

Lockdown 4.0 Study Material Day 4



1. Which of the following is the reproductive structure found in flowering plants?

- A. Flower
- B. Leaf
- C. Fruit
- D. Stem

Ans. A

Sol.

* A flower is the reproductive structure found in flowering plants.

* Sexual reproduction in flowering plants involves the transfer of the male gametes to the female ovules in a process called pollination.

* After pollination occurs, fertilization happens and the ovules grow into seeds within a fruit.

2. The group of pistils in plants is known as _____.

- A. Androecium
- B. Gynoecium
- C. Receptacle
- D. Style

Ans. B

Sol.

The group of pistil is known as Gynoecium.

The gynoecium produces megaspores, each of which develops into a female gametophyte which then produces egg cells.

Flowers lacking a gynoecium are called **staminate**.

The pistil is composed of the ovary, the style, and the stigma or in other words it is formed due to fused carpels.

If a gynoecium has a single carpel, it is called **monocarpous**. If a gynoecium has multiple carpels, it is **apocarpous**.

3. Godawari, Krishna and Kaveri are examples of which type of drainage pattern?

- A. Dendritic
- B. Trellis
- C. Annular
- D. Radial

Ans. A

Sol.

Godawari, Krishna and Kaveri are examples Dendritic drainage pattern.

• In Dendritic drainage system, the drainage system looks like an irregular tree branch pattern.

• A Dendritic pattern develops in a terrain which has uniform lithology, and where faulting and jointing are insignificant.

• In Dendritic pattern, tributaries join larger streams at an acute angle.

4. Which river originates from Trimbakeshwar in Nashik, Maharashtra?

- A. Krishna
- B. Godavari
- C. Kaveri
- D. Bhim

Ans. B

Sol.

Godavari River originates from Trimbakeshwar in Nasik, Maharashtra.

• The total length of Godavari from its origin to outfall into the Bay of Bengal is 1,465 km.

• Major Projects on Godavari River are- Srirama Sagar, Godavari barrage, upper Penganga, Upper Indrawati etc.

• Nagpur, Aurangabad, Nashik and Rajmundry are major centres located in Godavari basin.

5. The **Seonath**, the **Hasdeo**, the **Mand** and the **Ib** are major tributaries of which river?

- A. Damodar
- B. Ganga
- C. Mahanadi
- D. Godavari

Ans. C

Sol.

The Seonath, the Hasdeo, the Mand and the Ib are major tributaries of Mahanadi.

• Major projects on Mahanadi River are- Tandula Reservoir, Hirakund Dam, Mahanadi Delta Project, Hasdeo Bango etc.

• **Raipur, Durg and Cuttack** are three important centres in the Mahanadi Basin.



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• **Mahanadi River flows in Chattishgarh and Odisha and drains into Bay of Bengal.**

6. Mintaka Pass connects which of the following?

- A. Kashmir to China
- B. Kashmir to Uttrakhand
- C. Uttrakhand to China
- D. Sikkim to China

Ans. A

Sol.

• **Mintaka Pass connects Kashmir to China.**

• It is located in the tri junction of Kashmir-Afghanistan-China in Karakorum Mountains.

• Mintaka word means '**A thousand goats**'. **Kilik Pass** is located nearby Mintaka Pass.

7. The 3rd international symposium on marine ecosystems-challenges and opportunities (MECOS-3) was held in which city of India?

- A. Bengaluru
- B. Kochi
- C. Calcutta
- D. Pune

Ans. B

Sol.

* The 3rd international symposium on marine ecosystems-challenges and opportunities (MECOS-3) was held in **Kochi from 7-10 January 2020.**

* The meeting was held at the Central Marine Fisheries Research Institute, Kochi, Kerala.

* It was organized by the Marine Biological Association of India.

8. Which pass the gateway to Wayanad, Kerala?

- A. Thamarassery Pass
- B. Nama Pass
- C. Shenkottai Pass
- D. Pensi La Pass

Ans. A

Sol.

Thamarassery pass is known as the gateway to **Wayanad**, Kerala.

Thamarassery pass is located around National highway 766.

• Other major passes of Kerala and places which they connect are-

- a) Palakkad pass - Palakkad and Coimbatore
- b) Aryankavu - Kollam and Tirunelveli
- c) Bodinayakanur - Idukki and Madurai
- d) Nadukani - Malappuram and Ooty
- e) Perambadi - Kannur and Coorg

9. Which state government organized the Zo Kutpui Festival from 9th to 11th January 2020?

- A. Sikkim
- B. Tripura
- C. Assam
- D. Mizoram

Ans. D

Sol.

