which of the following year will also be Sunday on 30 September?
(a) 2024   (b) 2027
(c) 2029   (d) 2023

RRB Group-D – 11/12/2018 (Shift-II)

Ans : (c) 30 September 2019 = Monday
30 September 2020 = Wednesday (leap year)
30 September 2021 = Thursday
30 September 2022 = Friday
30 September 2023 = Saturday
30 September 2024 = Monday (leap year)
30 September 2025 = Tuesday
30 September 2026 = Wednesday
30 September 2027 = Thursday
30 September 2028 = Saturday (leap year)
30 September 2029 = Sunday

Hence In 2029, it will be sunday on 30 September.

82. Calculate the number of leap years between 1800 and 2000 (including both years).
(a) 48   (b) 49
(c) 50   (d) 51

RRB Group-D – 11/12/2018 (Shift-III)

Ans : (b) Number of leap year b/w 1800 and 1900 years (in 100 years) = 24
Number of leap year between 1900 to 2000
= 24 + 1 (2000nd year)
= 25
Hence, number of leap years b/w 1800 to 2000 (including both years) = 24 + 25 = 49

83. If independence day of India was on Monday in 2011, then what day would Christmas be in 2014?
(a) Thursday   (b) Tuesday
(c) Wednesday   (d) Friday

RRB Group-D – 15/10/2018 (Shift-III)

Ans. (a) : Independence day (August 15) 2011 was Monday.

15 August 2011 $\rightarrow$ Monday

15 August 2011(leap year) $\rightarrow$ Monday +2 days = Wednesday

15 August 2013 $\rightarrow$ Wednesday +1 day = Thursday

15 August 2013 $\rightarrow$ Thursday +1 day = Friday

15 August to 25 December (Christmas) total days
= 16 + 30 + 31 + 30 + 25
= 132 day

$\dfrac{132}{7}$ = 6 Remaining day

$\therefore$ Day of 25 Dec. 2014 = Friday + 6 = Thursday

84. Which dates were Wednesday in May 2016?
(a) 2nd, 9th, 16th, 23rd and 30th
(b) 3rd, 10th, 17th and 24th
(c) 4th, 11th, 18th and 25th
(d) 1st, 8th, 15th, 22nd and 29th

RRB Group-D – 12/10/2018 (Shift-I)

Ans. (c) : For 1 May 2016
Code of May month = 1
2016 year code = 6

$$\text{Day} = \frac{\text{Last 2 digit of year} + \text{year code} + \text{date} + \frac{16}{4}\text{of divide} + \text{month code}}{7}$$

$$= \frac{16+6+1+4+1}{7} = \frac{28}{7} = 0 \text{ (Remaining)} = \text{Sunday}$$

$\therefore$ It will be Wednesday of 4 May.
Hence, It will be Wednesday of date 25 and 4, 11, 18 in May 2016.

85. Which one of the years is not a leap year?
(a) 2004   (b) 1200
(c) 1600   (d) 2100

RRB JE - 26/06/2019 (Shift-I)

Ans : (d) The number 2100 (Century) is not leap year because this number is not divisible by 400.

86. How many odd days are there in 94 years?
(a) 4   (b) 5
(c) 3   (d) 0

RRB JE - 27/06/2019 (Shift-I)

Ans : (b) odd day in 94 years –
Total leap years = 23
Normal year = 94 – 23 = 71
Total odd days = 23×2+71×1
= 46 + 71 = 117
$= \dfrac{117}{7} = 5$ odd days

87. Which two months will have the same calendar in 1 year?
(a) April, July
(b) October, December
(c) April, November
(d) June, October

RRB JE - 27/06/2019 (Shift-III)

Ans. (a) There will be only one calendar of two months if the period between them is divisible by 7.
(a) April+May+June = 30+ 31+30 = 91 (divisible by 7)
(b) Oct. + Novem. = 31+30 = 61 (Not divisible by 7)
(c) April + May + June + July + August + September + October = 30+31+30+31+31+30+31 = 214 (Not divisible by 7)
(d) June + July + August + September = 30+31+31+30 = 122 (Not divisible by 7)
Hence April and July month have same calendar.

Type - 3

88. What will be the value of the smaller angle from the two angles formed between the hour-hand and the minute-hand at 4:52 pm?
(a) 162°   (b) 164.5°
(c) 165°   (d) 166°

Ans : (d) In evening, at 4:52 minute needle of clock will be ahead of hour needle-
Hence smallest angle-

$$\theta = M \times \frac{11}{2} - H \times 30$$

$$\theta = 52 \times \frac{11}{2} - 4 \times 30$$

$$\theta = 286 - 120$$

$$\theta = 166^0$$

89. What is the measure of the smaller of the two angles formed between the hour hand and the minute hand of a clock when it is 6:44 p.m.?
(a) 62°   (b) 83.5°
(c) 62.5°   (d) 84°

Ans : (a) ∵

$$M = \frac{2}{11}\left(H \times 30 \pm \theta\right)$$

$$44 = \frac{2}{11}\left(6 \times 30 \pm \theta\right)$$

$$22 = \frac{1}{11}\left(180 \pm \theta\right)$$

$$242 = 180 \pm \theta$$

$$\theta = 242 - 180$$

$$\theta = 62^0$$

90. What will be the measure of the acute angle formed between the hour hand and the minute hand at 6:43 a.m.?
(a) 56°   (b) 78°
(c) 56.5°   (d) 21.5°

Ans : (c) $M = \frac{2}{11}\left[H \times 30 \pm \theta\right]$

$$43 = \frac{2}{11}\left[6 \times 30 \pm \theta\right]$$

$$473 = 2\left[180 \pm \theta\right]$$

$$473 = 360 \pm 2\theta$$

$$2\theta = 473 - 360$$

$$2\theta = 113$$

$$\theta = 56.5$$

91. What is the measure of the smaller of the two angles formed between the hour hand and the minute hand of a clock when it is 5 : 49 p.m.?
(a) 120°   (b) 119°
(c) 120.5°   (d) 119.5°

Ans : (d)

From, minute $= \frac{2}{11}$ [hour × 30 ± angle]

∴ $49 = \frac{2}{11}[5 \times 30 + \theta]$

⇒ $\frac{49 \times 11}{2} = 150 + \theta$

⇒ $269.5 - 150 = \theta$

⇒ $\theta = 119.5$

Hence intended angle = 119.5°

92. What is the angle between the two hands of a clock when the time shown by the clock is 8 p.m.? (in degrees)
(a) 240   (b) 120
(c) 60   (d) 50

Ans : (b)

A needle with two arrows indicates hour and a needle with an arrow indicates minute and the minute needle makes an angle of 6^0 with in a minute and hour needle makes angle of $(½)^0$ within a minute.
Hence, number of minutes b/w 8 and 12 = 20
Angle between minute and hour = $20 \times 6^0 = 120^0$

93. At 6:45 pm, what will be the value of the smaller angle from the two angles formed between the hour-hand and the minute-hand in the clock?
(a) 83.5°   (b) 62°
(c) 67.5°   (d) 84°

