21 Day Study Plan Day-20

1. Which of the following is NOT a primary force which influences ocean currents?
A. Magnetic fields of the earth
B. Heating by the sun
C. Gravity
D. Coriolis force
Ans. A
Sol.
● **Magnetic fields of the earth are not a primary force which influences ocean currents.**
● Ocean currents are influenced by Oceanic factors including the pressure gradient, temperature variations and salinity differences.
● Some atmospheric factors that influence ocean currents are atmospheric pressure, winds, rainfall, evaporation and insolation.

2. Which of the following statements about Ganymede is NOT correct?
A. It is bigger than Mercury.
B. It is the largest natural satellite in our solar system.
C. It is the only moon known to have its own internally generated magnetic field.
D. It revolves around Saturn.
Ans. D
Sol.
● **Ganymede revolves around Saturn is not correct because it is a satellite of Jupiter.**
● Ganymede is the largest satellite in the solar system that was discovered by Galileo and Marius in 1610.
● It is tidally locked with one side always facing toward the planet complete its revolution in seven days and three hours.

3. Dharoi Dam in Gujarat is built on which river?
A. Narmada
B. Tapi
C. Sabarmati
D. Mahi
Ans. C
Sol.
The Dharoi dam in Gujarat is located on Sabarmati River.

● It was constructed in 1978 and dedicated to irrigation, power and flood control measures.
● It is 1207 metres in length and 45 metres in height with total capacity of 908 MCM.
● Sabarmati River originates from Aravalli hills in Udaipur, Rajasthan and flows in Rajasthan and Gujarat.

4. 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'.

5. Who wrote the the book 'Indian Unrest'?
A. Valentine Chirole
B. Lord Curzon
C. W Rayleigh
D. AO Hume
Ans. A
Sol.
Valentine Chirole wrote the book 'Indian Unrest'.
● In his book, he called **Bal Gangadhar Tikal the 'Father of Indian Unrest'**.
● In response to this, Tilak filed a law suit against him in England. However, Tilak lost the case.
● Other books written by Valentine Chirole were – **Pan Islamism, India: old and new, The Far Eastern Question and India.**

6. Article 17 of the Constitution of India deals with the abolition of _____.
A. untouchability
B. titles
C. slavery
D. sati

Ans. A
Sol.
● Article 17 of the Constitution of India deals with the abolition of untouchability.
● Article 17 of the constitution abolishes the practice of untouchability. The practice of untouchability is an offence and anyone doing so is punishable by law.

7. Which article deals with Indian citizenship?
A. Article 3 to 17
B. Article 8 to 18
C. Article 5 to 11
D. Article 5 to 9
Ans. C
Sol.
• The Indian Constitution deals with the citizenship from **Articles 5-11 under Part III.**
• Article 5 to 8 deal that how a person became citizen of India.

8. What is the chemical formula of Siderite?
A. Fe_3O_4
B. $FeCO_3$
C. FeS_2
D. $FeO(OH)·nH_2.$
Ans. B
Sol.
The chemical formula of Siderite is $FeCO_3$. Siderite is an ore of Iron. It is 48% iron and contains no sulfur or phosphorus. The chemical formulas and names of chemicals given above are-
a) The chemical formula of Magnetite is Fe_3O_4.
b) The Chemical formula of Iron Pyrite is FeS_2.
c) The Chemical formula of Lemonite is $FeO(OH)·nH_2$.

9. Which of the follwoing is a major pigment of bile?
A. Rhodopsin
B. Melanin
C. Hemoglobin
D. Bilirubin
Ans. D
Sol.

• **Bilirubin is a brownish-yellow pigment found in bile.**
• It is produced when the liver breaks down old red blood cells. Bilirubin is then removed from the body through the stool and gives stool its normal color.
• Bile is a yellowish-brown fluid, produced by the liver, that aids the digestion of lipids in the small intestine. It is stored and concentrated in the gallbladder.

