Lockdown 2.0 Study Plan Day 9

1. Which of the following is not an example of sliding friction?
A. Rubbing both hands together to create heat
B. A washing machine pushed along a floor
C. A card and an envelope when the card is being slid into the envelope
D. An object moving through a fluid like water

Ans. D

Sol. The term sliding friction refers to the resistance created by two objects sliding against each other. This can also be called kinetic friction.
Examples:
a) Rubbing both hands together to create heat
b) A washing machine pushed along a floor
c) A card and an envelope when the card is being slid into the envelope
However, option (d) is the example of Rolling friction.

2. Na_2O. $CaO.6SiO_2$ (sodium calcium silicate)is used to make _____ ?
A. Potash glass or hard glass
B. Crown glass
C. Jena glass
D. Soda or soft glass

Ans. D

Sol. **Na_2O. $CaO.6SiO_2$** (sodium calcium silicate)is used to **make soda** or **soft glass**.
• It melts at **low** temperature.
• It is used in manufacturing of bottles, test tubes and glass of windows, etc.
• Glass is an amorphous or transparent soild which contains mainly silica (SiO_2).

3. Which chemical is used in medicine by reducing body temperature during high fever e.g., paracetamol, aspirin, analgin etc?
A. Antipyretics
B. Analgesics
C. Antacids
D. Antibiotics

Ans. A

Sol. **Antipyretics** chemical is used in medicine by reducing body temperature during high fever e.g., **paracetamol, aspirin, analgin**.
Antipyretics cause the **hypothalamus** to override a **prostaglandin**-induced increase in **temperature**. The body then works to lower the temperature, which results in a reduction in fever.

4. Which of following was used in photochromatic glasses?
A. Zinc chloride
B. Copper chloride
C. Sodium chloride
D. Silver chloride

Ans. D

Sol. Silver chloride is used in photochromatic glass.
* The word photo refers to light and chrome refers to color.
* Photochromic glasses darken on exposure to specific types of light of sufficient intensity, most commonly ultraviolet (UV) radiation. In the absence of activating light the lenses return to their clear state.

5. Which of following is the source of protein?
A. Eggs
B. Poultry foods
C. Fish
D. All of these

Ans. D

Sol.
• Eggs, poultry foods, fish all are the best source of proteins.
• Other good sources of protein are seafood, white meat, cheese, yogurt etc.

6. How much energy in kJ is present per gram of carbohydrate?
A. Approx 15-20kJ
B. Approx 25-30kJ
C. Approx 50-55kJ
D. Approx 9-12kJ

Ans. A

Sol. 1 gm of carbohydrate contain around **17 kilojoule** of energy.
* 1gm of fat contain around **35 kilojoule** of energy.
* 1gm of protein contain around **15 kilojoule** of energy.

7.What is recommended dietary allowance of vitamin D?
A. 15 µg
B. 100 µg
C. 30 µg
D. 85 µg
Ans. A
Sol. 15 µg is the recommended dietary allowance of vitamin D while the upper limit is 100 µg.
Following are the rich sources of vitamin D:-
* Cod liver oil, mushrooms (if exposed to ultraviolet light), halibut, mackerel, canned sockeye salmon etc.

8.Which country hosted the 36th International Geological Congress (IGC)?
A. France
B. India
C. China
D. UAE
Ans. B
Sol.
• **India** hosted the 36th International Geological Congress (IGC) in New Delhi during the first week of March 2020.
• It is popularly described as the Olympics of Geosciences.
• The theme of the event is **Geosciences: The Basic Science for a Sustainable Development**.
• The IGCs are global geoscientific events held once in four years.
• **India** is the only Asian country to host the IGC event twice.
• For the first time, India hosted the 22nd IGC in 1964.

9.Which is the thickest layer of Earth?

