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Lockdown 3.0 Study Plan
Day 6

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1. 1 horsepower = approximately _____ watts.
A. 674
B. 746
C. 647
D. 764
Ans. B
Sol.
• A power level of 1 horsepower is equivalent to 746 watts (W) or 0.746 kilowatts (kW).
• To convert from horsepower to watts, multiply by 746.

2. Cantabrian Mountains are in which country?
A. India
B. Spain
C. Germany
D. Portugal
Ans. B
Sol.
• Cantabrian Mountains are one of the main mountain ranges in Spain..
• They stretch for over 300 km in length and 50 Kms in width across northern Spain.
• **Picos de Europa National Park** is located here and listed in UNESCO world Biosphere Reserves.

3. Niacin is chemical name of which of the following vitamin?
A. Vitamin D
B. Vitamin C
C. Vitamin B3
D. Vitamin B12
Ans. D
Sol.
• **Niacin is chemical name of Vitamin B3.**
• It is found in foods such as yeast, meat, fish, milk, eggs, green vegetables, and cereal grains.

4. Black Sea does not share its boundary with which of the following country?
A. Ukraine
B. Turkey
C. Macedonia
D. Russia
Ans. C
Sol.
• Black Sea does not share its boundary with **Macedonia**.
• It shares its boundary with **Ukraine, Russia, Turkey, Georgia, Bulgaria, and Romania**.
• It is supplied by several major rivers, such as the Danube, Dnieper, Southern Bug, Dniester, Don, and the Rioni. Black sea has a huge reserve of natural gas and oil.

5. How many major pressure belts are these on earth?
A. 5
B. 6
C. 7
D. 8
Ans. C
Sol.
There are total **7 pressure belts on earth**. The name of these seven pressure belts are –
1. **Equatorial Low** – found between 10 degrees north to 10 degrees south latitudes.
2. **North Sub Tropical High** – Found between 23.5 degree to 35-degree latitudes in northern hemisphere.
3. **North Sub Polar Low**- Found between 45 degree to 66.5-degree latitudes in northern hemisphere.
4. **North Polar High**- Found between 80 degrees to 90 degrees latitudes in northern hemisphere.
5. **South Sub Tropical High** - Found between 23.5 degree to 35-degree latitudes in Southern hemisphere.
6. **South Sub Polar Low**- Found between 45 degrees to 60 degrees latitudes in Southern hemisphere.
7. **South Polar High Found**- between 80 degrees to 90 degrees latitudes in Southern hemisphere.

6. Magnetic flux is a _____?
A. Scalar quantity
B. Vector quantity
C. Magnetic quantity
D. None of them
Ans. B
Sol.
• **Magnetic flux** is a **Vector Quantity**.

• The **SI unit** of **Magnetic flux** is the weber and **CGS** unit is **Weber**.
• It is the product of the average magnetic field times the perpendicular area that it penetrates.

7. GAGAN is developed by which of the following agencies?
A. DRDO and AAI
B. ISRO and AAI
C. DRDO and ISRO
D. DRDO, ISRO and AAI
Ans. B
Sol.
GAGAN project is developed by **DRDO and AAI**.
• GAGAN refers to GPS Aided Geo Augmented Navigation System.
• GAGAN is a regional satellite based augmentation system (**SBAS**).
• The GAGAN's goal is to provide a navigation system to assist aircraft in accurate landing over the Indian airspace and in the adjoining area.
• **GSAT 8, GSAT10 and GSAT 15** have launched GAGAN payloads.

8. Who among the following can declare any area as a Scheduled Area?
A. Chief Justice of India
B. Attorney General of India
C. President of India
D. Prime Minister
Ans. C
Sol.
• The constitution empowers the **President** to declare any areas as scheduled area.
• The President of India can increase or decrease its area or alter its boundaries.

9. Who can make rules for the better management of peace and good governance in Scheduled areas?
A. Chief Minister
B. Governor
C. Tribal Advisory Council
D. National Commission for Scheduled Castes
Ans. B
Sol.
• **Governor** can make rules for the better management of peace and good governance in Scheduled areas.
• **Article244** confers plenary power on the Governor to bring independent legislations in respect of tribal affairs in consultation with the Tribal Advisory Council.