Ans : (c)
The formula for finding the angle between the hour and minute needles,

$$M = \frac{2}{11}\left(H \times 30 \pm \theta\right) \quad \begin{bmatrix} \text{Where, M = minute} \\ \text{H = hour} \\ \theta = \text{Angle} \end{bmatrix}$$

Angle b/w the two needles at 6:45

$$45 = \frac{2}{11}(6 \times 30 \pm \theta)$$

$$495 = 360 \pm 2\theta$$

$$2\theta = 135$$

$$\theta = 67.5°$$

94. **What will be the value of the smaller angle between the two angles made by the hour-hand and the minute-hand at 2:41 pm in the clock?**

(a) 165°   (b) 165.5°

(c) 166.5°   (d) 166°

RPF SI 10.01.2019 Shift : I

Ans : (b) At 2 : 41 p.m. the value of angle between the needles of hour and minute = ?

from, $M = \frac{2}{11}(H \times 30 \pm \theta)$

$M = 41$

$H = 2$

$\theta = ?$

$$41 = \frac{2}{11}(2 \times 30 \pm \theta)$$

$$451 = 120 \pm 2\theta$$

$$2\theta = 451 - 120$$

$$2\theta = 331$$

$$\theta = \frac{331}{2}$$

$$\theta = 165.5°$$

95. **At what time between 4:00 and 5:00 O' Clock will the both hands form a right angle to each other for the first time?**

(a) 4 O, clock 60   (b) 4 O, clock 420

(c) 4 O, clock 58   (d) 4 O, clock 422

RRB Group-D – 03/10/2018 (Shift-I)

Ans : (a)

$$M = \frac{2}{11}(H \times 30 \pm \theta)$$

$$= \frac{2}{11}(4 \times 30 \pm 90)$$

Where, H = hour, M = Minute

$$= \frac{2}{11}(120 - 90)$$

$$= \frac{60}{11}$$

Hence at 4 O' Clock $\frac{60}{11}$, the two needles of the clock will form a right angle.

96. **How many degrees does the hour-hand and the minute -hand of the clock make an angle at 7:20 O' Clock?**

(a) 135°   (b) 120°

(c) 125°   (d) 100°

RRB Group-D – 30/10/2018 (Shift-I)

Ans : (d) From formula-

Angle between hour and minute needle

$$= \left(30H - \frac{11}{2}M\right)$$

Where H = hours

M = minutes

$$\therefore = 30 \times 7 - \frac{11}{2} \times 20$$

$$= 210 - 110$$

$$= 100°$$

97. **At 6:51 pm, what will be the measure of the smaller angle between the hour-hand and the minute-hand in the clock?**

(a) 100.5°   (b) 101°

(c) 100°   (d) 101.5°

RRB Group-D – 17/09/2018 (Shift-III)

Ans. (a) : Angle between the needle of hour and minute-

$$\theta = \frac{60 \times H \sim 11 \times M}{2}$$

Where H = hour, M = minute, $\sim$ = difference

$$\theta = \frac{60 \times 6 \sim 11 \times 51}{2}$$

$$\theta = \frac{360 \sim 561}{2} = \frac{201}{2} = 100.5°$$

98. **What will be the acute angle between the hour and minute hands at 6:25 pm?**

(a) 40.5^0 (b) 35.5^0

(c) 42.5^0 (d) 30^0

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Ans. (c) :

$$M = \frac{2}{11}(H \times 30 \pm \theta)$$

$$25 = \frac{2}{11}(6 \times 30 \pm \theta)$$

$$275 = 360 \pm 2\theta$$

$$2\theta = 360 - 275$$

$$\theta = \frac{85}{2}$$

$$\theta = 42.5^0$$

Hence, acute angle will be = 42^05

99. What is the angle between the hour-hand and the minute-hand at 2:12 pm?

(a) 10^0 (b) 6^0

(c) 12^0 (d) 0^0

RRB Group-D – 25/09/2018 (Shift-II)

Ans : (b)

At 2:12 PM the angle between the hour and minute needle

The angle made by hour needle in 1 hour = 30^0

$\therefore$ The angle made in 2 hours = $2 \times 30 = 60^0$

Angle made by hour needle in 1 minute = $\dfrac{30^0}{60} = \dfrac{1}{2}$

Angle made by hour needle in 12 minute = $12 \times \dfrac{1}{2} = 6^0$

Total angle of hour needle = $60^0 + 6^0 = 66^0$

Angle made by hour needle in 5 minute = 30^0

Angle made in 1 minute = $\dfrac{30}{5} = 6^0$

Angle made in 12 minute = $12 \times 6 = 72^0$

Angle between the two = $72^0 - 66^0 = 6^0$

100. What is the smaller of the two angles between the hour-hand and minute-hand at 3:52 pm in the clock?

(a) 165°   (b) 166°

(c) 164°   (d) 162°

RRB Group-D – 26/09/2018 (Shift-III)

Ans.: (c) 3:52 minute = $3\dfrac{52}{60}$ hour

$= 3\dfrac{13}{15}$ hour

$= \dfrac{58}{15}$ hour

Angle made by hour needle in $\dfrac{58}{15}$ hour = $\dfrac{58}{15} \times 30$

$= 116$

Angle made by minute needle in 52 minute = 52×6

$= 312°$

The acute angle between both the needles at 3:52 minute

$= 360 - (312 - 116) = 164°$

101. What will be the smaller angle of the two angles made by the hour-hand and the minute-hand at 12:30 in the afternoon?

(a) $138^°$ (b) $126.5^°$

(c) $126^°$ (d) $127.5^°$

RRB Group-D – 05/10/2018 (Shift-I)

Ans. (b) : From, minute = $\dfrac{2}{11}(30 \times \text{hour} \pm \theta)$

$23 = \dfrac{2}{11}(30 \times 12 \pm \theta)$

$\Rightarrow \theta = \dfrac{720 - 253}{2} = \dfrac{467}{2} = 233.5$

Hence, small angle between both needles at 12:23

$= 360 - 233.5$

$= 126.5^0$

102. The angle made by the hour and minute hands at 3:25 in the clock is :

(a) 32°   (b) 65°

(c) 54°   (d) 47.5°

RRB Group-D – 22/10/2018 (Shift-II)

Ans : (d) At 3:25 the angle made by hour and minute

needle $= \dfrac{11 \times \text{minute} - 60 \times \text{hour}}{2}$

$= \dfrac{11 \times 25 - 60 \times 3}{2}$

$= \dfrac{275 - 180}{2}$

$= \dfrac{95}{2}$

$= 47.5^0$

103. What will be the measure of the smaller angle made by the hour-hand and minute-hand at 10:15:18 O' Clock at night?

(a) 144.85^0 (b) 144.15^0

(c) 144.65^0 (d) 144^0

RRB Group-D – 05/12/2018 (Shift-III)

Ans : (b) The formula for the angle between the hour and minute needle in the clock

