Lockdown 4.0 Study Plan Day 5

1. The Kalpakkam Nuclear Power Plant is which type of Reactor?
A. Boiling Water Reactor
B. Pressurised Heavy Water Reactor
C. Pressurised Water Reactor
D. None of these

2. Which organization is responsible for building Prototype Fast Breeder Reactor indigenously?
A. Raja Rammana Centre for Advanced Technology
B. Indira Gandhi Centre for Atomic Research
C. Bhabha Atomic Research Centre
D. Abdul Kalam Atomic Research Centre

3. What is the general mechanism by which an enzyme acts?
A. increasing the energy of activation
B. reducing the energy of activation
C. decreasing the pH
D. increasing the pH

4. Who founded the 'Swadeshamitram' newspaper in 19th century?
A. Santosh Singh
B. GS Aiyar
C. Taraknath Das
D. Ajit Singh

5. Who was the only female prime minister to get Bharat Ratna?
A. Usha Mehta
B. Indira Gandhi
C. Sarojini Naidu
D. Sucheta Kripalani

6. Global Liveability Index is released by _____.
A. World Economic Forum
B. World Bank
C. Economist Intelligence Unit
D. International Monetary Fund

7. When was the Indian Ocean Rim Association formed?
A. 1992
B. 1995
C. 1997
D. 2007

8. Mintaka Pass connects which of the following?
A. Kashmir to China
B. Kashmir to Uttrakhand
C. Uttrakhand to China
D. Sikkim to China

9. Which of the following diseases is caused by nitrate fertilizers?
A. CHILD syndrome
B. Minamata disease
C. Parkinson's disease
D. Blue baby syndrome

10. Article 262 is related to _____.
A. Centre state relations
B. Inter state water dispute
C. Original Jurisdiction of Sc
D. Original Jurisdiction of HC

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.
11. 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

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.
12. 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

Select the word which means the same as the group of the words given.
13. Study of the lives of saints
A. paleography
B. speleology

C. hagiology
D. genealogy

Select the most appropriate option to fill in the blank.
14. **Consumers today have multiple avenues ranging from online marketplaces to offline retail stores to _____ a pre-owned smartphone.**
A. contrive
B. purchase
C. covet
D. entwine

Direction: Choose the most appropriate option to change the voice (active/passive) form of the given sentence.
15. My friends persuaded me that I should forgive him.
A. I will be persuaded by my friends that he should be forgiven
B. I am being persuaded by my friends that he should be forgiven.
C. I will have been persuaded by my friends to forgive him.
D. I was persuaded by my friends that he should be forgiven.

16. Select the wrongly spelt word.
A. brood
B. blosom
C. boast
D. booty

Select the most appropriate meaning of the given idiom.
17. bite your tongue
A. talk for a long time
B. be impossible to be understood
C. get bruises in the mouth
D. stop yourself from saying something

Identify the best way to improve the underlined part of the given sentence. If there is no improvement required, select 'no Improvement'.
18. The judge <u>gave</u> the verdict against the Government.
A. pronounced
B. declared
C. sentenced

D. No improvement

Choose the most appropriate option to change the narration (direct/indirect) of the given sentence.
19. My mother said to me, "You will regret your actions."
A. My mother warned me that I will regret my actions.
B. My mother warned me that I will be regretting my actions.
C. My mother warned me that I would regret my actions.
D. My mother warned me that I would be regretting my actions.

Select the correct indirect form of the given sentence.
20. The girl said to her partner, "You will have to dance better than this tomorrow."
A. The girl said to her partner that he will have to dance better than that the day after.
B. The girl said to her partner that he would have to dance better than this the day after.
C. The girl said to her partner that he would have to dance better than that the day after.
D. The girl said to her partner that he will have to dance better than this the day after.

21. A series is given with one term missing. Choose the correct alternative from the given ones that will complete the series.
Acknowledgement, Insignificant, Personality, Knowledge, ?
A. Leader
B. Quicker
C. Doctor
D. Students

22. Select the set in which the numbers are related in the same way as are the numbers of the following set.
(5, 11, 7)
A. (3, 5, 8)
B. (6, 12, 4)
C. (11, 17, 13)
D. (9, 16, 8)

23. In the following question, select the related group of letters from the given alternatives.
ACEG : ZXVT :: IKMO : ?
A. MNOP
B. PQRS
C. RPNL
D. LNPR

24. A series is given with one term missing, Choose the correct alternative from the given ones that will complete the series.
JAZ, LEX, NIV, PMT, ?
A. QUR
B. RQR
C. SUR
D. RUS

25. A series is given with one term missing. Select the correct alternative from the given ones that will complete the series.
580, 265, 373, ?
A. 366
B. 490
C. 428
D. 383

26. In ΔABC, AB = AC and D is a point on BC. If BD = 5 cm, AB = 12 cm and AD = 8 cm, then the length of CD is :
A. 16 cm
B. 14 cm
C. 16.2 cm
D. 14.8 cm

27. If $\dfrac{\sin^2 \phi - 3 \sin \phi + 2}{\cos^2 \phi} = 1$, where $0° < \phi < 90°$, then what is the value of (cos2∅ + sin3∅ + cosec2∅) ?