10. The Sixth Schedule of the Indian constitution provides special provisions for the administration of the tribal areas in_____.
A. Assam
B. Meghalaya
C. Mizoram
D. All of the above
Ans. D
Sol.
• **The Sixth Schedule of the Constitution** provides special provisions for the administration of tribal areas in Assam, Meghalaya, Tripura and Mizoram.
• **Article244** of the Indian constitution deals with the Administration of Scheduled Areas and Tribal Areas.

11. **Select the most appropriate meaning of the underlined idiom in the given sentence.**
Our PM is received **with open arms** wherever he goes.
A. Honourably
B. Promptly
C. Warmly
D. Harmoniously
Ans. C
Sol.
"With open arms" means with great affection or enthusiasm. Option C "warmly" is closest to this meaning. That is why C is the right answer.

12. **In the sentence identify the segment which contains the grammatical error.**
Across his morning walk on a beach in Mamallapuram, Prime Minister Modi was seen picking up plastic litter, bottles, and other items.
A. Across his morning walk
B. picking up plastic litter
C. on a beach in Mamallapuram

D. Prime Minister Modi was seen
Ans. A
Sol.
"Across" is the wrong preposition here. "Across" should be replaced with "during". Therefore there is an error in part A.

13. **Select the most appropriate word to fill in the blank.**
He obtained 80% marks in Science in High School. He has qualified _____ the science stream in plus two.
A. for
B. at
C. to
D. in
Ans. A
Sol.
The correct preposition that should be used here is "for". Therefore, the correct answer is option A.

14. **Select the INCORRECTLY spelt word.**
A. labour
B. lantern
C. literature
D. laboratery
Ans. D
Sol.
Option D has the incorrectly spelt word. The correct spelling of the word is "laboratory".

15. **Select the most appropriate synonym of the given word.**
TRANQUIL
A. nervous
B. agitated
C. calm
D. wild
Ans. C
Sol.
Tranquil = calm, peaceful or quiet
Agitate = make (someone) troubled or nervous.
It means that option C is correct.

16. **Given below are four jumbled sentences. Pick the option that gives their correct order.**
P: In today's electronic age, people are starting to consider going paperless.
Q: From our newspapers to our paper wrappings, paper is still everywhere.
R: Most of them are ending up in our landfills creating a staggering amount of paper waste.
S: But there's still a long way to go before we lose our dependence on this very important human product.
A. RPQS
B. QRSP
C. PSQR
D. SQRP
Ans. C
Sol.
The sentence introduces the subject i.e. use of paper and stop using it. The rest of the sentences talk about the same and further elaborate it. P should therefore be the first in the sequence which happens in option C. That is why C is the correct answer.

17. **Direction:** Choose the most appropriate option to change the narration (direct / Indirect) of the given sentence.
The old lady said, "May God bless you and give you all you desire in life!"
A. The old lady said that God may bless you and give you all you desire in life.
B. The old lady wished that God would bless me and give me all I desired in life.
C. The old lady says that may God bless you and give you all you desire in life.
D. The old lady said that God will bless me and give me all I desire in life.
Ans. B
Sol.
The given sentence is in direct form and we have to convert it into indirect form. This is an example of optative sentence and hence 'Said to' in reporting verb gets changed to 'wished'upon conversion.
Since, the reporting verb of the given sentence is in past tense and therefore the reported speech will undergo the following changes upon conversion:
• 'Comma' is replaced with 'that'
• Modal 'Will' gets changed to 'Would.'
• Pronoun 'You' in reported speech gets changed to the objective form 'me.'

• verb 'Desire' gets changed to 'desired.'
Out of all the alternatives, only option B adheres to the given rules. Hence, option B is the correct choice.

18. Select the most appropriate meaning of the given idiom.
be the Devil's advocate
A. to present a counter argument just for the sake of it
B. to present an argument in favor of a well-known evil man
C. to represent the devil as an advocate in witch trials
D. to represent an accused in a murder trial
Ans. A
Sol.
Devil's advocate is an idiomatic expression to depict 'a person who expresses a contentious opinion in order to provoke debate or test the strength of the opposing arguments. Therefore, **option A** is the correct answer.