$M = \dfrac{2}{11}[H \times 30 \pm \theta]$

H = hour

M = minute

θ = angle

M = 15 minute + 18 second

$M = 15 + \dfrac{18}{60} = \dfrac{153}{10}$

From formula,

$\dfrac{153}{10} = \dfrac{2}{11}[10 \times 30 \pm \theta]$

$\dfrac{153 \times 11}{10 \times 2} = 300 \pm \theta$

$\pm\theta = 300 - \dfrac{1683}{20}$

$$\pm\theta = \frac{6000-1683}{20} = \frac{4317}{20}$$

$$\therefore \quad \theta = 215.85°$$

$\because$ There are always two angles between the hour and minute needle of a clock

larger angle $= 215.85°$

smaller angle $= 360 - 215.85 = 144.15°$

104. **What will be the reflex angle made by the hour-hand and minute-hand at 2:10:15 O' Clock in the afternoon?**
(a) 356.375^0 (b) 357.375^0
(c) 356.625^0 (d) 357.625^0

RRB Group-D – 28/11/2018 (Shift-I)

Ans : (a) Angle made by hour needle in 1 hour $= 30^0$

Angle made by hour needle in $2:10:15 = 2\dfrac{41}{4\times 60}\times 30$

$$= \frac{(480+41)}{240}\times 30 = \frac{521}{240}\times 30$$

$$= \frac{521^0}{8}$$

Angle made by minute needle in 1 minute $= 6^0$

Angle made by minute needle in $\dfrac{41}{4}$ minute

$$= \frac{41}{4}\times 6 = \frac{246^0}{4}$$

desired angle

$$= \frac{521^0}{8} - \frac{246^0}{4} = \frac{521^0 - 492^0}{8} = \frac{29^0}{8} = 3.625°$$

hence larger angle $= 360° - 3.625° = 356.375^0$

105. **What will be the reflex angle made by the hour-hand and minute-hand at 1:10:24 O'clock in the afternoon?**
(a) 332.8^0 (b) 332.4^0
(c) 332.2^0 (d) 332.6^0

RRB Group-D – 28/11/2018 (Shift-I)

Ans : (a) Angle made by hour needle in 1 hour $= 30^0$

an angle made by hour needle in (1:10:24) or

$1\dfrac{104}{10\times 60}$ hour $= \dfrac{(600+104)}{600}\times 30 = \dfrac{704}{600}\times 30 = 35.2^0$

Angle made by minute needle in 1 minute $= 6^0$

Angle made by minute needle in (10:24) or

$10\dfrac{24}{60}$ minute

$$= 10\frac{24}{60}\times 6^0 = 62.4^0$$

Desire angle $= 62.4^0 - 35.2^0 = 27.2^0$

Hence larger angle $= 360^0 - 27.2^0 = 332.8^0$

106. **What is the smaller angle between the hour-hand and the minute-hand at 8:15 O' Clock?**
(a) 200^0 (b) 165^0
(c) 190^0 (d) $\dfrac{315^0}{2}$

RPF SI 10.01.2019 Shift : II

Ans : (d) From formula, angle $=\left(30H - \dfrac{11}{2}M\right) -$

where H- hour, M-minute

Angle $= \left(30\times 8 - \dfrac{11}{2}\times 15\right)$

$$= \left(240 - \frac{165}{2}\right)$$

$$= \left(\frac{480-165}{2}\right) = \frac{315°}{2}$$

107. **Find the smaller angle between the hour and the minute hands at 2:40 O, Clock.**
(a) $160°$ (b) $100°$
(c) $175°$ (d) $120°$

Ans. (a) : At 2.40 angle between hour and minute –
When the angle between hour and minute is to be found, then-

angle $= \left[\dfrac{60\times H - 11\times M}{2}\right]$ where H $\Rightarrow$ hour, M $\Rightarrow$ minute

$$\Rightarrow \frac{60\times 2 \sim 11\times 40}{2}$$

$$= \frac{120 \sim 440}{2} = \frac{320}{2} = 160°$$

108. **What will be the reflex angle between the hands at 10:25 in the clock?**
(a) $197\dfrac{1^0}{2}$ (b) $191\dfrac{1^0}{2}$
(c) $193\dfrac{1^0}{2}$ (d) $195\dfrac{1^0}{2}$

RRB Group-D – 16/11/2018 (Shift-III)

Ans. (a) : from formula,

$$M = \frac{2}{11}(30\times H \pm \theta)$$

where M = minute, H = hour, θ = angle

$$25 = \frac{2}{11}(30\times 10 \pm \theta)$$

$275 = 600 - 2\theta$

$2\theta = 325^0$

$\theta = 162.5^0$

hence larger angle $= 360^0 - 162.5^0$

$$= 197.5^0 \text{ or } 197\frac{1^0}{2}$$

109. **In a 12-hour clock, the larger of the angles made by the minute-hand and hour-hand at 9:30:30 an is :**
(a) 257.25°   (b) 257.5°
(c) 258.75°   (d) 257.75°

Ans : (d) Small angle made in clock at 9 : 30 : 30

$$= \frac{60H - 11M}{2} \quad \text{where H = hour, M = minute}$$

$$= \frac{60 \times 9 - 11 \times \frac{61}{2}}{2} \quad \{30\text{ m.}+30\text{ sec.}=$$

$$= 9 \times 30 - \frac{11 \times 61}{4} \quad 30+\frac{1}{2}\text{ m.}= 61/2\text{ m.}\}$$

$$= 270 - 167.75 = 102.25°$$

Hence, the large angle made in clock at
9 : 30 : 30 = 360° − 102.25° = 257.75°

110. **In a 12-hour clock, the larger of the angles made by the minute-hand and hour-hand at 6:30:30 pm is :**
(a) 347.75   (b) 347.25
(c) 348.75   (d) 347.5

Ans : (a) Acute angle made in clock at 6:30:30

$$\frac{60H - 11M}{2} \quad [H = 6, M = 61/2]$$

$$\frac{60 \times 6 - 11 \times \frac{61}{2}}{2}$$

$$= 30 \times 6 - 11 \times \frac{61}{4}$$

$$= 180 - 167.75 = 12.25$$

∴ 6:30:30 large angle made at = 360 −12.25 = 347.75

111. **At 4:22 am, how many degrees (the smaller of the two) does the hour and minute hards make in the clock?**
(a) 130°   (b) 89°
(c) 120°   (d) 90°

Ans : (b) From formula, $M = \frac{2}{11}(H \times 30° \pm \theta)$

M = minute, H = hour
from question-

$$22 = \frac{2}{11}(7 \times 30° \pm \theta)$$

$$121° = 210° \pm \theta$$

$$\theta = 210° - 121°$$

$$\theta = 89°$$

Hence, the smaller angle between hour and minute is 89[0].