10. Which of following is the collection of genes responsible for the genetic traits of an organism?
A. Genetic markers
B. Phenotype
C. Genotype
D. Introns
Ans. C
Sol.
• **Genotype is the genetic constitution of organism** or collection of genes responsible for genetic characters in an organism.
• **Genetic markers** are alleles of genes, or DNA polymorphisms, used as experimental probes to keep track of an individual, a tissue, a cell, a nucleus, a chromosome, or a gene.
• **Introns** is the DNA base sequences interrupting the protein-coding sequences of a gene.
• **Phenotype** is the set of observable characteristics.

11. Select the related word/letters/number from the given alternatives.
1 : 8 :: ? :64
A. 25
B. 36
C. 30
D. 27
Ans. D
Sol. The pattern can be related as
1=1*1*1
Then, 2*2*2=8 and
4*4*4=64
The missing would obviously be the cube of 3 (next number to 2 and previous number to 4)

So, 3*3*3=27
Hence, option D is correct answer.

12. In the following question, select the related group of letters from the given alternatives.
KL : PO : : RQ : ?
A. MP
B. IJ
C. PL
D. QS
Ans. B

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A B C D E F G H I J K L M
Z Y X W V U T S R Q P O N
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Sol.
With reference to the position of the alphabets,
K is opposite to P
L is opposite to O
Similarly,
R is opposite to I
Q is opposite to J
Hence, option B is the correct response.

13. **In the following question, select the related letters from the given alternatives.**
BRIGHT : FWMLLY :: WINDOW : ?
A. ANISBR
B. ARNISB
C. ANRISB
D. ANRSIB
Ans. C
Sol. Let us first write down the alphabets and their corresponding position in the English alphabetic series.

A	B	C	D	E	F
1	2	3	4	5	6
G	H	I	J	K	L
7	8	9	10	11	12
M	N	O	P	Q	R
13	14	15	16	17	18
S	T	U	V	W	X
19	20	21	22	23	24
Y	Z				
25	26				

B+4 = F
R+5 = W
I+4 =M
G+5 =L

H+4 =L
T+5 =Y
The alphabets are adding up by (+4) and (+5) alternatively.
Similarly,
W+4 =A
I+5 =N
N+4 =R
D+5 = I
O+4 =S
W+5 = B
Hence, option C is correct.

14. Select the correct alternative to indicate the arrangement of the following words in a logical and meaningful order.
1) Microwaves
2) Ultraviolet Waves
3) Infrared Waves
4) Radio Waves
5) X- Rays
6) Visible Light Rays
7) Gamma Rays
A. 4, 1, 5, 6, 2, 3, 7
B. 4, 1, 3, 6, 2, 5, 7
C. 7, 1, 3, 6, 2, 5, 4
D. 4, 2, 3, 6, 1, 5, 7
Ans. B
Sol.
Correct order of electromagnetic waves from lowest to highest frequency is-
4. Radio Waves
1. Microwaves
3. Infrared Waves
6. Visible Light Rays
2. Ultraviolet Waves
5. X- Rays
7. Gamma Rays
Correct order is : 4, 1, 3, 6, 2, 5, 7.
Hence, option B is the correct response.

15. In the following question, select the odd word pair from the given alternatives.
A. Bhopal : Lake City
B. Jodhpur : Sun City
C. Bangalore : Blue City
D. Jaipur : Pink City
Ans. C
Sol.

Except for (Bangalore : Blue City), all other shows relationship as - Indian City Name : Its nickname.
But Bangalore is known as the Silicon Valley of India.
Jodhpur is known as Blue city of India as the houses in old areas are painted with blue color.
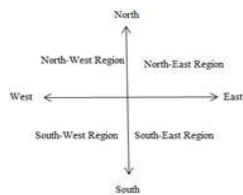Hence, the correct answer is option C.