A. Mantle
B. Core
C. Crust
D. Inner Core
Ans. A
Sol.
Mantle is the thickest layer of Earth.
• Earth's mantle extends to a depth of 2,890 km, making it the thickest layer of Earth.
• It forms **83 per cent** of the earth's volume.
• The crust and the uppermost part of the mantle are called **lithosphere.**

10.Under Article_____, The President can appoint a Judge of the Supreme Court as an acting CJI.
A. Article 124 (1)
B. Article 125
C. Article 128
D. Article 126
Ans. D
Sol.
• **Under Article 126**, The President can appoint a Judge of the Supreme Court as an acting CJI, when
* Office of CJI is vacant or
* the CJI is unable to perform the duties of his office or
* the CJI is temporarily absent.

11.First French factory was established at .... in India?
A. Masulipattam
B. Mumbai
C. Surat
D. Madras
Ans. C
Sol.
• **The first French factory was established at Surat under French East India Company.**
• The French East India Company was formed in 1664 at the time of King Louis XIV. After Surat, they established another factory at **Masulipattam.**
• **In 1673 AD** the Mughal Subedar of Bengal allowed the French to set up a

township at **Chandernagore.** In 1674 AD, the French obtained a village called Pondicherry from the Sultan of Bijapur.

• **The French East India Company took hold of Yanam in 1723 AD, Mahe on Malabar Coast in 1725 AD and Karaikal in 1739 AD.**

12. Battle of Wandiwash was fought between?
A. British And Dutch
B. British And Portuguese
C. British And French
D. Dutch And French
Ans. C
Sol.
• **The Battle of Wandiwash was fought between British and French in 1760.**
• This was the **Third Carnatic War** fought between the French and the British. The British army was commanded **by Sir Eyre Coote** and the French army was commanded **by Count de Lally.**
• The French general Marquis de Bussy-Castelnau and the French were then restricted to Pondicherry, where they surrendered on **22 January 1760**. The British won this battle.
• **The war ended with the Treaty of Paris in 1763.** As per the Treaty, Chandannagar and Pondicherry were returned to France but they were barred from fortifying them or having troops in them. They could only have trading activities.

13. **Select the word which means the same as the group of words given.**
A box or cage for rabbits or small animals
A. hutch
B. menagerie
C. kennel
D. lair
Ans. A
Sol.
A "hutch" is a box or cage, typically with a wire mesh front, for keeping rabbits or other small domesticated animals. Therefore A is the correct answer.

14. **Select the most appropriate ANTONYM of the given word.**
CHIVALROUS
A. indignant
B. valiant
C. cowardly
D. annoyed
Ans. C

Sol.
Let us learn the meanings of these words.
Chivalrous: courteous and gallant, especially towards women.
Indignant: feeling or showing anger or annoyance at what is perceived as unfair treatment.
Valiant: possessing or showing courage or determination.
Cowardly: lacking courage.
Annoyed: slightly angry; irritated.
The meaning of the word "cowardly" means the opposite of "chivalrous" which makes C the correct answer.

15. **Select the most appropriate meaning of the underlined idiom in the sentence.**
Ria has tried hard not **to steal her brothers thunder** but it was inevitable.
A. take away her brothers opportunities for jobs
B. get more recognition than her brother for their success
C. get a big reward from her brother for her achievement
D. pick up her brothers lucky charms to win prizes
Ans. B
Sol.
"To steal someone's thunder" means to win praise for oneself by pre-empting someone else's attempt to impress. In the context of this sentence it means getting more recognition than her brother. That is why B is the correct answer.

16. **Select the most appropriate synonym of the given word.**
Select the most appropriate synonym of the given word.
FATIGUE
A. warmth
B. tiredness
C. lightness
D. energy
Ans. B
Sol.
Let's learn the meaning of these words:
Fatigue: extreme tiredness resulting from mental or physical exertion or illness.
Warmth: the quality, state, or sensation of being warm; moderate heat.
Tiredness: the state of wishing for sleep or rest; weariness.
Lightness: he state of having a sufficient or considerable amount of natural light.
Energy: the strength and vitality required for sustained physical or mental activity.
The word "tiredness" has meaning that is similar to that of "fatigue". Therefore B is the correct answer.

