



21 Day Study Plan

Day-21



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1. Who recently wrote the book Magadhnama?

- A. Kalraj Mishra
- B. Tamilsai Soundararajan
- C. Phagu Chauhan
- D. Kumar Nirmalendu

Ans. D

Sol.

The book Magadhnama is recently written by **Kumar Niemalendu** and released by Phagu Chauhan on 19th January, 2020.

- Phagu Chauhan is presently **governor** of Bihar.
- The 447-page research book gives interesting narrative presentation of the **glorious history of Magadha**.
- This book contains information about the history of Magadha, Buddhist and Jain religions in Magadha, and the prosperity of development, arts and genres.

2. 'Politics of Opportunity' book which is recently launched was released by_____.

- A. Phagu Chauhan
- B. Kiran Desai
- C. S Gurumurthi
- D. Bibek Debroy

Ans. C

Sol.

'**Politics of Opportunity**' book is recently launched on 28 Dec, 2019, it was released by **S Gurumurthy**.

- S Gurumurthi is a senior political analyst.
- The book written by **R P N Singh** throws light on the subject related to the rise of regional parties and Centre -States relation.
- **RNP Singh** is a former **officer** of the **Intelligence Bureau**.

3. Which cell organelle is the site of ribosome synthesis?

- A. Golgi bodies
- B. Mitochondria
- C. Nucleolus
- D. Endoplasmic Reticulum

Ans. C

Sol.

Nucleolus is the site of ribosome synthesis.

• Nucleolus is a round body shaped organelle found **inside the nucleus**.

• Nucleolus makes ribosomal subunits from proteins and rRNA, and sends them to rest of the cell to form complete ribosomes.

• It is also involved in controlling cellular activities and cellular reproduction.

• Ribosomes make proteins; therefore, the nucleolus plays a vital role in making proteins in the cell.

4. Which cell organelle is called as post office of cell?

- A. Endoplasmic Reticulum
- B. Golgi Bodies
- C. Ribosomes
- D. Lysosomes

Ans. B

Sol.

Golgi Bodies are also known as post office of cell. It is named after its discoverer Camillo Golgi.

• A Golgi body helps process and package proteins and lipid molecules, especially proteins destined to be exported from the cell.

• **The Golgi apparatus and endoplasmic reticulum work together to produce new cell membrane.**

• It is also the organelle that builds lysosomes.

5. Knot is a unit of which of the following quantity?

- A. Distance
- B. Velocity
- C. Force
- D. Torque

Ans. B

Sol.

Knot is a unit of speed which is equal to nautical mile per hour.

• The knot is a non-SI unit.

• The ISO standard symbol for the knot is **kn**.

• Nautical miles and knots are convenient units to use when navigating an aircraft or ship.

6. Which of the following is true about Liquid Hydrogen?



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- A. It is a colourless liquid.
- B. Used as a rocket fuel.
- C. Produces water vapor in combustion with oxygen.
- D. All of these

Ans. D

Sol.

Solution:

- Liquid Hydrogen is the liquid state of the element hydrogen.
- It is a colourless liquid & a common liquid rocket fuel for rocketry applications.
- The product of its combustion with oxygen alone is water vapor.
- It requires cryogenic storage technology as it is a hazard for cold burns.

All of the above options are correct.

7. Which of the following is the most advanced form of reactors?

- A. Heavy Water Reactors
- B. Boil Water Reactors
- C. CO₂-graphite Reactors
- D. Fast Breeder Reactors

Ans. D

Sol.

Fast Breeder Reactors are most advanced type of reactors.

- A fast breeder reactors is a nuclear reactor that uses fast neutron to generate more nuclear fuels than they consume while generating power.
- In Japan, an experimental fast-breeder reactor "Joyo" was first developed by the Japan Atomic Energy Agency.
- France has made the largest implementation of breeder reactors with its large Super-Phenix reactor.

8. BIMSTEC was formed in which year?

- A. 1992
- B. 1994
- C. 1997
- D. 1999

Ans. C

Sol.