16. Kangna walks 30m eastward and took left turn and moves 45m and took right turn and walked 20m and turned her left and goes 15m and reach to a shop. She goes back to her starting point from the shop following the shortest way. How much total distance she covered and shop is in which direction with respect to her starting point?
A. $10(11+\sqrt{61})$m, North-East
B. $15(11+\sqrt{61})$m, North-East
C. $20(11+\sqrt{61})$m, North-West
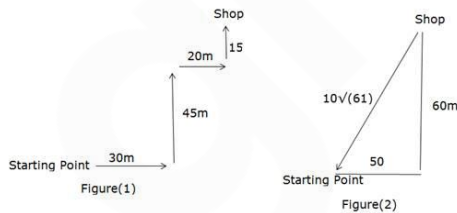D. $30(11+\sqrt{61})$m, North-West
Ans. A
Sol.
We know that:

We can show the given data in the following figure:

From the above figure(1), its clearly can be seen that the shop is north-east direction with respect to her starting point.
To find total distance, first find shortest distance as she goes back to her starting point from the shop following the shortest way.
From figure(2),
Shortest distance between starting point and shop $=\sqrt{50^2 + 60^2}$

$=\sqrt{2500 + 3600}$

$=\sqrt{6100}$

$=10\sqrt{61}$

Therefore, total distance she covered $=30+45+20+15+10\sqrt{61}$

$=110+10\sqrt{61}$

$=10(11+\sqrt{61})$m

So, the correct answer is option A.

17. If 'P' denotes '−', 'Q' denotes '×', 'R' denotes '÷' and 'S' denotes '+', then what will be the numeric value of 42 R 2 S 29 P 4 Q 8 = ?
A. 19
B. 21
C. 18
D. 24
Ans. C
Sol.
Refer to the table:

चिन्ह	P	Q	R	S
मतलब	−	×	÷	+

दी गयी समीकरण है : 42 R 2 S 29 P 4 Q 8 = ?
परस्पर बदलने पर - और BODMAS का नियम लगाने पर
⇒ 42 ÷ 2 + 29 − 4 × 8
⇒ 21 + 29 − 4 × 8
⇒ 21 + 29 − 32
⇒ 50 − 32 = 18
अतः विकल्प C सही उत्तर है

18. A letter series is given below in which some letters is missing. Select the option that gives the letters that can fill these blanks in that order.

_mnn_nn_nnm_

A. nmmn
B. mmnn
C. nnmn
D. nmnm
Ans. A
Sol.
The sequence is – nmn
The complete series is – nmn/nmn/nmn/nmn
Hence, option A is the correct response.

19. In a row of girls, if Renu who is twentieth from the left and Sabiya who is tenth from the right interchange their positions, Renu becomes twenty-fifth from the left. How many girls are there in the row?
A. 35
B. 37
C. 34
D. 36
Ans. C
Sol. Renu = 20th position from left
Sabiya = 10th Position from right
After interchange
Renu = 25th position from left
total number of girls = Renu from the left after interchange + Sabiya from the right before interchange – 1
= 25 + 10 – 1
= 35 – 1
total number of girls = 34
So, the correct answer is option C.

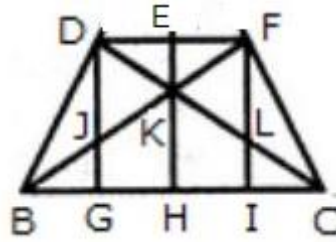20. How many triangles are given in the following figure?

A. 30
B. 22
C. 26

D. 29
Ans. B
Sol.

22 triangles in all; DEK,EFK,DJK,FLK,DJB,FLC,BJG,LIC, DFK, DKB,FCK,BKH,KHC,DGB,FIC, BFI,CDG,DFB,DFC,BKC, BFC and CDB.
Hence, the correct answer is option B.

21. Two guns are fired from the same place at an interval of 8 minutes. A person approaching the place observes that 7 minutes 56 seconds have elapsed between the hearings of the sound of the two guns. If the velocity of the sound is 595 m/sec, the man was approaching that place at what speed (in km/hr.)?
A. 16
B. 23
C. 18
D. 20
Ans. C
Sol.