112. **Find the value of the smaller angle formed between the hour-hand and the minute-hand at 4:05 pm?**
(a) 150°   (b) 92.5°
(c) 135°   (d) 160°

Ans : (b) : From formula

$$M = \frac{2}{11}(H \times 30 \pm \theta) \quad \text{where M = minute, H = hour}$$
$$\theta = \text{angle}$$

$$5 = \frac{2}{11}(4 \times 30 \pm \theta)$$

$$\frac{55}{2} = 120 - \theta$$

For small angle,

$$\theta = 120 - \frac{55}{2}$$

$$\theta = \frac{240 - 55}{2}$$

$$\theta = \frac{185}{2}$$

$$\theta = 92.5^0$$

113. **What will be the measure of the smaller angle between the hour-hand and the minute-hand at 10:45 a.m.?**
(a) 60°   (b) 30°
(c) 52.5°   (d) 54.5°

Ans : (c) We know that

$$\text{minute} = \frac{2}{11}(30 \times \text{hour} \pm \text{angle})$$

$$45 = \frac{2}{11}(30 \times 10 \pm \text{angle})$$

$$\pm \text{angle} = \frac{45 \times 11}{2} - 300$$

$$= \frac{495}{2} - 300$$

$$= 247.5 - 300$$

$$\pm \text{angle} = -52.5°$$

Hence desired angle = 52.5°

114. **What will be the value of the larger angle of the two angles formed between the hour-hand and the minute-hand of a clock at 8:35:30 clock?**
(a) 314.25°   (b) 314.75°
(c) 315.5°   (d) 315.25°

Ans. (d) Hence made in clock between hour and minute needle at 8:35:30

$$M = \frac{2}{11}(H \times 30 \pm \theta)$$

M → minute   θ = angle

H → hour

$$M = 35\frac{1}{2} \text{ minute}$$

$$M = \frac{2}{11}(H \times 30 \pm \theta)$$

$$35\frac{1}{2} = \frac{2}{11}(8 \times 30 \pm \theta)$$

$$\frac{71}{2} = \frac{2}{11}(240 \pm \theta)$$

$$\frac{781}{4} - 240 = \pm \theta$$

$$\frac{781 - 960}{4} = \pm \theta$$

$$\theta = \frac{179}{4} = 44.75°$$

Hence, magnitude of large angle $= 360° - 44°.75°$

$$= 315.25°$$

115. What is the time between 2:00 and 3:00 in a clock when 60^0 angle is made between the hour-hand and minute-hand?

(a) 2 O, clock $20\frac{8}{11}$ minute

(b) 2 O, clock $21\frac{9}{11}$ minute

(c) 2 O, clock $22\frac{8}{11}$ minute

(d) 2 O, clock $23\frac{9}{11}$ minute

Ans. (b) : From formula =

$$M = \frac{2}{11}(30h_1 \pm \theta), \; M = \frac{2}{11}(30 \times 2 \pm 60)$$

$$\frac{2}{11}(30 \times 2 + 60) \text{ or } \frac{2}{11}(30 \times 2 - 60)$$

$$= \frac{240}{11} \qquad \text{or } \frac{2}{11}(60 - 60) = 0$$

$$= 21\frac{9}{11}$$

desired time = 2 O, clock $21\frac{9}{11}$ minute

116. Find the value of the reflex angle formed between the hour and the minute hands of a clock at 10:35 a.m.

(a) 197^0 (b) 192.5^0

(c) 180^0 (d) 193^0

Ans. (*) : Magnitude of larger angle made between hour and minute needle at 10:35 am

$$= 30x \sim \frac{11}{2} \text{ min}$$

$$= 30 \times 10 \sim \frac{11}{2} \times 35$$

$$= 300 \sim 5.5 \times 35$$

$$= 300 \sim 192.5$$

$$= 107.5$$

larger angle $= 360 - 107.5$

$$= 252.5$$

117. What is the angle between the hour and the minute hands of the clock when it is 4:20 O, Clock?

(a) 11°   (b) 13°

(c) 12°   (d) 10°

Ans: (d) Angle made between the two needles

$$= 30H - \frac{11}{2}M$$

$$= 30 \times 4 - \frac{11}{2} \times 20$$

$$= 120 - 110 = 10^0$$

118. What is the larger of the two angles between the hour-hand and the minute hand at 12:26 a.m.?

(a) 216.5^0 (b) 217^0

(c) 204^0 (d) 217.5^0

Ans : (b)

Angle formed between the two needles $= 30H - \frac{11}{2}M$

$$= 30 \times 12 - \frac{11}{2} \times 26$$

First angle $= 360 - 143 = 217^0$

Second angle $= 360 - 217 = 143^0$

But in question, out of the two angles, larger angle is asked hence larger angle will be of 217^0

119. What will be the smaller of the two angles made by the hour-hand and the minute-hand at 9:22 pm?

(a) 149^0 (b) 150^0

(c) 138^0 (d) 150.5^0

Ans. (a) The angle between hour and minute needle at 9:22

$$= \boxed{\frac{60 \times H \sim 11 \times M}{2}} \quad \{H = \text{hour, M = minute}\}$$

$$= \frac{60 \times 9 - 11 \times 22}{2}$$

$$= \frac{540 - 242}{2}$$

$$= \frac{298}{2} = 149^0$$

120. What is the smaller angle between the two angles made by the hour-hand and the minute-hand at 2:41 pm in the clock?

(a) 165°   (b) 165.5°

(c) 166.5°   (d) 166°

Ans : (b) From,

$$M = \frac{2}{11}\left(H \times 30 \pm \theta\right)$$

$$M = 41 \text{ min}$$

$$H = 2 \text{ hr}$$

$$\theta = ?$$

$$41 = \frac{2}{11}\left(2 \times 30 + \theta\right)$$

$$451 = 120 + 2\theta$$

$$2\theta = 451 - 120$$

$$2\theta = 331$$

$$\theta = \frac{331}{2}$$

$$\theta = 165.5°$$

121. A clock is started in the afternoon what angle will the hour-hand rotate by 7:10 O, Clock?

(a) 200^0 (b) 215^0

(c) 210^0 (d) 60^0

Ans : (b)

$\because$ The needle of clock makes an angle of 30^0 in 1 hour

$\therefore$ The angle made by clock needle in 7 hours = 7×30

$$= 210^0$$

$\because$ The needle of clock makes an angle on $\frac{1}{2}^0$ in 1 minute

$\therefore$ In 10 minute angle made by clock needle will be

$$= 10 \times \frac{1}{2} = 5^0$$

$\therefore$ The angle made by hour needle at 7:10 is $= 210 + 5$

$$= 215^0$$

122. When will the two hands of the clock be together between 7:00 am and 8:00 am?

(a) 7:45 am

(b) $7 : 38\frac{9}{11}$ am

(c) 7 : 40 am

(d) $7 : 38\frac{2}{11}$ am

Ans : (d) $M = \frac{2}{11}$ (H × 30° + θ)   θ = 0°

$$M = \frac{2}{11} (7 \times 30° + 0°)$$

$$M = \frac{2}{11} (210° + 0°)$$

$$M = \frac{420}{11} = 38\frac{2}{11} \text{ minute}$$

Hence 60th needle will be togather at $7: 38\frac{2}{11}$

123. Find the angle between the hands of a clock at 3:30 pm.

(a) 120°   (b) 75°

(c) 90°   (d) 102°

Ans. (b) From $\left(\frac{11}{2}M - 30H\right)$

{where H= time of hour needle, M= time of minute needle}

$$\left(\frac{11}{2} \times 30 - 30 \times 3\right) = 165 - 90 = 75°$$

124. How many angles of minute-hand moves forwards relative to hour hand in 16 minutes?

(a) 96°   (b) 80°

(c) 16°   (d) 88°

Ans. (d) Angle made by 1 minute of clock = 6°

Angle made by hour needle of clock = $\frac{1}{2}°$

Angle made in 16 minute $= 16 \times 6 = 96°$

Angle made by hour needle $= \dfrac{16}{2} = 8°$

The minute needle will move relatively ahead to the hour needle $= 96 - 8 = 88°$

125. **At 10:00 O' Clock the hands of clock form an acute angle and a reflex angle. Find the reflex angle.**
(a) 60^0 (b) 120^0
(c) 180^0 (d) 300^0