- BIMSTEC was formed in 1997.
- It has 14 main sectors for development of economic and technical development.
- These fourteen sectors are- Trade and Investment, Transport and

Communication, Energy, Tourism, Technology, Fisheries, Agriculture, Public Health, Poverty Alleviation, Counter Terrorism, Environment and Disaster Management, People to People Contact, Cultural Cooperation and Climate Change.

9. Which is the 2nd largest peninsular river?

- A. Godawari
- B. Krishna
- C. Kaveri
- D. Mahanadi

Ans. B

Sol.

The three largest Rivers of peninsular India are as follows-

a) The **Godavari** is the **largest river system of the Peninsular India** with a total length of 1465 kms.

b) The **Krishna** is the second largest river of Peninsular India with total length of 1400 kms.

c) The **Kaveri River** is the third largest river of Peninsular India with a total length of 765 kms.

- All the three rivers Godawari, Krishna and Kaveri originate from Western Ghats area and drain into Bay of Bengal.

10. Millerite is an ore of which element?

- A. Cadmium
- B. Uranium
- C. Silver
- D. Nickel

Ans. D

Sol.

• **Millerite is an ore of Nickel.** It is a nickel sulphide mineral having compound formula NiS.

• It has a hardness of 3.5 on mohr's scale and exists in **Hexagonal** system.

• It was discovered by Wilhelm Haidinger in 1845.

• Other important ores of Nickel are- Pentlandite, Pyrrhotite, Garnierite and Niccolite.

11. NuaKhai festival is celebrated in which state?

- A. Tamil Nadu
- B. Telangana



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C. Andra Pradesh
D. Orissa

Ans. D
Sol.

* **Nuakhai festival is major festival celebrated in Orissa.**

* The festival is dedicated to welcome the new rice of the season.

* It is observed on Panchami of Bhadrapad month of Hindu calendar.

* It has a big significance for farmers and the agricultural community.

* The nine colour rituals of Nuakhai are- Beheren, Lagna Dekha, Daka Haka, Spaha Sutura, Ghina Bika, Nua dhan khuja, Baki paka, Nuakhai and Juhar Bhet.

12. Which part of the Indian Constitution deals with the citizenship provisions?

- A. Part IV
- B. Part III
- C. Part V
- D. Part II

Ans. D
Sol.

• **Articles 5 to 11 under Part II of the Constitution** deals with the citizenship provisions.

• This part does not define the term 'citizen' but it only identifies the persons who became citizens of India at its commencement.

• It empowers the Parliament to enact law to provide for such matters and any other matter relating to citizenship. Accordingly the Parliament has enacted the Citizenship Act, 1955, which has been amended many times.

13. Who has been appointed as the first woman Chief Technology Officer at the US government's powerful Federal Communications Commission (FCC)?

- A. Dr. Monisha Ghosh
- B. Virendra Sinha
- C. Shaifali Anderson
- D. Mukund Lakshman

Ans. A
Sol.

• **In December 2019, Dr. Monisha Ghosh has been appointed** as the first woman Chief Technology Officer at the

US government's powerful Federal Communications Commission (FCC).

• Federal Communications Commission is an independent agency of the United States government created by statute to regulate interstate communications by radio, television, wire, satellite, and cable.

• It was founded by **Franklin D. Roosevelt on 19 June 1934.**

• It is headquartered in Washington.

14. Which gas is safe and an effective extinguisher for all confined fires?

- A. Nitrogen dioxide
- B. Carbon dioxide
- C. Sulphur dioxide
- D. Nitrous Oxide

Ans. B
Sol.

• **Carbon Dioxide is an effective fire extinguisher.**

• Carbon Dioxide extinguishers are filled with non-flammable carbon dioxide gas under extreme pressure.

• Carbon dioxide extinguishers work by displacing oxygen, or taking away the oxygen element of the fire triangle.

• Carbon dioxide can be used on **Class B & C fires**. They are usually ineffective on Class A fires.