* **Mizoram** state government organized the Zo Kutpui Festival from 9 January 2020.

* The festival is a part of the State's endeavour to unify different **tribes of Mizo.**

* The Festival was organized under the banner Zo Kutpui in at least 10 different cities across the globe.

10. Who wrote the book "Tarikh-i-Firoz Shahi"?

- A. Ibn Battuta
- B. Ziauddin Baruni
- C. Firdausi
- D. Amir Khosrow

Ans. B

Sol.

• **The book 'Tarikh-i-Firoz Shahi' was written by Ziauddin Baruni.** This book was an interpretation of the history of the Delhi Sultanate up to the then-present Firoz Shah Tughlaq.

• Ziauddin Baruni also wrote one other important book named 'Fatwa I Jahandari'.

11. **Direction:** Choose the most appropriate option to change the voice (active/passive) form of the given sentence.



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To be a good speaker you need to memorize these speeches.

- A. To be a good speaker these speeches need to be memorized by you
- B. To be a good speaker these speeches being memorized by you.
- C. These speeches will be memorized by you to be a good speaker.
- D. To be a good speaker these speeches need to memorize by you.

Ans. A

Sol.

Here the sentence has two parts of which, we will convert only the latter part into passive form. The given sentence is of active voice and it uses a modal verb. The structures for active/passive voices for modal verbs are:

Active: Subject + modal verb + verb (Ist form) + object...

Passive: Object + modal verb + be + verb (IIIrd form) + by + subject...

So, with the help of the above structures, we can convert the given sentence into passive voice: To be a good speaker these speeches need to be memorized by you.

Hence, option A is the correct choice.

12. Read the following passage and answer the questions that follow.

This very world of ours is inhabited by more than seven billion people and if animals, insects, trees and other sentient beings are also taken into consideration, the number would be staggering. And so the impracticability of maintenance of such a stupendous record puts a question mark on the very existence of Chitragupta. Underlying this allegory is an interesting philosophical concept.

Human consciousness is endowed with external and internal organs for receiving and processing information from the external world. The five senses and five motor organs constitute the external instruments. It is with these 10 implements that we interact with the world external to us. The Antahkarana or the internal organ, which enables us to process the information received from sense organs and turn sensation into

perception, is functionally classified into four aspects: mana, buddhi, chitta, and ahamkara.

Mana is the mind that coordinates the senses and performs lower-order processing. The aspect of the mind that has the ability to discern is called buddhi. Chitta is the storehouse where the karmic impressions created out of emotional involvement while performing an action are stored. It is the subconscious region which lies more or less shrouded from the conscious mind and is activated during dreaming and deep relaxation. The expression 'chitta' is the distorted and vernacular form of the Sanskrit term chitra, which means wonder-evoking. Another interesting meaning of the term 'chitra' is imagery.

Since this storehouse of karmic impressions made up of mental imagery is wonderful, it is called Chitra and since it is hidden from the active conscious mind, it is called Gupta. Thus, the reckoner of our past deeds, 'Chitragupta' is indeed none other than our subconscious which has been witness to our past actions, storing subtle impressions relentlessly. Amnesia or the nature of the mind to forget is personified as Yama, since death is nothing but a forgetting of our identities and past associations.

We are what we identify ourselves and associate with. If these connections are severed, we call it our death. Indra, the king of gods is the personification of mind, the lower order processing mechanism. He commands the deities — indriyas or senses. He is guided by buddhi or his preceptor Brihaspati, the higher-order discerning power.

Ahamkara is likened to the sacred bull Nandi with its two horns of liking and aversion. Like any bull, it has tremendous power but is often lazy and inactive due to the overpowering effect of Tamo guna. Only when it is charged is its true potential revealed. It sits in front of the immortal Shiva, the Supreme Consciousness. Whenever the Supreme Consciousness wishes to indulge in the



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mundane world, he rides on Nandi and descends to the physical world. The consciousness makes use of Nandi to descend to the physical plane where Indra, the mind, and devatas, the senses, stand in reverence to receive his command and execute it. The whole process of sensation, perception, lower and higher-order processing, memory, forgetfulness, ego substance and immortal consciousness is beautifully presented in an allegorical fable in the Puranas.

What does the Supreme Consciousness do when he wishes to indulge in the mundane world?

- A. He rides on Nandi and descends to the physical world.
- B. He leaves his place and go for a walk.
- C. He talks to people of the physical world.
- D. He participates in the daily activities of the physical world.