Ans : **(d)**
Angle made by minute needle at 10 O, clock $= 12 \times 30^0 = 360^0$
Angle made by hour needle $= 10 \times 30^0 = 300^0$
Difference of angle made by hour and minute needle $= 360^0 - 300^0 = 60^0$
$\therefore$ Reflex angle $= 360^0 - 60^0 = 300^0$

126. **How many degrees does the hour-hand and the minute-hand make at 10:00 O' Clock?**
(a) $30°$ (b) $45°$
(c) $60°$ (d) $90°$

Ans : (c) The angle subtended by the clock needle $= 360°$
The angle made by hour needle in one hour $= \dfrac{360}{12} = 30^0$
So, the time between 10 and 12 is 2 hour. Then the angle draw at 10 O, clock $= 2 \times 30 = 60°$

127. **The hands of a clock form an acute angle and reflex angle. The value of the reflected angle is:**
(a) 225^0 (b) 275^0
(c) 300^0 (d) 180^0

Ans : (c) $\because$ The clock-hour needle rotates at an angle of 30^0 in 1 hour
Thus, at 2 O' Clock at night the following angle $= 2 \times 30 = 60^0$
The angle made between the two needle at 10 O' Clock $= 2 \times 30 = 60^0$
So at 10 O' clock, the reflex angle between the two needles $= 360 - 60 = 300^0$

128. **What is the obtuse angle formed by the hands of a clock when the time in the clock is 2:30?**
(a) $95°$ (b) $120°$
(c) $105°$ (d) $165°$

Ans : (c) Formula, $\dfrac{1}{2}(11m - 60h) = $ angle
where m = minute
 h = hour
according to the question
angle $= \dfrac{11 \times 30 - 60 \times 2}{2} = \dfrac{330 - 120}{2} = \dfrac{210}{2} = 105°$

129. **What would be the smaller of the two angles formed by the hour hand and the minute hand at 4 : 52 p.m.?**
(a) $162°$ (b) $164.5°$
(c) $165°$ (d) $166°$

Ans : (d) At 4 : 52 pm in the evening the minute hand of the clock will be ahead of the hour hand.
Hence smallest angle-
$$\theta = \dfrac{11M}{2} - \phi \qquad \phi = H \times 30$$
$\phi = 4 \times 30 = 120$ and $M = 52$
$$\theta = \dfrac{11 \times 52}{2} - 120$$
$$\boxed{\theta = 286 - 120 = 166°}$$

130. **What is the measure of the smaller of the two angles formed between the hour hand and the minute hand of a clock when it is 6:44 p.m.?**
(a) $62°$ (b) $83.5°$
(c) $62.5°$ (d) $84°$

Ans : (a) $\because$ $M = \dfrac{2}{11}(H \times 30 \pm \theta)$
$$44 = \dfrac{2}{11}(6 \times 30 \pm \theta)$$
$$22 = \dfrac{1}{11}(180 \pm \theta)$$
$$242 = 180 \pm \theta$$
$$\theta = 242 - 180$$
Small angle $\theta = 62^0$

131. **What will be the measure of the acute angle formed between the hour hand and the minute hand at 6:43 a.m.?**
(a) $56°$ (b) $78°$
(c) $56.5°$ (d) $21.5°$

Ans : (c) $M = \dfrac{2}{11}[H \times 30 \pm \theta]$

M = minute, H = first hour, θ = angle

$43 = \dfrac{2}{11}[6 \times 30 \pm \theta]$

$473 = 2[180 \pm \theta]$

$473 = 360 \pm 2\theta$

$2\theta = 473 - 360$

$2\theta = 113$

$\theta = 56.5$

132. **What would be the smaller of the two angles formed by the hour hand and the minute hand at 3:47 p.m.?**
  (a) 162°   (b) 166.5°
  (c) 168.5°   (d) 165°
                RRB ALP & Tec. (21-08-18 Shift-II)

Ans : (c) $M = \dfrac{2}{11}(H \times 30 \pm \theta)$

$47 = \dfrac{2}{11}[3 \times 30 \pm \theta]$

$517 = 180 + 2\theta$

$2\theta = 337$

$\theta = 168.5°$

133. **What is the measure of the smaller of the two angles formed between the hour hand and the minute hand of a clock when it is 5 : 49 p.m.?**
  (a) 120^0 (b) 119^0
  (c) 120.5^0 (d) 119.5^0
               RRB ALP & Tec. (17-08-18 Shift-III)

Ans : (d) formula of the watch

minute $= \dfrac{2}{11}$ [hour × 30 ± angle] in

$49 = \dfrac{2}{11}$ [5 × 30 + θ]

$\Rightarrow$ $\dfrac{49 \times 11}{2} = 150 + \theta$

$\Rightarrow$ $269.5 - 150 = \theta$

$\Rightarrow$ $\theta = 119.5$

Hence desired angle = 119.5°

134. **If the hour hand of a clock moves by 18° then by how many degrees does the minute hand move during the same time?**
  (a) 168   (b) 196
  (c) 216   (d) 276
                RRB ALP & Tec. (14-08-18 Shift-III)

Ans : (c)

∵ Angle made in 1 minute by the hour hand = $\dfrac{1}{2}^0$

While angle made in 1 minute by the minute hand = 6°
The minute hand will make an angle of 12° to make an angle of 1° by the hour hand.
Therefore, to make the hourly hand an angle of 18° th minute hand = 12 × 18 = 216°

Type - 4

135. **It takes 9 second for a clock to ring 6 times. At the same rate, how long will it take to ring the bell 10 times?**
  (a) 10 second   (b) 15 second
  (c) 6:67 second   (d) 12 second
                RRB ALP & Tec. (21-08-18 Shift-II)

Ans. (b) : According to the question the time taken to ring a clock for 6 times = 9 sec.
then,

The time taken to ring 1 time $= \dfrac{9}{6}$ sec.

Similarly the time taken to ring 10 times $= \dfrac{9}{6} \times 10$ sec.

= 3 × 5 = 15 sec.