$Difference\ of\ time = 8\ min. - 7\ min.\ 56\ sec = 4\ seconds$

$Distance\ covered\ by\ man\ in\ 7\ min.\ 56\ sec$
$= Distance\ covered\ by\ sound\ in\ 4\ seconds = 595 \times 4 = 2380\ m$

$\therefore Speed\ of\ man = \dfrac{2380\ m}{7\ min.\ 56\ sec} = \dfrac{2380}{476} m/sec$

= 5 m/sec
= 5×(18/5) kmph = 18 kmph
The correct response is option C.

22. A man sells his goods at a certain price, 20% of which is his profit. If the price at which he buys the goods increases by 10% and he sells them at an 8% higher price, then what will be his profit percent (correct to one decimal place)?
Note : For this question, discrepancy is found in question/answer. Full Marks is being awarded to all candidates.

A. 22.7
B. 21.8
C. 23.4
D. 21.4
Ans. A
Sol.
Profit = 20% on SP
$$= \frac{20}{80} \times 100 = 25\% \text{ on CP}$$
Let the CP = ₹100
$$SP = 100 \times \frac{125}{100} = ₹125$$
A.T.Q.
$$\text{New CP} = 100 \times \frac{110}{100} = ₹110$$
$$\text{New SP} = 125 \times \frac{108}{100} = ₹135$$
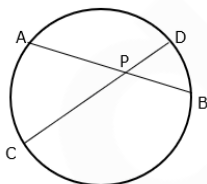$$\text{Profit\%} = \frac{135 - 110}{110} \times 100$$
$$= \frac{25}{110} \times 100 = 22.7\%$$

23. Two chords AB and CD of a circle interest each other at P internally. If
AP = 3.5 cm, PC = 5 cm, and DP = 7 cm, then what is the measure of PB?
A. 12 cm
B. 10.5 cm
C. 10 cm
D. 8 cm
Ans. C
Sol.
AP = 3.5 cm, PC = 5 cm, and DP = 7 cm

We know when chords intersect
AP × PB = DP × PC
3.5 × PB = 7 × 5
$$PB = \frac{35}{3.5} = 10 \ cm$$
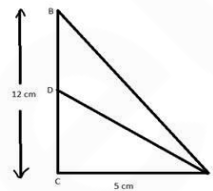
24. In ΔABC, ∠C = 90° and D is a point on CB such that AD is the bisector of ∠A. If AC = 5 cm and BC = 12 cm, then what is the length of AD?
A. $\frac{10}{6}$ cm

B. $\frac{5\sqrt{13}}{6}$ cm

C. $\frac{5\sqrt{13}}{3}$ cm

D. $\frac{20}{3}$ cm

Ans. C
Sol.
Given that In ΔABC, ∠C = 90° and D is a point on CB such that AD is the bisector of ∠A

In right angled ΔABC
Using Pythagoras Theorem
$$\Rightarrow (AB)^2 = (AC)^2 + (BC)^2$$
$$\Rightarrow (AB)^2 = (5)^2 + (12)^2 = 169$$
$$\Rightarrow AB = \sqrt{169} = 13 \ cm$$
Now using Angle bisector theorem , we can write
$$\Rightarrow \frac{BD}{BA} = \frac{CD}{CA}$$
$$\Rightarrow \frac{BD}{CD} = \frac{BA}{CA} = \frac{13}{5}$$
Hence BD:DC = 13:5 & BC = 12 cm
$$\Rightarrow DC = \frac{5}{18} \times 12 = \frac{10}{3} \ cm$$
In right angled triangle ACD
Using Pythagoras Theorem
$$\Rightarrow (AD)^2 = (CD)^2 + (AC)^2$$
$$\Rightarrow$$
$$(AD)^2 = \left(\frac{10}{3}\right)^2 + (5)^2 = \frac{100}{9} + 25 = \frac{325}{9}$$

$$AD = \sqrt{\frac{5 \times 5 \times 13}{3 \times 3}} = \frac{5\sqrt{13}}{3} \text{ cm}$$

$\Rightarrow$

25. If a sector of 144° is removed from a circular shape having radius 21cm, then find the height of the cone made from remaining the sector (nearest).
A. 19
B. 23
C. 14
D. 17
Ans. D
Sol.
$$\frac{2\pi r}{360} \times 144 = \frac{4\pi r}{5}$$
then the remaining sector's perimeter =
$$\frac{6\pi r}{5}$$