15. Find a word that is the synonym of - OBSTACLE

- A. Barrier
- B. Benefit
- C. Clearance
- D. Accessory

Ans. A
Sol.

The meanings of the words are:

Obstacle (बाधा) : a thing that blocks one's way or prevents or hinders progress.

Barrier (अवरोध) : a fence or other obstacle that prevents movement or access.

Benefit (लाभ) : an advantage or profit gained from something.

Clearance (शुद्धता) : the action or process of clearing or of being dispersed.

Accessory (उपसाधक) : a thing which can be added to something else in order to



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make it more useful, versatile, or attractive.

Hence, **option A** is the correct answer.

16. Select the most appropriate synonym of the given word.

COMBUSTIBLE

- A. nonexplosive
- B. fragile
- C. unbreakable
- D. inflammable

Ans. D

Sol.

Combustible (जलनेवाला) means capable of igniting. Inflammable is the most appropriate synonym of the given word. Nonexplosive means not explosive.

Fragile (कोमल) means delicate.

Unbreakable (अटूट) means impossible to break especially under ordinary usage.

Inflammable (शीघ्र जलनेवाला) means easily ignited.

Therefore, option (D) is the correct choice.

17. Select the most appropriate antonym of the given word.

Disdain

- A. Antipathy
- B. Admiration
- C. Derision
- D. Scorn

Ans. B

Sol. Disdain means the feeling that someone or something is unworthy of one's consideration or respect.

Antipathy means a feeling of strong dislike or opposition.

Admiration means respect and warm approval.

Derision means a situation where someone is considered stupid or of no value.

Scorn means a feeling of contempt or disdain for someone.

Therefore, 'admiration' is the antonym of the given word.

18. Select the most appropriate antonym of the given word.

Adamant

- A. rigid

- B. flexible
- C. fixed
- D. unshakable

Ans. B

Sol. Adamant: refusing to be persuaded or to change one's mind.

Rigid: unable to bend or be forced out of shape; not flexible; not able to be changed or adapted.

Flexible: ready and able to be changed; capable of bending easily without breaking.

Unshakable: strongly felt and unable to be changed.

Hence option B is the correct answer.

19. **Select the most appropriate meaning of the given idiom.**

Spartan life

- A. living life full
- B. life of ascetic
- C. live life under someone
- D. very painful life

Ans. B

Sol.

A spartan existence is a kind of like being a monk. They live the life of self-denial. They did not get sick. Hence, option B is the correct answer.

20. **Direction:** In the following question, out of the given four alternatives, select the alternative which best expresses the meaning of the Idiom/Phrase.

See eye to eye

- A. to be against
- B. to agree
- C. to pacify
- D. none of above

Ans. B

Sol.

This term agree to be in the full agreement. Hence option "B" is the correct answer.

21. Choose the correctly spelt word

- A. Qiete
- B. Quiet
- C. Quiete
- D. Queit

Ans. B

Sol.



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'Quiet' meaning 'making little or no noise' is the correct spelling. Hence, **option B** is the correct answer.

22. Select the correctly spelt word.

- A. restaurent
- B. meazure
- C. robbery
- D. leisure

Ans. D

Sol.

'Leisure' meaning 'time when one is not working or occupied; free time' is the correct spelling. The correct spellings of other options are 'restaurant', 'measure' and 'robbery'.

Hence, **option D** is the correct answer.

23. Identify the segment in the sentence which contains the grammatical error.

All the evidence against Shreeshant were rejected by the high court of Tamilnadu.

- A. All the evidence
- B. against Shreeshant were
- C. rejected by the
- D. high court of Tamilnadu.

Ans. B

Sol.

Option B has the grammatical incorrect part. Replace were by was. When the noun evidence means the information that is used in court to try to prove something is always an uncountable noun. Hence option B is the correct answer.

24. Identify the segment in the sentence which contains the grammatical error.

Whenever they go out shopping they take their dog with them.

- A. Whenever
- B. they go out
- C. shopping they take
- D. their dog with them.