17. In the following question, the given sentence has four parts marked P, Q, R and S. Choose the part of sentence with the error and mark as your answer. If there is no error, mark 'No error (S)' as your answer.
The consequence of (P)/ his carelessness was (Q)/ that the game was lost. (R)/ No error (S)
A. P
B. Q
C. R
D. S
Ans. D
Sol.
The sentence is grammatically correct. Hence, option D is the correct answer.

18. In the following question, the given sentence has four parts marked P, Q, R and S. Choose the part of sentence with the error and mark as your answer. If there is no error, mark 'No error (S)' as your answer.
Men who has risen (P)/ by their own exertions (Q)/ are always respected. (R)/ No error (S)
A. P
B. Q
C. R
D. S
Ans. A
Sol.
'Men' is a plural noun; hence, the verb must also be plural to maintain subject-verb agreement. Therefore, 'has' must be replaced with 'have' to form a grammatically correct sentence.
Hence, option A is the correct answer.

19. **Choose the most appropriate option to change the narration (direct/indirect) of the given sentence.**
Ramesh said, "The Venus is also known as the evening star." A. Ramesh said that the Venus was also known as the evening star.
B. Ramesh said the Venus is also known as the evening star.
C. Ramesh told that the Venus is also known as the evening star.
D. Ramesh said that the Venus is also known as the evening star.
Ans. D
Sol.
The given sentence is in assertive form. The reporting speech is in past tense, but the reported speech is a universal truth. When reported speech is universal truth/idiom/phrase/historical fact, then the tense of the reported speech remains the same.
The conjunction 'that' will be used to connect the reported and reporting part of the sentence. Hence the correct answer is option D.

20. Rewrite the sentence in passive voice.
Did he call you?
A. Were you called by him?

B. Are you called by him?

C. Did you called by him?

D. Have you been called by him?

Ans. A

Sol.

The given sentence is in the Active voice, as the form of the verb ('call') shows that its subject ('he') was doing something and was 'active'.

Therefore, it must be changed to the Passive voice, where something could be done by the subject, and it was 'passive'.

In order to do that,

1. The question words do not change their position at the beginning of the sentence when the active voice is changed into the passive voice

2. Add the appropriate form of the verb 'be' to the sentence and use the past participle of the verb ('call' is converted to 'called'').

Thus, the same sentence in the Passive voice is 'Were you called by him?'.

Hence, option A is the correct answer.

21. Choose the correct alternative which will improve the part of the sentence given in quotes.

The pedestrians 'should to be' cautious while crossing the road. A. Must not

B. Should be

C. Should not

D. No improvement

Ans. B

Sol.

'To' is erroneous in the sentence. The phrase should be 'should be' to form a grammatically correct sentence.

Therefore, option B is the correct answer.

22. A train after every 82.5 km. takes rest for 3 min moving at a faster speed of 110 km/hr whereas another train takes rest for 1 min. after every 27.5 km. moving at slower speed of 55 km/hr When faster train covers 660 km. then find what is distance covered by slower train?

A. 572 km

B. 506 km

C. 357.5 km

D. 338.25 km

Ans. D

Sol.

Time taken by faster train to cover 660 km

$= \dfrac{660}{110} = 6$ hr. $= 360$ minutes

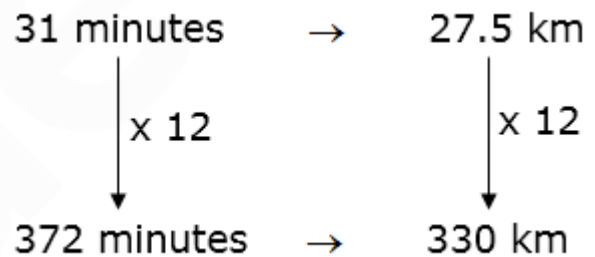No. of stoppages $= \dfrac{660}{82.5} = (8-1) = 7$ (last

stoppage will not be counted)

Time in stoppages $= 3 \times 7 = 21$ minutes

Total time taken by faster train $= 360 + 21$ $= 381$ minutes

Time taken by slower train to cover 27.5 km

$= \dfrac{27.5}{55} = \dfrac{1}{2}$ hr $= 30$ minutes

Total time taken by slower train to cover 27.5 km $= 31 + 1 = 31$ minutes

31 minutes → 27.5 km ×12

372 minutes → 330 km ×12

30 minutes → 27.5 km

9 minutes → $\dfrac{27.5}{30} \times 9 = 8.25$ km

So, the slower train will cover 338.25 km.