19. Select the most appropriate word for the given group of words.
an arrangement of flowers that is usually given as a present
A. bouquet
B. bunch
C. wreath
D. cluster
Ans. A
Sol.
Bouquet is an arrangement of flowers that is usually given as a present.
Wreath means an arrangement of flowers, leaves, or stems fastened in a ring and used for decoration.
Cluster means bunch or collection.
Therefore, option (A) is the correct answer.

20. In the sentence, identify the segment which contains the grammatical error.
If the sun rises in West, we would get to witness new space explorations and time zones.
A. we would get to witness
B. new space explorations
C. If the sun rises in West
D. and time zones
Ans. C
Sol.
Option C has the grammatically incorrect part. The sun never rises in west nor will it in future. This situation is totally improbable (no chance of it happening), so here we have to use 'PAST SUBJINCTIVE MOOD' OR V_2. So, omit 'rises' and write 'rose' in its place.

21. Arrange the following words in a meaningful order.
1. Dog
2. Chameleon
3. Chimpanzee
4. Cat
5. Buffalo
6. Crocodile
A. 2,6,1,4,5,3
B. 5,3,4,1,2,6
C. 2,6,1,5,4,3
D. 6,3,4,1,2,5
Ans. A
Sol.
According to their average life span,

Order	Animals	Life span
1.	Chameleon	3.5 years
2.	Crocodile	13 years
3.	Dog	20 years
4.	Cat	30 years
5.	Buffalo	45 years
6.	Chimpanzee	50 years

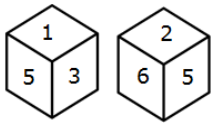
So the correct order will be,
2 - 6 -1 - 4 - 5 - 3
Hence, the correct response is option (a)

22. Select the set in which the numbers are interlinked in the same way as the numbers are related in the set given below.
(8, 16, 12)
A. (5, 15, 13)
B. (3, 6, 2)
C. (7, 14, 11)
D. (1, 4, 2)
Ans. B
Sol.
$8 \xrightarrow{\times 2} 16 \xrightarrow{-4} 12$

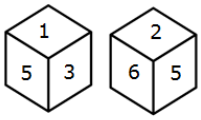
Similarly,
$3 \xrightarrow{\times 2} 6 \xrightarrow{-4} 2$

Hence, option B is correct answer.

23. Two rotated positions of a dice are given below. Which number will be at the top if '4' is at the bottom?



A. 3
B. 5
C. 2
D. 1
Ans. B
Sol.



From (1) and (2), side face of 5 will be 1,3,2 and 6.
Therefore, if '4' is at the bottom then 5 will be at the top.
Hence, option B is the correct response.

24. Which two signs should be interchanged to make the following equation correct?
55+7×5-28÷4=27
A. ÷ and +
B. × and ÷
C. + and -
D. + and ×
Ans. C
Sol.
By checking Option A,
55+7×5-28÷4=27
After changing the symbols,
55÷7×5-28+4=27
Applying BODMAS we get,
=55÷7×5-28+4
Since, 55 is not divisible by 7, so result will come in decimal.
Therefore, 55+7×5-28÷4=27 is not the correct equation.
By checking Option B,
55+7÷5-28×4=27
After changing the symbols,
55+7×5-28÷4=27
Applying BODMAS we get,
=55+35-7
=90-7
=83
Therefore, 55+7÷5-28×4=27 is not the correct equation.
By checking Option C,
55+7×5-28÷4=27
After changing the symbols,
55-7×5+28÷4=27
Applying BODMAS we get,
=55-35+7
=20+7
=27
Therefore, 55+7×5-28÷4=27 is the correct equation.
By checking Option D,
55+7×5-28÷4=27
After changing the symbols,
55×7-5+28÷4=27
Applying BODMAS we get,
=385-5+7
=385+2
=387
Therefore, 55+7×5-28÷4=27 is not the correct equation.
Hence, option C is the correct response.

25. A letter series is given below in which some letters are missing. Select the option that gives the letters that can fill these blanks in that order.
a_ca_bab_ad_abc_db
A. bcdba
B. bdcba
C. bdcab
D. bddac
Ans. B
Sol.
The sequence is – abcadb
The complete series is as follows:-
abcadb/abcadb/abcadb
Therefore, (b) is the correct option.