Remaining sector's Perimeter = perimeter of the base of the cone
$$\frac{6\pi r}{5} = 2\pi R$$

$$R = \frac{3 \times 21}{5}$$

R = 63/5 cm = 12.6 cm
Slant height of cone = radius of circle
$$l = 21 \ cm$$
h = $\sqrt{(21^2 - 12.6^2)}$
h = 16.8 cm = 17 cm

26. What is the value of cos(90 - B) sin (C - A) +sin (90 + A) cos (B + C) – sin (90 - C) cos (A + B)?
A. 1
B. sin (A+B-C)
C. cos (B+c-A)
D. 0
Ans. D
Sol. cos(90 - B) sin (C - A)) +sin (90 + A) cos (B + C) – sin (90 - C) cos (A + B)
sinBsin(C-A) + cosA cos(B+c)-cosCcos(A+B)
sinB(sinCcosA-cosCsinA)+cosA(cosBcosC - sinBsinC)-cosC(cosAcosB-sinAsinB)

= cosAsinBsinC-sinAsinBcosC+cosAcosBcosC-cosAsinBsinC-cosAcosBcosC+sinAsinBcosC =0

27. What is the value of (4/3)cot²(Π/6) + 3 cos²(150°) - 4cosec²(45°) + 8sin(Π/2)?
A. 25/4
B. 1
C. – 7/2
D. 13/2
Ans. A
Sol. [Read p as pi, as it was a misprint in SSC Paper.]
$$\frac{4}{3}\cot^2\left(\frac{p}{6}\right) + 3\cos^2 150° - 4\csc^2 45 + 8\sin\left(\frac{p}{2}\right)$$

$$p = pi = \pi = 180°$$
$$= \frac{4}{3}\cot^2\left(\frac{180°}{6}\right) + 3\cos^2 150° - 4\csc^2 45 + 8\sin\left(\frac{180°}{2}\right)$$
$$= \frac{4}{3} \times 3 + 3 \times \frac{3}{4} - 4 \times 2 + 8$$
$$= 4 + \frac{9}{4} = \frac{25}{4}.$$

28. What is the sum of the greatest three digit number and smallest four digit number such that their HCF is 23?
A. 2001
B. 2002
C. 1984
D. 1998
Ans. A
Sol.
We need to find the greatest and the smallest numbers that are divisible by 23.
Greatest three-digit number = 999
Remainder left when greatest number divisible by 23 = $\frac{999}{23} = 10$
Greatest three-digit number divisible by 23 = 999 – 10 = 989
Smallest four-digit number = 1000
Remainder left when smallest number divisible by 23 = $\frac{1000}{23} = 11$
smallest number divisible by 23 = 1000 + (23 – 11) = 1012
sum = 989 + 1012 = 2001

29. A person can row a distance of 4 km upstream in one hour 20 minutes and can row back to the starting point in just 24 minutes. How much time (in hours) will he take to row 13 km in still water?

A. $2\frac{1}{2}$

B. $3\frac{1}{2}$

C. 2

D. 3

Ans. C

Sol.

Speed of boat upstream = 4/(4/3) = 3 km/hr

Speed of boat downstream = 4/(2/5) = 10 km/hr

Speed of boat in still water = (3+10)/2 = 6.5km/hr

Time taken by boat to travel 13 km in still water = 13/(6.5) = 2hours

30. Let x be the least number of 4 digits that when divided by 2, 3, 4, 5, 6 and

7 leaves a remainder of 1 in each case. If x lies between 2000 and 2500, then

what is the sum of the digits of x?

A. 4

B. 15

C. 9

D. 10

Ans. A

Sol.

Let x be a number that lies between 2000 and 2500.