23. A starts walking at 4 kmph and after 4 hours, B starts cycling from the same point as that of A, in the same direction at 10 kmph. After how much distance from the starting point will B catch up with A (Correct to two decimal places)?

A. 23.67 km

B. 26.67 km

C. 24.67 km

D. 25.67 km

Ans. B

Sol.

In first 4 hours, A will walk = $4 \times 4 = 16\ Km$

Now B will catch him after

$$\frac{Distance}{=Relative\ Speed} = \frac{16}{10-4} = \frac{16}{6} = \frac{8}{3}\ hr$$

So, distance covered by B from the starting point

$$= speed \times time = 10 \times \frac{8}{3} = \frac{80}{3} = 26.6$$

24. Two pipes A and B can fill a tank in 24 and 32 min, respectively. If both the pipes are opened together, after how much time pipe B should be closed so that the tank is full in 9 min?

A. 40 min
B. 30 min
C. 10 min
D. None of these

Ans. D

Sol.

Let B is closed after x min. Then [part filled by (A + B) in x min] + [part filled by A in (9 – x) min] = 1

$$\therefore x\left(\frac{1}{24} + \frac{1}{32}\right) + (9-x) \times \frac{1}{24} = 1$$

$$\Rightarrow x\left(\frac{4+3}{96}\right) + \frac{(9-x)}{24} = 1$$

$$\Rightarrow x\left(\frac{4+3}{96}\right) + \frac{(9-x)}{24} = 1$$

$$\Rightarrow \frac{7x}{96} + \frac{(9-x)}{24} = 1$$

⇒ 7x + 4(9 – x) = 96
⇒ 7x + 36 – 4x = 96
⇒ 7x – 4x = 96 – 36
∴ 3x = 60

$$\therefore x = \frac{60}{3} = 20$$

Hence, B must be closed after 20 min.
Aliter,
Here, x = 24 min, y = 32 min, t = 9 min

∴ Required time

$$= y\left(1 - \frac{t}{x}\right) = 32\left(1 - \frac{9}{24}\right)$$

$$= 32 \times \frac{15}{24} = 20\ min$$

25. The compound interest on a certain sum at $16\frac{2}{3}\%$ p.a. for 3 years is Rs.6,350. What will be the simple interest on the same sum at the same rate for $5\frac{2}{3}$ years?

A. Rs. 10,200
B. Rs. 7,620
C. Rs. 11,400
D. Rs. 9,600

Ans. A

Sol.

The compound interest on a certain sum at $16\frac{2}{3}$ % p.a. for 3 years is Rs.6,350.

Here, $16\frac{2}{3}$ % = $\frac{1}{6}$

Year	Principal	Amount
1st	6	7
2nd	6	7
3rd	6	7
	= 216	= 343

Hence, if principal is 216 units then Amount will be 343 units.
Compound interest = 343 – 216 = 127 units
If 127 units = Rs. 6350
Then 1 unit = Rs. 50
Hence, Principal = 216 × 50 = Rs.10,800
Now we will find simple interest on Rs.10,800 at $16\frac{2}{3}$ % p.a. for $5\frac{2}{3}$ years.

Thus, Simple interest = $\frac{Principal \times rate \times time}{100} = \frac{10800 \times 1 \times 17}{6 \times 3}$

= Rs.10,200

26. The average of 60 student's results is 38. If the average of the first 22 students is 36, and that of the last 32 students is 32, then

the average result of the remaining students is:

A. 77.33
B. 65.30
C. 52.12
D. 81.9

Ans. A

Sol.