26. Select the option that is related to the third letter-cluster in the same way as the second letter-cluster is related to the first letter-cluster.
CDAF : XWZU :: DEFC : ?
A. XWYV
B. WVXU
C. WVUX
D. VWXY
Ans. C
Sol.
The letters of the second group are the reverse alphabetical order of first group.

C D A F
| | | |
X W Z U (Reverse order)

Similarly,
D E F C
| | | |
W V U X

Hence, option C is the correct response.

27. Select the letter cluster that will come next in the following series.
FQB, HSD, GRC, ITE, HSD,?
A. JMF
B. JUT
C. JUF
D. RUF
Ans. C
Sol.
Given series follows the pattern given below:

First Letter: F $\xrightarrow{+2}$ H $\xrightarrow{-1}$ G $\xrightarrow{+2}$ I $\xrightarrow{-1}$ H $\xrightarrow{+2}$ J
2nd Letter: Q $\xrightarrow{+2}$ S $\xrightarrow{-1}$ R $\xrightarrow{+2}$ T $\xrightarrow{-1}$ S $\xrightarrow{+2}$ U
Third Letter: B $\xrightarrow{+2}$ D $\xrightarrow{-1}$ C $\xrightarrow{+2}$ E $\xrightarrow{-1}$ D $\xrightarrow{+2}$ F

Hence, the correct answer is option C.

28. If $2\tan\theta + 3\sec^2\theta = 8$, $0^\circ < \theta < 90^\circ$, then $\frac{\sec\theta - \cot\theta}{\operatorname{cosec}\theta + \tan\theta}$ =?
A. $2(2-\sqrt{2})$
B. $3-2\sqrt{2}$
C. $3+2\sqrt{2}$
D. $4-3\sqrt{2}$
Ans. B
Sol.
Here, $2\tan\theta + 3\sec^2\theta = 8$
$\Rightarrow 2\tan\theta + 3(1+\tan^2\theta) = 8$
$\Rightarrow 3\tan^2\theta + 2\tan\theta + 3 = 8$
$\Rightarrow (\tan\theta - 1)(3\tan\theta + 5) = 0$
$\Rightarrow \tan\theta = 1 = \tan 45^\circ$
$\Rightarrow \theta = 45^\circ$
Hence the value of :

$$\frac{sec\theta - cot\theta}{cosec\theta + tan\theta} = \frac{sec45^\circ - cot45^\circ}{cosec45^\circ + tan45^\circ}$$

$$= \frac{\sqrt{2}-1}{\sqrt{2}+1}$$

By rationalizing we get :

$$\frac{(\sqrt{2}-1)^2}{(\sqrt{2})^2 - 1} = 3 - 2\sqrt{2}$$

29. A and B start moving towards each other from places X and Y, respectively, at the same time. The speed of A is 20% more than that of B. After meeting on the way, A and B take $2\frac{1}{2}$ hours and x hours, to reach Y and X, respectively. What is the value of x?
A. $3\frac{2}{3}$
B. $3\frac{2}{5}$
C. $3\frac{1}{2}$
D. $3\frac{3}{5}$
Ans. D
Sol.

X C Y

Speed of A is 20% more than speed of B.
If speed of B = 5 units
Then, speed of A = 6 units
Let they meet at point C
Time taken by B to reach C = $2\frac{1}{2} = \frac{5}{2}\ hrs$
Time taken by A to reach C = x hrs
By formula :

$$\frac{Speed_1}{Speed_2} = \sqrt{\frac{Time_2}{Time_1}}$$

$$\frac{6}{5} = \sqrt{\frac{2x}{5}}$$

$$\Rightarrow \frac{36}{25} = \frac{2x}{5}$$

$$x = \frac{36 \times 5}{25 \times 2} = 3\frac{3}{5}\ hrs$$

30. A right circular cylinder of maximum possible size is cut out from a solid wooden cube. The remaining material of the cube is what percentage of the original cube? (Take π = 3.14)
A. 22.4
B. 22.8
C. 21.8
D. 21.5
Ans. D
Sol.
If a cylinder is cut out of wooden cube then
The maximum diameter of cylinder will be equal to edge of the cube.
Let the side of cube = a
Then radius of cylinder = $\frac{a}{2}$
Height of cylinder = a
Volume of cube = a^3
Volume of cylinder = $\pi \frac{a^2}{4}(a) = \frac{\pi a^3}{4}$
Percentage = $\frac{\left(a^3 - \pi\left(\frac{a}{2}\right)^2(a)\right)}{a^3} \times 100 = \frac{4-\pi}{4} \times 100 = 21.5$