136. **Shiva switched on a bulb at 1:37:39 hours and switched it off on the same day at 11:28:32 hours. For how long was the bulb in switched-on mode.**
  (a) 9 hours 50 mins 53 secs
  (b) 9 hours 09 mins 06 secs
  (c) 10 hours 09 mins 54 secs
  (d) 12 hours 40 mins 07 secs
                RRB Group-D – 19/09/2018 (Shift-II)

Ans. (b) : Time to turn on the bulb = 1:37:39
Time to turn of the bulb on the same day = 11:28:32
Ditterence between the two = 11:28:32 – 01:37:39
                = 09:50:53
Hence the require of time = 9 hours 50 mins 53 secs.

137. **The time duration that would elapse between 12:46 p.m of 15th July 2019 and 12:38 p.m. of 16th July 2020 is.**
  (a) 365 days 23 hours 52 mins
  (b) 367 days 8 mins
  (c) 366 days 23 hours 52 mins
  (d) 366 days 8 mins
                RRB Group-D – 19/09/2018 (Shift-II)

Ans. (d) : Total time between 12 : 46 pm on 15 July 2019 to 12:00 am on 16 July 2019 = 11 hour 14 minute

Number of days between 12:00 am on July 2019 to 12:00 pm on 16 July 2020 = 16 + 31 + 30 + 31 + 30 + 31 + 31 + 29 + 31 + 30 + 31 + 30 + 15 = 366 days

Now between 12:00 am on 16 July 2020 to 12 : 38 pm on 16 July 2020 total time = 12 hours 38 minute

Hence total above time = 366 days + 11 hour 14 minute + 12 hour 38 minute

= 366 day 23 hour 52 minute

---

138. Pushpak started his journey at 7:49:31 pm and reached the destintion at 9:59:42 pm. Ronit started his journey 58 minutes 40 seconds after puspak and reached the destination 51 minutes 39 seconds later. How long did Ronit complete his journey?

(a) 2 hours 1 minute 12 seconds

(b) 2 hours 3 minute 10 seconds

(c) 2 hours 2 minute 22 seconds

(d) 2 hours 10 seconds

RRB Group-D – 24/09/2018 (Shift-II)

Ans : (b) Ronit's journey started = 7 : 49 : 31 + 58 : 40

$$= 8 : 48 : 11 \text{ pm}$$

Ronit's time of arrival = 9 : 59 : 42 + 51 : 39

$$= 10 : 51 : 21 \text{ pm}$$

The time taken by ronit to destination = 10 : 51 : 21

$$\underline{8 : 48 : 11}$$

$$2 : 03 : 10 \text{ pm}$$

= 2 hours 03 minute 10 sec.

---

139. Find the time interval between 12:37 pm on 11 April 2019 to 12:29 pm on 12 April 2020.

(a) 365 days 23 hours 52 minutes

(b) 366 days 23 hours 52 minutes

(c) 366 days 8 minutes

(d) 367 days 8 minutes

RPF SI 05.01.2019 Shift : I

Ans : **(b)** Intervel between both time

year		month		day		hour		minute
2020	–	04	–	12	–	12	–	29
2019	–	04	–	11	–	12	–	37
00	–	00	–	366	–	23	–	52

366 day 23 hour 52 minute.

---

140. The minute-hand in the clock is how many minutes move forward in 1 hour?

(a) 55   (b) 10

(c) 35   (d) 25

RRB Group-D – 11/10/2018 (Shift-II)

Ans : (a) The minute hand in the clock moves 55 minute ahead of the 1 hour long hand.

---

141. The time period is from 5:58 pm on 11 september 2023 to 5:49 pm on 13 september 2024:

(a) 366 days 23 hours 51 minute

(b) 367 days 23 hours 51 minute

(c) 368 days 9 minute

(d) 367 days 9 minute

RRB Group-D – 20/09/2018 (Shift-I)

Ans. (b) : The total duration from 5.58 pm on 11-9-2023 to 5.49 pm on 13-9-2024.

$$2024 - 09 - 13 - 5\text{:}49\text{PM}$$

$$\underline{2023 - 09 - 11 - 5\text{:}58\text{PM}}$$

$$\underline{1 - 00 - 01 - 23\text{:}51}$$

means, 1 year, 1 day, 23 hours, 51 minute.

∴ 2024 year is a leap year so the number of dayss will be 366. so the total time period-

366 day + 1 day + 23 hour + 51 minute

⇒ 367 day 23 hour 51 minute

---

142. Find the time interval between 11 May 2023, 2:38 p.m. to 13 may 2024, 2:29 pm.

(a) 366 days 23 hours 51 minute

(b) 367 days 23 hours 51 minute

(c) 367 days 9 minute

(d) 368 days 9 minute

RRB Group-D – 22/09/2018 (Shift-III)

Ans. (b) : Time internal between 11 may 2023andd 13 may 2024.

year	month	day	hour		minute
2024	5	13	02	:	29
2023	5	11	02	:	38
1 year	0	1 day	23	:	51

1 year + 1 day + 23 hour 51 minute

If 2024 is the leep year

Number of days = 366 day

366 + 1 day + 23 hour 51 minute

367 day 23 hour 51 minute

---

143. What is the elapsed time period between 5:47 pm of 21 June, 2027 to 5:39 pm of 22 June, 2028?

(a) 365 days 23 hours 52 minute

(b) 367 days 8 minute

(c) 366 days 23 hours 52 minute

(d) 366 days 8 minute

RPF Constable 22.01.2019 Shift : III

Ans : (c) 2028 is a leap year.

Therefore total days from 21 june 2027 at 5:47 pm to 21 june 2028 at 5 : 47 pm = 366 days.

Total time from 21 june 2028 at 5:47 pm to 22 june 2028 at 5:47 pm = 24 hours

8 minute is less from 5 : 47 to 5 : 39 pm.

Hence total time from 21 june 2027 at 5 : 47 pm to 22 june 2028 at 5 : 39 pm.

= 366 days + 24 hours – 8 minute

$\Rightarrow$ 366 days 23 hours 52 minute

---

144. A clock is set at 6:00 am. If clock moves forward 2 minutes every 3 hours then what time will the clock show when te exact time is 1:30 a.m. ?

(a) 1:46 a.m. (b) 1:43 a.m.

(c) 1:40 a.m. (d) 1:35 a.m.

Ans : (b) The clock has been set at 6:00 am then 6:00 am to 12:00 pm $\rightarrow$ 6 hr.

12 pm to 6.00 pm $\rightarrow$ 6 hr.

6 pm to 12.00 am $\rightarrow$ 6 hr.

According to the question,

1.30 at night $\rightarrow$ 1.30 hr.

Total time 19.30 hr. = 1170 minute.

but the clock is ahead by 2 minutes in every 180 minutes.

Therefore the time increase of the clock in 2 minutes.

Hence in 1170 minute the increasing time of clock

$= \dfrac{2 \times 1170}{180} = 13\,minute$

that is the clock 1.30 am + 13 min = 1.43 am

Hence when the time is 1:30 am the clock will show the time of 1:43 am.