Ans. A

Sol.

It is clearly mentioned in the passage that whenever the Supreme Consciousness wishes to indulge in the mundane world, he rides on Nandi and descends to the physical world. Hence, option A is the correct answer.

13. Though a bull has tremendous power, he is lazy and inactive due to

- A. No motivation
- B. Tiredness
- C. Overpowering effect of tamo guna
- D. No goals in life

Ans. C

Sol.

It is clearly mentioned in the passage that a bull is lazy and inactive due to overpowering effect of tamo guna. Hence, option C is the correct answer.

14. Which of the following word from the passage is closely related to the word - Insight ?

- A. Staggering
- B. Aspect
- C. Stupendous
- D. Perception

Ans. D

Sol.

Let's first learn the meanings of the words:

Staggering = deeply shocking; astonishing.

Aspect = a particular part or feature of something.

Stupendous = extremely impressive.

Perception = the ability to see, hear, or become aware of something through the senses.

Insight = an accurate and deep understanding.

Hence, option D is the correct answer.

15. Amnesia or the nature of the mind to forget is personified as Yama, because

- A. Yama is busy with his own work.
- B. Yama
- C. Yama is the god of death and death is nothing but forgetting of our identities and past associations.
- D. Yama forgets things easily.

Ans. C

Sol.

The passage mentions the fact that death is nothing but forgetting of our identities and past associations and Yama is the god of death. Hence, option C is the correct answer.

16. Select the most appropriate option to fill in the blank.

It's to his credit that he sees his government's primary job as delivering _____ education and health.

- A. on
- B. at
- C. by
- D. with

Ans. A

Sol.

Deliver on = To fulfill an obligation, such as keeping a promise or paying a debt. Example- You better deliver on all the things you said you would do, or the client is not going to be happy. Also we do not use at, with, by with deliver. So option A is the correct answer.

17. Besides the word - **Wonder evoking**, which of the following word has



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been used in the passage for the term – **Chitra**?

- A. Imagery
- B. Higher order processing
- C. Sacred
- D. Consciousness

Ans. A

Sol.

The passage has clearly mentioned that another term used for the word – Chitra is imagery. Hence, option A is the correct answer.

18. Which of the following sentences is NOT CORRECT

- A. Mana is the mind that coordinates the senses and performs lower order processing.
- B. Indra, the king of gods is the personification of mind, the lower order processing mechanism.
- C. The five sense and five motor organs constitute the external instruments.
- D. Ahamkara is likened to the sacred bull Nandi with its two horns of arrogance and toughness.

Ans. D

Sol.

Sentence D is incorrect as the qualities signified by the two horns are wrongly mentioned. The correct sentence is - Ahamkara is likened to the sacred bull Nandi with its two horns of liking and aversion. Hence, option D is the correct answer.

19. Which of the following does not constitute the external instruments?

- A. Eyes
- B. Nose
- C. Ears
- D. Phone

Ans. D

Sol.

The passage clearly mentions that the five sense and motor organs constitute the external instruments. Hence, option D, i.e. phone is the correct answer here as it is not an external instrument.

20. Our subconscious mind is shrouded from the conscious mind, and is activated during

- A. Doing any physical activity.
- B. Dreaming and sleep relaxation.
- C. Eating your favourite food.
- D. Playing with your friends.

Ans. B

Sol.

It has been clearly mentioned in the passage that our subconscious mind is activated during dreaming and sleep relaxation. Hence, option B is the correct answer.

21. If $34 \times 56 = 180$, $49 \times 61 = 220$, then $52 \times 78 = ?$

- A. 450
- B. 260
- C. 140
- D. 250

Ans. B

Sol. .

$$34 \times 56 = 180$$

$$34 + 56 = 90, 90 \times 2 = 180$$

And

$$49 \times 61 = 220$$

$$49 + 61 = 110, 110 \times 2 = 220$$

Similarly,

$$52 \times 78 = ?$$

$$52 + 78 = 130, 130 \times 2 = 260$$

Hence, option B is the right answer.

22. **In the following question, select the related number group from the given alternatives.**

17 : 30

- A. 11 : 18
- B. 15 : 38
- C. 20 : 38
- D. 18 : 33

Ans. A

Sol.

$$\text{As, } 17 \times 2 - 4 = 34 - 4 = 30$$

Similarly,

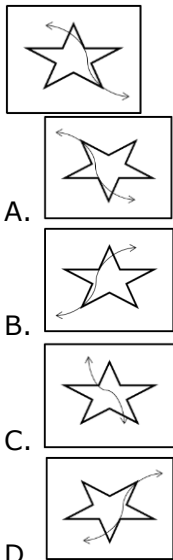
$$11 \times 2 - 4 = 22 - 4 = 18$$

Hence, option A is the correct answer.