LCM of 2 , 3 , 4 , 5 , 6 , 7 = 420

Now if we divide the number 2000 by 420, remiander = 320

And 420 – 320 = 100

New number 2000 + 100 = 2100

2100 is divisible by 420

For getting remainder as 1

Number will be 2101

Sum of digits 2 + 1 + 0 +1 = 4

31. **Select the option that can be used as a one-word substitute for the given group of words**

A small building or room used for Christian worship in a school, prison, hospital or large private house.

A. cathedral

B. church

C. congregation

D. chapel

Ans. D

Sol.

A small building or room used for Christian worship in a school, prison, hospital or large private house is called a "chapel". That is why D is the right answer.

32. **Select the most appropriate ANTONYM of the given word.**

ENRAGED

A. livid

B. aggravated

C. pleased

D. infuriated

Ans. C

Sol.

Let's learn the meanings of the words:

Enraged = very angry; furious.

Pleased = feeling or showing pleasure and satisfaction, especially at an event or a situation.

Aggravate = make (a problem, injury, or offence) worse or more serious.

Livid = furiously angry.

Infuriated = make (someone) extremely angry and impatient.

Option C is therefore the correct answer.

33. Choose the option which best expresses the meaning of the idiom/phrase given below.

"Smell a rat"

A. To show signs of cowardice

B. To smell the presence of a rat

C. To suspect that something is wrong about a situation

D. To become polite

Ans. C

Sol.

The idiom 'smell a rat' means 'begin to suspect trickery or deception'.

For example: When he died, investigators were called in and soon smelt a rat.

Therefore, option C is the correct answer.

34. **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.

35. **Select the INCORRECTLY spelt word.**
A. niece
B. ceiling
C. grief
D. yeild
Ans. D
Sol.
Option D has the correctly spelt word. The correct spelling of the word is "yield". It means to give way to arguments, demands, or pressure.
Other words and their meanings are:
Niece = a daughter of one's brother or sister, or of one's brother-in-law or sister-in-law.
Ceiling = the upper interior surface of a room or other similar compartment.
Grief = intense sorrow, especially caused by someone's death.

36. **Direction:** Identify the best way to improve the underlined part of the given sentence. if there is no improvement required, select 'no improvement'-
In my lifetime, I have been greatly privileged to travel to <u>some of</u> the most wonderful places in the world.
A. none of
B. least of the
C. only a few of
D. No improvement

Ans. D
Sol.
The sentence requires no improvement. Hence, option D is the correct answer.

37. **Direction:** Identify the best way to improve the underlined part of the given sentence. if there is no improvement required, select 'no improvement'-
My recent London trip was really special because I <u>was being able to meet</u> my nephew and his family after many years.
A. has able to
B. was able to meet
C. am unable to
D. no improvement
Ans. B
Sol.
The sentence is in simple past tense hence we will eliminate 'being' to make it grammatically correct. Therefore, option B is the correct answer.

38. Rewrite the sentence in active voice.
A children's story is written by Amith.
A. Amith has written a children's story
B. Amith wrote a children's story
C. Amith writes a children's story
D. Amith had written a children's story
Ans. C
Sol.
The rules for converting passive to active voice are as follows:
1. Identify the subject of the sentence - who is doing an action?
2. Rewrite the sentence so the subject is performing the action.
Therefore, the sentence in active voice will be option C i.e. Amith writes a children's story.

39. Rewrite the sentence in active voice.
Our house was built by my father.
A. My father had built our house
B. My father builds our house
C. My father has built our house
D. My father built our house
Ans. D
Sol.

The rules for converting passive to active voice are as follows:
1. Identify the subject of the sentence - who is doing an action?
2. Rewrite the sentence so the subject is performing the action.
Therefore, the sentence in active voice will be option D i.e. My father built our house.

40. Rewrite the sentence in active voice.
A few bags were bought by me.
A. I had bought a few bags
B. I have bought a few bags
C. I bought a few bags
D. I buy a few bags
Ans. C
Sol.
The rules for converting passive to active voice are as follows:
1. Identify the subject of the sentence - who is doing an action?
2. Rewrite the sentence so the subject is performing the action.
Therefore, the sentence in active voice will be option C i.e. I bought a few bags.

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