---

145. A clock is set at the correct time on Thursday at 4:00 am. If this clock moves forward by 20 seconds every 3 hours, then what time will be at 8:30 pm on Friday in this clock?

(a) 8 : 34 : 30 p.m.

(b) 8 : 30 : 30 p.m.

(c) 9 : 34 p.m.

(d) 8 : 34 p.m.

Ans : (a) Total time from 4.00 am thursday to 8.30 pm friday.

= 24 hr + 16 hr 30 min

= 40 hr 30 min

= 40.5 hr

according to the question

---

increases 20 second in every 3 hours.

then increase in 40.5 hours = $\dfrac{40.5}{3} \times 20$

= 13.5 × 20

= 270 sec ≈ 4 min 30 sec

Hence, at 8:30 pm = 8:30 + 4 min + 30 sec
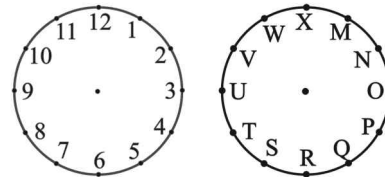
= 8 : 34 : 30 p.m.

Type - 4

146. If the number 1 on the clock is replaced by the letter 'M', the number 2 is replaced by 'N' and so on, then when the time is 21:00 p.m. the hour hand will be at _____ letter.

(a) S (b) T

(c) U (d) V

Ans : (c)

It is clear from the picture that at 21:00 (9:00) the hourly hand will be on the letter 'U'.

---

147. A watch gains 5 seconds per minute and was set right at 6 AM. What would be the time shown on the watch when the correct time is 2 PM ?

(a) 2.20 PM (b) 2.50 PM

(c) 2.30 PM (d) 2.40 PM

Ans : (d) Total time from 6:00 am to 2:00 pm = 8 hr.

= 8 × 60 min

= 480 min.

according to the question,

∵ increasement in 1 min = 5 sec.

∴ increasement in 480 min = 480×5 sec
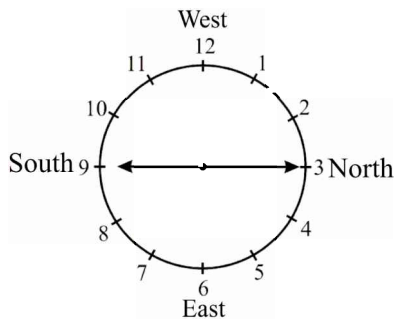
= 2400sec

$= \dfrac{2400}{60} = 40\,min$

Hence the scheduled time of 2:00 pm will now appear at 2:40 pm.

---

148. Vignesh places the clock on a table in such a way that the hour-hand at 9:15 am points towars the south. In which direction is the minute-hand?

(a) East   (b) South

(c) North   (d) West

RRB JE - 01/06/2019 (Shift-I)

Ans : (c) According to the question,

Therefore it is clear that at 9:15 am if the hourly hand is in the south direction then the minute hand will be in the north direction.

149. **At what time between 4:00 and 5:00 will the hands of clock point in opposite directions?**

(a) 4 past $55\dfrac{6}{11}$ minute

(b) 4 past $51\dfrac{6}{11}$ minute

(c) 4 past $53\dfrac{6}{11}$ minute

(d) 4 past $54\dfrac{6}{11}$ minute

RRB JE - 30/05/2019 (Shift-III)

Ans : (d) If the angle formet between 4:00 and 5:00 hours and minute is 180° degree.

$$M = \frac{2}{11}\left(H \times 30 \pm \theta\right)$$

$$M = \frac{2}{11}\left(4 \times 30 + 180°\right)$$

$$M = \frac{2}{11}\left(300\right)$$

$$M = \frac{600}{11}$$

$$M = 54\frac{6}{11}$$

Therefore at 4hr $54\dfrac{6}{11}$ minute hand will be in the opposite direction.

150. **Bharat faces to wards the weast. It is 2:00 pm in his clock. Which direction will the hour-hand point?**

(a) North-East   (b) North-West

(c) South-West   (d) South-East

RPF SI 05.01.2019 Shift : II

Ans : (b) Normal state of the clock.
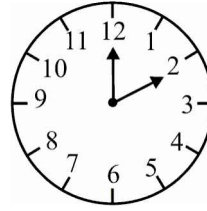
When bharat faces forwards the west, the position of the clock will be as follows.
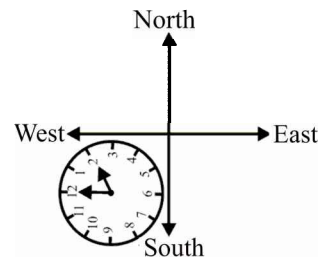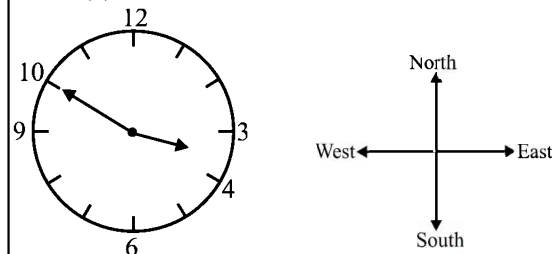

It is clear from the diagram that the direction of the hourly hand will be north west.

151. **Ramya looks at her wall clock and the clock show the time of 3:50 O' Clock, where the hour-hand is towards the east. Which direction is the minute-hand?**

(a) South-East   (b) North-West

(c) North-East   (d) South-West

RRB JE - 24/05/2019 (Shift-I)

Ans : (b)

So the hourly hand is towards east then the minute hand will be towards north west.

152. **A clock is placed on a horizontal table. At 2:00 pm the minute-hand was towards the north. Which direction will the minute-hand be at 3:40 pm?**

(a) 60^0 West of South   (b) South-West

(c) 60^0 South of West   (d) South-East

RRB Group-D – 17/09/2018 (Shift-I)

Ans : (a) At 3:00, the minute hand is in the north direction then the hour hand will be in the east direction.

Thus at 3:40 o'clock the minute hand will be in 60° west of south direction.

153. At what time between 4:15 pm and 5:00 pm will the hands of clock form a right angle?

(a) 4pm past 39 minute

(b) 4pm past $40\frac{2}{9}$ minute

(c) 4pm past $38\frac{2}{11}$ minute

(d) 4pm past $38\frac{5}{13}$ minute

RRB Group-D – 27/11/2018 (Shift-III)

Ans. (c)

Formula $M = \frac{2}{11}(H \times 30 \pm \theta)$ [where M = min,

$$= \frac{2}{11}(4 \times 30 \pm 90^0) \qquad\qquad H = hour]$$

$$= \frac{2}{11}(120 \pm 90^0)$$

$$= \frac{2 \times 210}{11} \Rightarrow \frac{420}{11} = 38\frac{2}{11}$$

Hence at 4 pm. $38\frac{2}{11}$ min the clock hand will form a right angle.

154. Arun gifted Vijay a watch that moves forward by 5 seconds every 3 minutes. It was set right at 7:00 am. It was 4:15 pm on the same day then find the right time.