Total Numbers = 60 × 38 = 2280

Total number of the first 22 = 22 × 36 = 792

Total number of the last 32 = 32 × 32 = 1024

Total number of remaining students = 2280 – (792 + 1024)

=2280 – 1816 = 464

Average result = 464/6 = 77.33.

27. If $x^2 + 3x + 1 = 0$, then what is the value of $x^6 + \dfrac{1}{x^6}$?

A. 318
B. 324
C. 327
D. 322

Ans. D

Sol.

Here, $x^2 + 3x + 1 = 0$; dividing by x

$\Rightarrow x + \dfrac{1}{x} = -3$

$\Rightarrow x^3 + \dfrac{1}{x^3} = (-3)^3 - 3(-3) = -18$

Hence $x^6 + \dfrac{1}{x^6} = 324 - 2 = 322$

28. In ΔPQR, ∠Q = 85º and ∠R = 65º. Points S and T are on the sides PQ and PR, respectively such that ∠STR = 95º, and the ratio of the QR and ST is 9 : 5. If PQ = 21.6 cm, then the length of PT is:

A. 9 cm
B. 12 cm
C. 9.6 cm
D. 10.5 cm

Ans. B

Sol.

Given, In ΔPQR, ∠Q = 85º and ∠R = 65º.

In ΔPQR,

∠P + ∠Q + ∠R = 180º

⇒ 85º + 65º + ∠P = 180º

⇒ ∠P = 180º - 85º - 65º = 30º
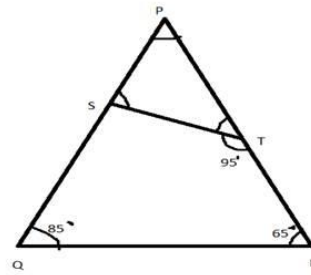
Now, ∠PTS + ∠RTS = 180º (Linear pair)

⇒ ∠PTS = 180º - 30º = 85º

In ΔPST,

∠PST + ∠PTS + ∠SPT = 180º

⇒ 85º + 30º + ∠PST = 180º

⇒ ∠PST = 180º - 85º - 30º = 65º

Now, ∠QPR = ∠SPT (Common angle)

∠PQR = ∠PTS = 85º

∠PRQ = ∠PST = 65º

Hence, ΔPST ~ ΔPRQ (by Angle-Angle similarity criterion)

QR/ST = PQ/PT

⇒ 9/5 = 21.6/PT

⇒ PT = 21.6 × (5/9) = 12 cm

29. If $30x^2 – 15x + 1 = 0$, then what is the value of $25x^2 + 1/36x^2$:

A. $\dfrac{65}{12}$ B. $\dfrac{55}{12}$

C. $6\dfrac{1}{4}$ D. $\dfrac{9}{2}$

Ans. B

Sol.

Here, $30x^2 – 15x + 1 = 0$

Dividing by 6x both sides:

⇒ 5x + 1/6x = 5/2

Squaring both sides:

⇒ $(5x + 1/6x)^2 = (5/2)^2$

⇒ $25x^2 + 1/36x^2 + 5/3 = 25/4$

⇒ $25x^2 + 1/36x^2 = 25/4 - 5/3 = 55/12$

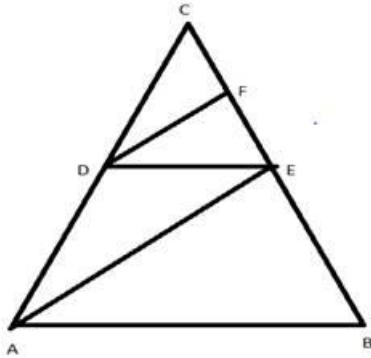30. In ΔABC, D and E are the points on sides AC and BC, respectively such that DE ‖ AB. F is a point on CE such that DF ‖ AE.