31. Find the minimum value of $x^2 + 3x + 2 + |x + 2|$
A. -1
B. 0
C. 1
D. -2
Ans. A
Sol.
There will be two cases
Case 1: when the value of x + 2 > 0
Then $x^2 + 3x + 2 + x + 2$
$= x^2 + 4x + 4$
$= (x + 2)^2$
Minimum value in this case is 0 for x = -2.
Case 2: when the value of x + 2 < 0
then $x^2 + 3x + 2 - (x + 2)$
$= x^2 + 2x + 1 - 1$
$= (x + 1)^2 - 1$
Minimum value in this case is -1 for x = -1
So the minimum value of function $x^2 + 3x + 2 + |x + 2|$ is -1.

32. If $x^3 + 5x^2 + 10k$ leaves remainder -2x when divided by $x^2 + 2$ then the value of k is:
A. 0
B. 1
C. -1
D. -2
Ans. B
Sol.
Substitute $x^2 = -2$ in the given expression.
$\Rightarrow x^2.x + 5x^2 + 10k = -2x$
$\Rightarrow -2x + 5 \times (-2) + 10k = -2x$
$\Rightarrow -10 + 10k = 0$
$\Rightarrow k = 1$

33. The value of 9 × [(9 – 4) ÷ {(8 ÷ 8 of 4) + (4 ÷ 4 of 2)}] is:
A. $\frac{15}{4}$
B. 20
C. $\frac{15}{2}$
D. 60
Ans. D
Sol.
9 × [(9 – 4) ÷ {(8 ÷ 8 of 4) + (4 ÷ 4 of 2)}]
= 9 × [(9 – 4) ÷ {$\frac{1}{4} + \frac{1}{2}$}]
= 9 × [5 ÷ $\frac{3}{4}$]
= 9 × $\frac{20}{3}$
= 60

34. A loan of Rs. 8200 at 5% per annum compound interest, is to be repaid in two equal annual instalments at the end of every year. Find the amount of each instalment?
A. Rs. 4100
B. Rs. 5000
C. Rs. 4410
D. Rs. 3650
Ans. C
Sol.
$5\% = \frac{1}{20}$
Let principal = 20 unit
Instalment = 20 +1 = 21 unit

YEAR	PRINCIPAL	INSTALMENT
1ST	20×21	$21_{\times 21}$.....
2ND	400	441.....

Since instalment is equal hence multiply equation (1) by 21:
Total principal = 420 + 400 = 820 units
⇒ 820 units = Rs. 8200
⇒ 1 unit = Rs. 10
⇒ 441 unit = Rs. 4410
Hence each instalment = Rs. 4410

35. If $5\sqrt{5}x^3 + 2\sqrt{2}y^3 = (Ax + \sqrt{2}y)(Bx^2 + 2y^2 + Cxy)$ then the value of $(A^2 + B^2 - C^2)$ is :
A. 30
B. 40
C. 20
D. 15
Ans. C
Sol.

$$5\sqrt{5}x^3 + 2\sqrt{2}y^3 = \left(Ax + \sqrt{2}y\right)\left(Bx^2 + 2y^2 + Cxy\right)$$

$$\left(\sqrt{5}x + \sqrt{2}y\right)^3 = \left(\sqrt{5}x + \sqrt{2}y\right)\left(5x^2 + 2y^2 - \sqrt{10}xy\right)$$

When we compare, we get –

$$A = \sqrt{5},\ B = 5,\ C = -\sqrt{10}$$

Required-

$$A^2 + B^2 - C^2 = 25 + 5 - 10$$
$$= 20$$

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