Ans. B

Sol.

Option B has the grammatical incorrect part. Remove out. The phrasal verb go out has many meanings, when we go out means to leave one's house for social life/activity. Hence option b is the correct answer.

25. Identify the best way to improve the underlined part of the given sentence. If there is no improvement required, select 'no Improvement'.

He is a philanthropist as he sends a cheque of thousand dollars every month to an orphanage without a miss.

- A. thousands for dollars
- B. a thousand of dollars
- C. a thousand dollars
- D. No improvement

Ans. C

Sol.

Thousand is not a number, it's a noun. One thousand is a number. Use 'a thousand' or 'one thousand' in place of 'thousand'.

Hence, option C is the correct answer.

26. Select the most appropriate option to substitute the underlined segment in the given sentence. If no substitution is required, select No improvement.

On looking at the stack of Chinese warships in Indian Ocean, our navy got into an alert positon.

- A. armada of
- B. troupe of
- C. troop of
- D. No improvement

Ans. A

Sol.

The correct collective nouns phrases are: ARMADA of warships, TROUPE of artists, TROOP of soldiers. Hence, option A is the correct answer.

27.If

+ denotes -

- denotes *

* denotes /

/ denotes +

Then what will be the value of

$$60 * 10 / 40 + 6 - 5 =$$

- A. 3
- B. 144
- C. 16
- D. 200

Ans. C

Sol.

symbol	+	-	*	/
meaning	-	*	/	+



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After changing the symbols,
 $60 / 10 + 40 - 6 * 5$ (Applying BODMAS)
 $= 6 + 40 - 30$
 $= 46 - 30$
 $= 16$
 Hence, option C is the correct answer.

28. Three of the following four words are alike in a certain way & one is different. Pick the odd one out.

- A. Nepal
- B. Ireland
- C. Indonesia
- D. Afghanistan

Ans. B

Sol.

Except ireland all other three are countries while ireland is an island in europe.

Hence, option B is correct response

29. A cycle was sold for ` 4,140 with a profit of 15%. At what price could it have been sold to earn a profit of 25%?

- A. 4500
- B. 4350
- C. 4200
- D. 4850

Ans. A

Sol.

S.P of a cycle = 4140

Profit % = 15 %

S.P. = $115/100 \times CP$

$4140 = 115/100 \times CP$

$(4140 \times 100)/115 = CP$

$3600 = CP$

New P % = 25 %

New SP = $125/100 \times CP$

$SP = 125/100 \times 3600$

$SP = 4500$

Option A is correct response.

30. Three of the following four word pairs are alike in a certain way & one is different. Pick the odd word out.

- A. Tamil Nadu : South
- B. Punjab : North
- C. Assam : North-East
- D. Kerala : North-West

Ans. D

Sol.

The relationship is - State : Direction

All are true except option D as kerala is in south not in north-west direction.

31. Two statements are given, followed by three conclusions numbered I, II & III. Assuming the statements to be true even if they seem to be at variance commonly known facts, decide which of the conclusions logically follow(s) from the statements.

Statements:

Some quadrilaterals are squares.

All squares are rhombuses.

Conclusions:

I) No quadrilateral is a rhombus.

II) All rhombuses are squares

III) Some quadrilaterals are rhombuses.

A. Only conclusion II follows

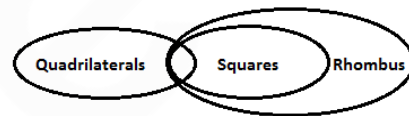
B. Only conclusion III follows

C. None of the conclusions follows

D. Only conclusion I follows

Ans. B

Sol.



Conclusions:

I. No quadrilateral is a rhombus. - (false)as some are rhombus

II. All rhombuses are squares - (false)

III. Some quadrilaterals are rhombuses.- (false) as you can see in the diagram

Hence, option B only conclusion III follows.

32. **Select the combination of letters that when sequentially placed in the gaps of the given letter series will complete the series.**

cd_ab_cd_abb_dda_b

- A. bbcdb
- B. dbdcb
- C. dbcbc
- D. cbdab

Ans. B

Sol.