A. $\dfrac{3 + 2\sqrt{3}}{3}$

B. $\dfrac{2 + \sqrt{3}}{3}$

C. $\dfrac{3 + 4\sqrt{3}}{6}$

D. $\dfrac{9 + 4\sqrt{3}}{6}$

28. The sides of a triangle are 56cm, 90 cm and 106 cm. The circumference of its circumcircle is :
A. 108 π
B. 112 π
C. 106 π
D. 109 π

29. The value of $\sqrt{\dfrac{\operatorname{cosec}\phi - \cot\phi}{\operatorname{cosec}\phi + \cot\phi}} \div \dfrac{\sin\phi}{1 + \cos\phi}$ is equal to :
A. 1
B. cosec ∅
C. $\dfrac{1}{2}$
D. sec∅

30. If $x = \dfrac{\sqrt{5} - \sqrt{3}}{\sqrt{5} + \sqrt{3}}$ and y is the reciprocal of x, then what is the value of ($x^3 + y^3$)?
A. 476
B. 472
C. 504
D. 488

###ANSWERS###

1. Ans. C.
Kalpakkam Nuclear Power Plant is located in **Tamil Nadu**.
• The country's first indigenously developed 500-megawatt **prototype fast breeder reactor** at Kalpakkam in Tamil Nadu is in process.
• It is developed by Nuclear Power Corporation of India.
• It is a **Pressurised Water Based** or PWR Reactor.
• **Atomstroyexport** supplies the equipment and fuels for the nuclear power project. It is a subsidiary of Russian State Nuclear Energy Corporation.

2. Ans. B.
The first indigenously Fast Breeder Reactor facility is being built by **The Indira Gandhi Atomic Centre for Atomic Research.**
• The PFBR is currently constructed by The Bharatiya Nabhikiya Vidyut Nigam Limited (**BHAVINI**).
• The Kalpakkam PFBR is using uranium-238 not thorium, to breed new fissile material, in a sodium-cooled fast reactor design.
• As of February 2019, criticality is planned to be achieved in 2020.

3. Ans. B.
• An enzyme acts by reducing the energy of activation.
• Enzymes are biological catalysts.
• The lower the activation energy for a reaction, the faster the rate.

4. Ans. B.
The newspaper 'Swadeshamitram' was founded by GS Iyer in 1882.
• It was a tamil newspaper. Note that presently very famous newspaper '**The Hindu'** was also founded by GS Iyer.
• He served as editor and managing director of The Hindu from 1878 to 1898.

5. Ans. B.
Indira Gandhi was the first female to be awarded as Bharat Ratna. She was awarded Bharat Ratan in **1971**.
• She was also the first and only female Prime Minister of India.

• In 1959 she was elected as the president of Indian National Congress.
• The Emergency of 1975-77, Operation Blue Star, Garibi Hatao campaign etc. were major events of her prime minister ship.

6. Ans. C.
The World Liveability Index was released **by Economist Intelligence Unit.**
• The index is based on Five broad indicators – Stability, Health Care, Culture and Environment, Education and Infrastructure.
• In 2019, New Delhi dropped by six positions and positioned at 118th.
• Mumbai is positioned at 119th on the list.

7. Ans. C.
• **The Indian Ocean Rim Association was formed in 1997.**
• IORA's apex body is the Council of Foreign Ministers (COM) which meets annually.

8. Ans. A.
• **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.

9. Ans. D.
• **Blue baby syndrome** can refer to the condition that affects oxygen transportation in the blood, resulting in the blueness of the skin in babies.
• Blue baby syndrome can be acquired in infancy from exposures to nitrates in drinking water. Nitrates from polluted drinking water form compounds in the body that change hemoglobin to methemoglobin, decreasing the ability of blood to carry oxygen.
• In infants, the condition can be fatal. The sources of nitrate can include fertilizers used in agricultural lands, waste dumps or pit latrines.

10. Ans. B.
* **Article 262 of the constitution refers to inter state water disputes.**

* It states that parliament may by law provide for the adjudication on any water dispute of any inter state river and river valley.

11. Ans. D.
The sentence is grammatically correct. Hence, option D is the correct answer.

12. Ans. A.
'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.

13. Ans. C.
Paleography: The study of ancient forms of writing
Speleology: The scientific study of caves
Hagiology: (legend) literature narrating the lives (and legends) of the saints
Genealogy: The study or investigation of ancestry and family history
Hence, option C is the correct answer.