23. Select the correct mirror of the given figure when the mirror is placed on the right of the figure.



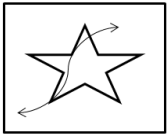
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- A.
- B.
- C.
- D.

Ans. B
Sol.

In a plane mirror, a mirror image is a reflected duplication of an object that appears almost identical, but it is reversed in the direction perpendicular to the mirror surface. As an optical effect it results from reflection of substances such as a mirror or water.

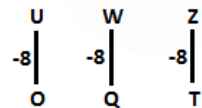


Hence answer (b) is correct.

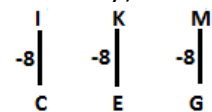
24. Select the pair in which the letter-groups are similarly related as in the given pair.

- UWZ : OQT
 A. ACE : FIK
 B. IKM : CEG
 C. JKL : CDF
 D. MNT : FHZ

Ans. B
Sol.

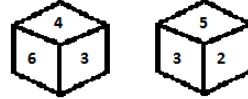


Similarly,



Hence, the correct response is option B.

25. Two different situations of the same dice are shown. If the number 4 is on the lower board, then what will be the number on the upper board?



- A. 5
- B. 3
- C. 6
- D. 2

Ans. D
Sol.

Moving in the clockwise direction,
 Cube 1 – 3 6 4
 Cube 2 – 3 5 2
 Clearly, 4 is opposite to 2.
 Hence, option D is correct.

26. Find the mode of the set of numbers: 0.5, 1.5, 2.5, 2.3, 5.5, 2.3, 2.5, 1.5, 0.5, 3.3, 5.5, 2.5.

- A. 2.5
- B. 0.5
- C. 5.5
- D. 2.3

Ans. A
Sol.

Mode is the number which appears most often in a set of numbers. In the given set of number 2.5 is the most occurring number. Hence A is the correct number.

27. Radius of a circle is diminished by 20% , the area is diminished by?

- A. 19%
- B. 36%
- C. 25%
- D. 21%

Ans. B
Sol.

Let initial radius be 10 cm
 Area = $\pi \times r^2$
 $\pi \times (10)^2 = 100 \pi$
 new radius after diminishing = 10 – 20% of 10 = 8
 New Area = $\pi \times (8)^2 = 64 \pi$
 Percentage change = $\frac{\text{initial} - \text{final}}{\text{initial}} \times 100$

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$$\text{Percentage change} = \frac{100\pi - 64\pi}{100\pi} \times 100 = 36\%$$

28. Find the area of the square whose

diagonal is equal to $8\sqrt{2}$ m.

- A. 81 m^2
- B. 60 m^2
- C. 64 m^2
- D. 68 m^2

Ans. C

Sol.

Let the side of the square be x and diagonal d.

$$\text{So, } x^2 + x^2 = d^2$$

$$\sqrt{2}x = 8\sqrt{2}$$

$$x = 8 \text{ m}$$

$$\text{Area of a square} = x^2 = 64 \text{ m}^2$$

29. Average of 9 numbers is 23. If 2 is added to each of the 9 numbers what will be the new average?

- A. 27
- B. 24
- C. 23
- D. 25

Ans. D

Sol.

$$\text{Average} = \frac{\text{Sum of observations}}{\text{Total number of observations}}$$

$$23 = (\text{Sum of observations}) / 9$$

$$\text{Sum of observations} = 23 \times 9 = 207$$

If 2 is added to all the 9 numbers

$$\text{Average} = [207 + 2 \times (9)] / 9$$

$$\text{Average} = 225 / 9 = 25$$

Short Trick:

If the average of n numbers is "a" and if "x" is added or subtracted from each given number, then average becomes (m + x) and (m - x) respectively.

$$\text{So, the new average} = 23 + 2 = 25.$$

30. The average of three numbers of which largest is 18, is 13. If the smallest number is half the largest. What is the remaining number?

- A. 7
- B. 13
- C. 11
- D. 12

Ans. D

Sol.