The sequence is - cddabb

The complete series is - cddabb/cddabb/cddabb

Hence, option B is the correct answer.

33. A and B spend 60% and 75% of their incomes, respectively. If the savings of A are 20% more than that of B, then by what percentage is the income of A less than the income of B?

- A. 15
- B. 10
- C. 20
- D. 25

Ans. D
Sol.

Let the income of A and B be $100x$ and $100y$ respectively.

Expenditure of A = $60x$

Savings of A = $40x$

Expenditure of B = $75y$

Savings of B = $25y$

A.T.Q.

Savings of A/Savings of B = $120/100 = 40x/25y$

$\Rightarrow 150y = 200x$

$\Rightarrow x/y = 3/4$

then income of A = 300

And income of B = 400

Difference of incomes = $400 - 300 = 100$

Thus, Percentage by which the income of A less than the income of B =

$$\frac{400 - 300}{400} \times 100$$

$$= 100/4 = 25\%$$

34. Reema sold 48 articles for Rs.2,160 and suffered a loss of 10%. How many articles should she sell for Rs.2,016 to earn a profit of 12%?

- A. 40
- B. 36
- C. 28
- D. 32

Ans. B
Sol.

CP of one Article = $(2160/48) \times (100/90)$
= Rs.50

When he wants to earn 12% profit,

Then, SP = $50 \times (112/100) = \text{Rs. } 56$

Thus, Total no. of Articles = $2016/56 = 36$.

35. The marked price of an item is 25% above its cost price. A shopkeeper sells it, allowing a discount of $x\%$ on the marked price. If he incurs a loss of 8%, then the value of x is:

- A. 25.2%
- B. 25.6%
- C. 26.8%
- D. 26.4%

Ans. D
Sol.

Let CP be Rs. 100.

MP = Rs. 125

And SP = Rs.92

When he allows discount of $x\%$;

Then, SP = $125 \times (100 - x)/100$

He incurs a loss of 8%

Then, $92 = 125(100 - x)/100$

Then, $x = 26.4\%$.

36. If $11\sin^2\theta - \cos^2\theta + 4\sin\theta - 4 = 0$, $0^\circ < \theta < 90^\circ$, then what is the value of

$$\frac{\cos 2\theta + \cot 2\theta}{\sec 2\theta - \tan 2\theta} ?$$

- A. $\frac{12 + 5\sqrt{3}}{3}$
- B. $\frac{10 + 7\sqrt{3}}{6}$
- C. $\frac{10 + 5\sqrt{3}}{3}$
- D. $\frac{12 + 7\sqrt{3}}{6}$

Ans. D
Sol.

$11\sin^2\theta - \cos^2\theta + 4\sin\theta - 4 = 0$

Let $\sin\theta = x$, $\cos^2\theta = 1 - \sin^2\theta$

Then,

$11x^2 - (1 - x^2) + 4x - 4 = 0$

$\Rightarrow 11x^2 - 1 + x^2 + 4x - 4 = 0$

$\Rightarrow 12x^2 + 4x - 5 = 0$

$\Rightarrow 12x^2 + 10x - 6x - 5 = 0$

$\Rightarrow 2x(6x + 5) - 1(6x + 5) = 0$

$\Rightarrow (2x - 1)(6x + 5) = 0$

$\Rightarrow x = 1/2, -5/6$

we will take $x = 1/2$ as $0^\circ < \theta < 90^\circ$ and

$x = \sin\theta$ can't be negative.