14. Ans. B.
Let us understand the meaning of the given words :-
Contrive = make or work out a plan for; devise.
Purchase = obtain in exchange for payment.
Covet = wish, long, or crave for (something, especially the property of another person).
Entwine = tie or link together.
This sentence discusses the preowned smartphones in a market. "Purchase" is the most relevant word in this context.
Hence, option B is the correct answer.

15. Ans. D.
The given sentence is in active form of simple past tense. The structures for active/passive voices are:
Active: Subject + verb (IInd form) + object...
Passive: Object + was/were + verb (IIIrd form) + by + subject...
So, with the help of the above structures, we can convert the given sentence into passive voice:'I was persuaded by my friends that he should be forgiven.' Out of all the options, only option D is correct.

16. Ans. B.

The wrongly spelt word is provided in option (B). The correct word is **Blossom** which means bloom or produce flowers.
Booty means goods or money obtained illegally.
Brood means dwell.
Boast means show off.
Therefore, option (B) is the correct choice.

17. Ans. D.
Bite your tongue is an idiom which means stop oneself from saying something or keep quiet.
Therefore, option (D) is the correct choice.

18. Ans. A.
Sentenced means a punishment given by ajudge in court to aperson ororganization. Declared means Afact that someone has publicly said oradmitted. Among all the options, pronounced means very noticeable which is perfect for the word verdict (an opinion or decision).

19. Ans. C.
This is a simple sentence of direct narration. We will change it into indirect narration. The inverted commas (" ") used in Direct Narration will be removed in Indirect Narration and "that" conjunction will be used. Said to is generally changed to told in indirect speech when it is followed by an object but here in this question said to will be changed to warned as all the options contain 'warned' and also there is a sense of warning in the reported speech. Will is changed to would in the indirect narration. 2nd person pronoun is changed according to the object of the reporting speech i.e. YOU will be changed to I and YOUR will be changed to MY. Hence, option C is the correct answer.

20. Ans. C.
This is a simple sentence. The rules for changing such sentences into indirect speech are given below:
• The inverted commas (" ") used in Direct Narration is removed in Indirect Narration and "that" conjunction is used.
• Says to/said to changes to tells/told in indirect speech if they are followed by an

object. If not, they would remain same in indirect speech.

How to changes the tense in indirect speech

• If the reporting verb is in present or future tense, no changes are made to the verb/tense of the reported speech.

• If the reporting verb is in past tense, we make changes to the reported verb as per the below rule:

• Simple present tense changes to simple past tense.

• Present continuous tense changes to past continuous tense.

• Present perfect tense changes to past perfect tense.

• Present Perfect continuous tense changes to past perfect continuous tense.

• Simple past tense changes to past perfect tense.

• Past continuous tense changes to past perfect continuous tense.

• No changes are made to past perfect and past perfect continuous tense.

• Can, shall, will, may, must changes to could, should, would, might and must respectively.

• If there are any universal truth, habitual fact in the reporting speech, no changes are made to the reported verb's tense.

How some words change in indirect speech

• Words like "this, these, tomorrow, yesterday change to that, those, the next day, the previous day" respectively.

Below are the rules for changing the pronouns correctly:

• First person pronoun changes according to the subject of reporting speech.

• Second person pronoun changes according to the object of reporting speech.

• Third person pronoun does not change in indirect speech.

21. Ans. B.

Acknowledgement= 15 letters
Insignificant= 13 letters
Personality= 11 letters
Knowledge= 9 letters
Quicker= 7 letters
Hence, next term would be Quicker as it has 7 letters.
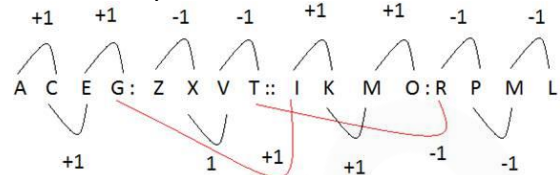
22. Ans. C.

All the numbers present in the given set (5, 11, 7) are prime numbers.
Hence, only option C. has the set of prime numbers in compare to others.
So, the correct response is (c).

23. Ans. C.

There is a +1 and -1 difference between the series present here.
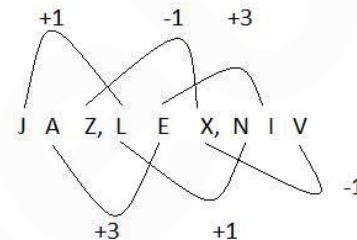

So, according to the figure, C is the answer.
Hence, option C is the right answer.