Let the numbers be a, b and c, where a is the largest and c the smallest.

$$c = a/2 \text{ (given)}$$

$$a = 18 \text{ and } c = 9$$

$$(a + b + c) / 3 = 13$$

$$a + b + c = 39$$

$$9 + b + 18 = 39$$

$$b = 12$$

31. Average of 15 numbers is 37. If 7 is subtracted from each of the 15 numbers what will be the new average?

- A. 31
- B. 30
- C. 32
- D. 35

Ans. B

Sol.

$$\text{Average} = \frac{\text{Sum of observations}}{\text{Total number of observations}}$$

$$37 = (\text{Sum of observations}) / 15$$

$$\text{Sum of observations} = 37 \times 15 = 555$$

If 7 is subtracted from all the 15 numbers

$$\text{Average} = [555 - 7 \times (15)] / 15$$

$$\text{Average} = 450 / 15 = 30$$

Short Trick:

If the average of n numbers is "a" and if "x" is added or subtracted from each given number, then average becomes (m + x) and (m - x) respectively.

$$\text{So, the new average} = 37 - 7 = 30.$$

32. If $12x^2 - 21x + 1 = 0$, then what is the value of $9x^2 + (16x^2)^{-1}$?

A. $\frac{429}{8}$

B. $\frac{465}{16}$

C. $\frac{417}{16}$

D. $\frac{453}{8}$

Ans. C

Sol.

$$12x^2 - 21x + 1 = 0$$

$$12x^2 + 1 = 21x$$

Divide the equation by 3x

$$4x + 1/3x = 7$$

Multiply by $\frac{3}{4}$ both sides

$$3x + 1/4x = 21/4$$



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Squaring the equation

$$9x^2 + \frac{1}{16x^2} = \frac{441}{16} - 3x \cdot \frac{1}{4x} = \frac{441}{16} - \frac{3}{2}$$

Or $9x^2 + (16x^2)^{-1} = 417/16$.

33. If $x + y + z = 3$, and $x^2 + y^2 + z^2 = 101$, then what is the value of

$$\sqrt{x^3 + y^3 + z^3 - 3xyz} ?$$

- A. 19
- B. 21
- C. 24
- D. 28

Ans. B

Sol.

$$x^3 + y^3 + z^3 - 3xyz = (x + y + z)(x^2 + y^2 + z^2 - (xy + yz + zx))$$

$$(x + y + z)^2 = x^2 + y^2 + z^2 + 2(xy + yz + zx)$$

$$9 = 101 + 2(xy + yz + zx)$$

$$xy + yz + zx = -46$$

$$x^3 + y^3 + z^3 - 3xyz = 3 \times [101 + 46]$$

$$x^3 + y^3 + z^3 - 3xyz = 3 \times 147 = 441$$

$$\sqrt{x^3 + y^3 + z^3 - 3xyz} = \sqrt{441} = 21.$$

34. If $2x^2 + y^2 + 8z^2 - 2\sqrt{2}xy + 4\sqrt{2}yz - 8zx = (Ax + y + Bz)^2$, then the value of $(A^2 + B^2 - AB)$ is :

- A. 16
- B. 14
- C. 6
- D. 18

Ans. B

Sol.

$$2x^2 + y^2 + 8z^2 - 2\sqrt{2}xy + 4\sqrt{2}yz - 8zx = (Ax + y + Bz)^2 \text{ or}$$

$$(-\sqrt{2}x + y + 2\sqrt{2}z)^2 = (Ax + y + Bz)^2$$

Comparing LHS to RHS.

$$A = -\sqrt{2}, B = 2\sqrt{2}$$

$$\text{Required } (A^2 + B^2 - AB) = 2 + 8 + 4 = 14.$$

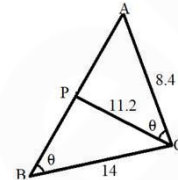
35. In a triangle ABC, AC = 8.4 cm and BC = 14 cm, P is a point on AB such that CP = 11.2 cm and $\angle ACP = \angle B$. What is the length (in cm) of BP?

- A. 4.12
- B. 2.8
- C. 3.78
- D. 3.6

Ans. C

Sol.

In ΔABC & ΔAPC ,



$$\angle ABC = \angle ACP = \theta \text{ (Given)}$$

$$\angle A = \angle A \text{ (common Angle)}$$

$$\angle APC = \angle ACB$$

$$\Delta ABC \sim \Delta APC$$

$$AP/AC = CP/BC$$

$$AP/8.4 = 11.2/14 = AC/AB$$

$$AP = 6.72$$

$$AC/AB = AP/AC$$

$$AB = (8.4 \times 8.4) / 6.72 = (0.6 \times 8.4) \times 10.5 = 10.5$$

$$BP = 10.5 - 6.72 = 3.78 \text{ cm.}$$



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