$\sin\theta = 1/2 = \sin 30^\circ$

then $\theta = 30^\circ$

$$\text{Required } \frac{\cos 2\theta + \cot 2\theta}{\sec 2\theta - \tan 2\theta}$$

$$= \frac{\cos 60^\circ + \cot 60^\circ}{\sec 60^\circ - \tan 60^\circ} = \frac{\frac{1}{2} + \frac{1}{\sqrt{3}}}{2 - \sqrt{3}}$$



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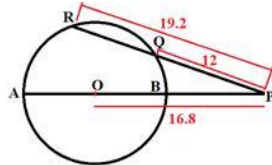
$$\begin{aligned} &= \frac{\sqrt{3}+2}{2\sqrt{3}(2-\sqrt{3})} = \frac{\sqrt{3}+2}{4\sqrt{3}-6} \times \frac{4\sqrt{3}+6}{4\sqrt{3}+6} \\ &= \frac{12+8\sqrt{3}+6\sqrt{3}+12}{48-36} = \frac{24+14\sqrt{3}}{12} \\ &= \frac{12+7\sqrt{3}}{6} \end{aligned}$$

37. Diameter AB of a circle with centre O is produced to a point P such that PO = 16.8 cm. PQR is a secant which intersects the circle at Q and R such that PQ = 12 cm and PR = 19.2 cm. The length of AB (in cm) is:

- A. 14.2
- B. 15.8
- C. 15.2
- D. 14.4

Ans. D

Sol.



Let OA = r, OA = OB = r (radius)

We know that -

$$PQ \times PR = PB \times PA$$

$$\Rightarrow 12 \times 19.2 = (16.8 - r)(16.8 + r)$$

$$\Rightarrow (16.8)^2 - r^2 = 12 \times 19.2$$

$$\Rightarrow r^2 = 282.24 - 230.4$$

$$\Rightarrow r^2 = 51.84$$

$$\Rightarrow r = 7.2$$

$$\text{Required AB} = 2r = 14.4 \text{ cm}$$

38. If $20x^2 - 30x + 1 = 0$, then what is the value of $25x^2 + 1/16x^2$?

A. $53\frac{3}{4}$

B. $58\frac{1}{2}$

C. $53\frac{1}{2}$

D. $58\frac{3}{4}$

Ans. A

Sol.

$$20x^2 - 30x + 1 = 0$$

$$\Rightarrow 20x^2 + 1 = 30x$$

$$\Rightarrow 20x + 1/x = 30$$

Divide the equation by 4:

$$\Rightarrow 5x + 1/4x = 30/4$$

Squaring both sides:

$$25x^2 + 1/16x^2 + 2 \cdot 5x \times 1/4x = 900/16$$

$$\Rightarrow 25x^2 + 1/16x^2 = 900/16 - 10/4$$

$$= 860/16 = 430/8 = 215/4$$

$$= 53\frac{3}{4}$$

39. If $5\cos\theta - 12\sin\theta = 0$, then what is the value of $\frac{1 + \sin\theta + \cos\theta}{1 - \sin\theta + \cos\theta}$?

- A. 3/2
- B. 5/4
- C. 3/4
- D. 5/2

Ans. A

Sol.

$$5\cos\theta - 12\sin\theta = 0$$

$$\text{Or } \sin\theta/\cos\theta = 5/12 = \tan\theta$$

$$\tan\theta = \text{Perpendicular/Base} = 5/12$$

$$\text{Then, } \sin\theta = 5/12, \cos\theta = 12/13$$

$$\frac{1 + \sin\theta + \cos\theta}{1 - \sin\theta + \cos\theta} = \frac{1 + \frac{5}{12} + \frac{12}{13}}{1 - \frac{5}{12} + \frac{12}{13}}$$

$$\begin{aligned} &= \frac{30/13}{20/13} \\ &= 3/2 \end{aligned}$$

40. If $a - b = 5$ and $a^2 + b^2 = 45$, then the value of ab is:

- A. 25
- B. 10
- C. 15
- D. 20

Ans. B

Sol.

$$\text{We have } a - b = 5.$$

Squaring both sides :

$$(a - b)^2 = 5^2$$

$$\Rightarrow a^2 + b^2 - 2ab = 25$$

$$\Rightarrow 45 - 2ab = 25$$

$$\Rightarrow 20 = 2ab$$

$$\Rightarrow ab = 10$$



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