If CE = 6 cm, and CF = 2.5 cm, then BC is equal to:
A. 14.4 cm
B. 15.6 cm
C. 12 cm
D. 14 cm
Ans. A
Sol.
Given, CE = 6 cm, and CF = 2.5 cm

FE = CE – FE = 6 – 2.5 = 3.5 cm
If DF is parallel to AE then,
$\Rightarrow$ CF/FE = CD/DA = 2.5/3.5 = 5/7
If DE is parallel to AB then,
$\Rightarrow$ CD/DA = CE/EB = 5/7
But CE = 6 cm
If 5 unit = 6 cm
Then 12 unit = (6/5) × 12 = 72/5 = 14.4 cm
Hence, BC = 14.4 cm

31.Select the set of letters that when sequentially placed in the blanks of the given letter series will complete the series.
F_hg_fh_gf_hg_fh_g
A. g, h, f, g, h, f   B. h, f, g, h, f, g
C. g, f, g, f, h, f   D. f, g, h, f, g, h

Ans. A
Sol.
Pattern is-
fgh / ghf / hfg / fgh / ghf / hfg
i.e.
fghghfhfg / fghghfhfg
Hence, the correct answer is option A.

32.In a code language **GARDEN** is written as **EYKBCG** . How will **BALD** be written as in that language.

A. AAEF
B. ZAEF
C. ZYEB
D. ZAEC
Ans. C
Sol.
Here the logic is : 2 is subtracted to the alphabets having single digit place value, and two is added to the sum of the digits in case of alphabets having two digits place value.
G → 7-2 = 5 Which is the place value of E
A→ 27-2= (25) Which is the place value of Y
R→1+8=9+2 Which is the place value of K
D→ 4-2=2 Which is the place value of B
E→5-2=3 Which is the place value of C
N→1+4=5=2 Which is the place value of G
Similarly,
BALD is written as **ZYEB**
Hence, option C. is the correct answer.

33.Select the number group in the options which is similar to the given number-group.
(11, 21, 241)
A. (19, 56, 1054)
B. (91, 99, 1445)
C. (31, 94, 2569)
D. (12, 44, 1736)
Ans. D
Sol.
As, 11^2 - 100 = 21, 21^2 - 200 = 241
Similarly,
12^2 - 100 = 44, 44^2 - 200 = 1736
Hence, option D is the correct response.

34.In a code language, 'JEFBEZOS' is written as '17222125221128'. How will 'PRIMEVIDEO' be written as in that language?
A. 119181422518232212
B. 119181423222221812
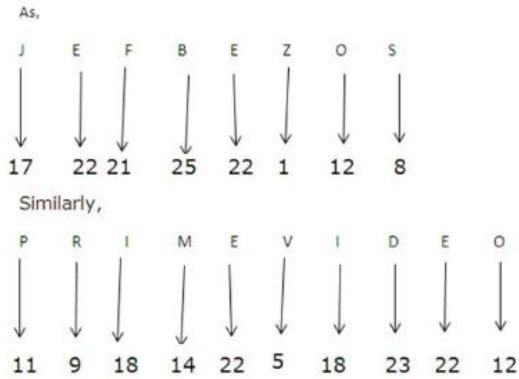C. 181422218231912212
D. 232211191814222182
Ans. A

Sol.

Take the place value of the opposite letter as the code-

As,

J	E	F	B	E	Z	O	S
↓	↓	↓	↓	↓	↓	↓	↓
17	22	21	25	22	1	12	8

Similarly,

P	R	I	M	E	V	I	D	E	O
↓	↓	↓	↓	↓	↓	↓	↓	↓	↓
11	9	18	14	22	5	18	23	22	12

Hence, the correct answer is option A.

35. Which letter-cluster will replace the question mark (?) in the following series?

SWA, OAW, KES, ?, CMK

A. FIO
B. GHO
C. FIP
D. GIO

Ans. D

Sol.

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 -4+4    -4+4    -4+4   -4+4    -4+4
S W A   O A W   K E S  G I O   C M K
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Here first letter of each letter cluster is decreasing be four places and following the same pattern as first letter follows. The last and third is going down by four steps in every letter cluster.

Hence, option (D) is the correct answer.