24. Ans. B.

+1 to first letter, +3 to second letter -1 to third letter like this
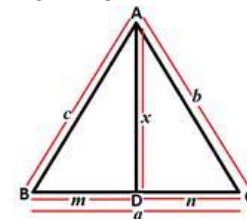

Thus
P+1=R
M+3=Q
T-1=R
Hence B

25. Ans. B.

The sum of the digits of all the numbers given in the series is equal to 13. So, the next number should be 490. While the sum of the digits of the rest of the numbers is not equal to 13.
Hence, option B is the correct answer.

26. Ans. A.

Let CD = d

Then, $BC = 5 + d$

By Stewart theorem,

$$a(x^2 + mn) = b^2m + c^2n$$
$$m = 5, n = d$$

Where $BC = a = m + n = 5 + d$
$AD = x = 8$
$c = b = 12$
$(5 + d)(64 + 5d) = 144 \times 5 + 144 \times d$
$320 + 25d + 64d + 5d^2 = 720 + 144d$
$5d^2 + 86d - 144d + 320 - 720 = 0$
$5d^2 - 55d - 400 = 0$
$d^2 - 11d - 80 = 0$
$d^2 - 16d + 5d - 80 = 0$
$d(d - 16) + 5(d - 16) = 0$
$(d - 16)(d + 5) = 0$
Hence, $d = 16, -5$
We take the positive value –
So, Required ⇒ CD = $d = 16$

27. Ans. D.
$$\frac{\sin^2 \phi - 3 \sin \phi + 2}{\cos^2 \phi} = 1$$
$$\frac{(\sin \phi - 1)(\sin \phi - 2)}{1 - \sin^2 \phi} = 1$$
$$\frac{(\sin \phi - 1)(\sin \phi - 2)}{(\sin \phi - 1)(\sin \phi + 1)} = -1$$
$$\sin \phi - 2 = -\sin \phi - 1$$
$$\sin \phi = \frac{1}{2}$$
$$\phi = 30°$$
A.T.Q.
$(\cos 2\phi + \sin 3\phi + \text{cosec} 2\phi)$
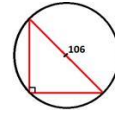$= (\cos 60 + \sin 90 + \text{cosec } 60)$
$$= \frac{1}{2} + 1 + \frac{2}{\sqrt{3}}$$
$$= \frac{\sqrt{3} + 2\sqrt{3} + 4}{2\sqrt{3}} = \frac{3\sqrt{3} + 4}{2\sqrt{3}}$$
$$= \frac{18 + 8\sqrt{3}}{12}$$
$$= \frac{9 + 4\sqrt{3}}{6}$$

28. Ans. C.
Sides of a triangle are 56 cm, 90 cm and 106 cm.

$106^2 = 90^2 + 56^2$
Hence it wll be a right angle triangle.
R = Hypotenuse/2
$$R = \frac{106}{2} = 53 cm$$
Circumference = 2πR = 2 × 53π = 106π

29. Ans. A.
$$\sqrt{\frac{\text{cosec}\phi - \cot\phi}{\text{cosec}\phi + \cot\phi}} \div \frac{\sin\phi}{1 + \cos\phi}$$
$$= \sqrt{\frac{(\text{cosec}\phi - \cot\phi)(\text{cosec}\phi + \cot\phi)}{(\text{cosec}\phi + \cot\phi)(\text{cosec}\phi + \cot\phi)}} \div \frac{\sin\phi}{1 + \cos\phi}$$
$$= \sqrt{\frac{\text{cosec}^2\phi - \cot^2\phi}{(\text{cosec}\phi + \cot\phi)^2}} \div \frac{\sin\phi}{1 + \cos\phi}$$
It is known that -
$\text{cosec}^2\phi - \cot^2\phi = 1$
$$\therefore \frac{1}{\text{cosec}\phi + \cot\phi} \div \frac{\sin\phi}{1 + \cos\phi}$$
$$= \frac{\sin\phi}{1 + \cos\phi} \div \frac{\sin\phi}{1 + \cos\phi} = 1$$

30. Ans. D.
$$x = \frac{\sqrt{5} - \sqrt{3}}{\sqrt{5} + \sqrt{3}} = \frac{P - Q}{P + Q}$$
$$y = \frac{\sqrt{5} + \sqrt{3}}{\sqrt{5} - \sqrt{3}} = \frac{P + Q}{P - Q}$$
$$y = \frac{1}{x}$$
Let $x + \frac{1}{x} = a$
$$x^3 + y^3 = x^3 + \frac{1}{x^3} = a^3 - 3a$$
$$x + y = x + \frac{1}{x}$$
$$= \frac{2(P^2 + Q^2)}{(P^2 - Q^2)} = 2\left(\frac{5 + 3}{5 - 3}\right)$$
$$= 8$$
$$x^3 + \frac{1}{x^3} = 512 - 24 = 488$$

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