(a) 4:00 pm

(b) 587 minute more than 03:11 pm

(c) 597 minute more than 03:12 pm

(d) 23 minute more than 04:11 pm

RRB Group-D – 05/11/2018 (Shift-I)

Ans. (a) :

Time increased by the clock in 3 minute = 5 sec.

Time increased by the clock in 60 minute = $\frac{5}{3} \times 60 = 100$ sec.

Between 7:00 am and 4:00 pm = 9 hr.

∵ Time increased in 1 hr = 100 sec.

∴ Time increased in 9 hr. = 9 × 100 = 900 sec.

∴ 60 sec. = 1 min.

100 sec. $= \frac{900}{16} = 15$ min.
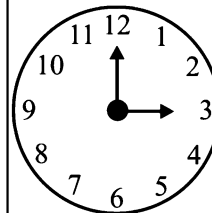
∵ Total increased time = 15 minute.

∴ Right time of the clock = 4:15 − 15 minute.

= 4:00 pm.

155. Sonal was wearing a watch when she was going to take tea at 3:00 pm. She found that the hour-hand pointed towards the east then which direction will the minute-hand point?
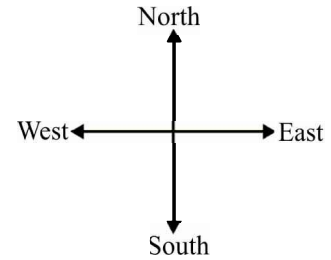
(a) North   (b) West

(c) South   (d) East

RRB Group-D – 09/10/2018 (Shift-II)
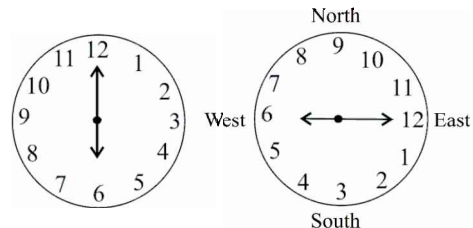
Ans. (a) :

3:00 pm

Therefore it is clear from the picture that the direction of the minute hand will point in the north direction.

156. Ramraj is wearing a watch. If the hour-hand points towards the west at 6:00 O, clock, then which direction will the minute-hand point?

(a) West   (b) North

(c) East   (d) South

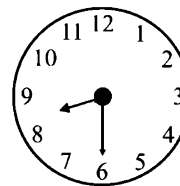**RPF Constable 24.01.2019 Shift : I**

Ans : (c)

Hence at 6:00 if the hour hand points in the west direction then the minute hand will point in the east direction.

157. When looking in mirror, the clock shows 8:30 O, Clock. What is actual time at that time?
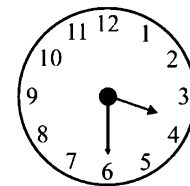
(a) 3:30   (b) 1:30

(c) 7:30   (d) 4:30

RRB Group-D – 01/10/2018 (Shift-II)

Ans. (a) : Actual time = 12 − Time in mirror reflection

= 11 : 60 − 8 : 30 = 3 : 30

mirror image   real image

Hence, the actual time will be 3:30.

158. A girl looks at the clock then it is 3 O' Clock in the morning. The clock goes back 16 minutes everyday. When she looks the clock on the fourth day the clock is at 8:00 pm then what is the right time?
(a) 8:30pm   (b) 9:30pm
(c) 9:15pm   (d) 9:00pm

Ans : (d) Time from first day to fourth day 8 pm by clock = 89 hours
23 hours 44 minute (16 minutes decrease in one day) = Correct time 24 hours

$\dfrac{356}{15}$ hours = 24 hours

89 hours $= 24 \times \dfrac{15}{356} \times 89$

= 90 hours

So, change in time is 90-89 = 1 hour which means when the clock is at 8 pm in one night then the correct time will be 9 pm at night.

159. If both hands of a clock meet after every 64 minutes then how much time does that clock go back everyday?

(a) $17\dfrac{5}{11}$ minute   (b) $32\dfrac{8}{11}$ minute

(c) $\dfrac{32}{11}$ minute   (d) $\dfrac{16}{11}$ minute

Ans : (b) A distance of 55 minutes is covered in 60 minutes.
distance covered in 60 minute

$= \left(\dfrac{60}{55} \times 60\right) \text{min} = \dfrac{720}{11} = 65\dfrac{5}{11} \text{min}$

Reduction in 64 minute $= 65\dfrac{5}{11} - 64 = \dfrac{16}{11}$ minute

Reduction in 24 hours

$= \left(\dfrac{16}{11} \times \dfrac{1}{64} \times 24 \times 60\right) = 32\dfrac{8}{11}$ minute

160. How many times the second-hand will rotate in a clock from 7:00 am to 12:00 pm?
(a) 240   (b) 300
(c) 270   (d) 330

Ans : (c) Second hand completes one round in 1 minute.
Total time from 7:30 am to 12:00 pm.

$= 4\dfrac{1}{2} \text{ hour} = \dfrac{9}{2} \times 60 = 270$ minute

So the second hand rotates 270 rounds in 270 minutes.

161. A clock moves faster by 5 minutes in 1 hour. The clock is set at 12:00 pm. The clock shows 6:00 pm now then what will be the actual time?
(a) 5.00 pm   (b) 5.15 pm
(c) 5.30 pm   (d) 6 pm

Ans : (d) Because, clock moves faster by 5 minute in one hour.
so clock will move in a hour
= 65 min —— condition (1)
Hence, when the clock shows 6:00 pm, which was set at 12:00 pm then,

The actual time is $\dfrac{60 \times 6}{65}$ (from condition (1))

$= 5\dfrac{7}{13} = 5:32$

162. A watch loses 5 minutes every hour and was set right at 6 a.m. on a Monday. When will it show the correct time again?
(a) 6 a.m. on next Sunday
(b) 3 a.m. on next Monday
(c) 3 a.m. on next Sunday
(d) 6 a.m. on next Monday

Ans : (a) It is behind in 1 hour = 5 minute
It is behind in 1 day or 24 hours = 24 × 5 = 120 minute
= 2 hours
It is behind in 6 day = 6 × 2 = 12 hours which means after 6 days, we get correct time will be exactly 6:00 am at 6:00 am. After setting me right time at 6:00 am on Monday, it will show me correct time again after 6 days from Monday to 6:00 am on Sunday.

163. In a week, how many times are the hands of a clock at right angles with each other?
(a) 44   (b) 154
(c) 24   (d) 308

Ans : (d) Both the hand of the clock forms 44 right angus with each other in 24 hours (one day)
Hence, in a week (7 days) it will form right angle (44 × 7 = 308) times.

164. Select the time that would depict the correct mirror image of 9:30 on a clock.
(a) 2:30   (b) 6:30
(c) 7:30   (d) 4:30

Ans : (a) Time of mirror image = 12 : 00
= 11 hour 60 min − 9 hours 30 min
= (11 − 9) hour, (60 − 30) min
= 2 hour, 30 min
Hence 2:30