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Participant Name :

Test Date : 29-Aug-2020

Test Name : PART-B

Q.1 " No two electrons in an atom can have the same set of four quantum numbers" is known as the

Options :

- a. Pauli exclusion principle
- b. Hund's inclusion principle
- c. Pauli inclusion principle
- d. Hund's exclusion principle

- **Chosen Option :**
- **Correct Answer:** a

Q.2 The dipole moment of a BeF_2 molecule is

Options :

- a. 0
- b. 1
- c. 2
- d. 3

- **Chosen Option :**
- **Correct Answer:** a

Q.3 The term oxidation is defined as the

Options :

- a. A decrease in the oxidation number of the element in a substance
- b. addition of the electro positive element to a substance
- c. removal of electronegative element from a substance
- d. loss of electrons by a species

- **Chosen Option :**
- **Correct Answer:** d

Q.4 In the Carius method of estimation of halogen 0.15 g of an organic compound gave 0.12 g of AgBr. What is the percentage of bromine in the sample?

Options :

- a. 10.24%
- b. 25.42%
- c. 34.04%
- d. 45.81%

- **Chosen Option :**
- **Correct Answer:** c

Q.5 The green method of dry cleaning clothes is by using

Options :

- a. Tetrachloride ethane
- b. Liquefied carbon dioxide
- c. Liquefied nitrogen
- d. Hydrogen peroxide

- **Chosen Option :**

- Correct Answer: b

Q.6 The value of $\frac{1}{\log_4 120} + \frac{1}{\log_5 120} + \frac{1}{\log_6 120}$ is

Options :

- a. 0
- b. 1
- c. 24
- d. 120

- Chosen Option :
- Correct Answer: b

Q.7 For a 3x3 matrix A, $|A| = 4$ & $Adj(A) = \begin{pmatrix} 1 & p & 3 \\ 1 & 3 & 3 \\ 2 & 4 & 4 \end{pmatrix}$, then the value of p is

Options :

- a. 5
- b. 11
- c. 4
- d. 10

- Chosen Option :
- Correct Answer: b

Q.8 A plane P which is perpendicular to two planes $2x - 2y + z = 0$ & $x - y + 2z = 4$, passes through $(1, -2, 1)$. The distance of the plane P from the point Q $(1, 2, 2)$ is

Options :

- a. 0
- b. 1
- c. $\sqrt{2}$
- d. $2\sqrt{2}$

- Chosen Option :
- Correct Answer: d

Q.9 The area enclosed between the curves $x = ay^2$ and $y = ax^2$, $a > 0$ is 1sq. unit, then the value of 'a' is

Options :

- a. $\frac{1}{\sqrt{3}}$
- b. $\frac{1}{3}$
- c. $\sqrt{3}$
- d. 3

- Chosen Option :
- Correct Answer: a

Q.10 A fair coin is tossed repeatedly. If the tail appears on first four tosses, then probability of the head appearing in the fifth toss equals

Options :

- a. $\frac{1}{2}$
- b. $\frac{1}{8}$
- c. $\frac{1}{16}$
- d. $\frac{1}{32}$

- Chosen Option :

- Correct Answer: a

Q.11 A parallel plate air capacitance has a capacitance of 18 F, if the distance between the plates is tripled and a dielectric medium is introduced, the capacitance becomes 72 F, the dielectric constant of the medium is

Options :

- a. 4
- b. 12
- c. 9
- d. 2

- Chosen Option :
- Correct Answer: b

Q.12 A potentiometer wire, 10 meter long has the resistance of 40Ω is connected with the resistance box and a 2V storage cell, if the potential gradient along the wire is 0.1mV/cm, the resistance unplugged in the box is

Options :

- a. 260Ω
- b. 760Ω
- c. 960Ω
- d. 1060Ω

- Chosen Option :
- Correct Answer: b

Q.13 Which one of the phenomenon is used in the optical fibres

Options :

- a. Reflection
- b. Scattering
- c. Total internal reflection
- d. Interference

- Chosen Option :
- Correct Answer: c

Q.14 If the velocity of free electron is made double, change in its de-Broglie wavelength will be

Options :

- a. Increase by $\lambda/2$
- b. Decrease by $\lambda/2$
- c. Increase by 2λ
- d. Decrease by 2

- Chosen Option :
- Correct Answer: b

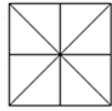
Q.15 In which region of electromagnetic spectrum do the Lyman series spectral lines of hydrogen atom occur

Options :

- a. X- ray
- b. Infrared
- c. Ultraviolet
- d. Visible

- Chosen Option :
- Correct Answer: c

Q.16 How many triangles are there in the figure given below.

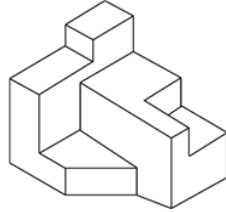


Options :

- a. 18
- b. 20
- c. 16
- d. 17

- Chosen Option :
- Correct Answer: c

Q.17 The 3- D figure shows the view of an object. Identify the correct top view from amongst the answer figures.

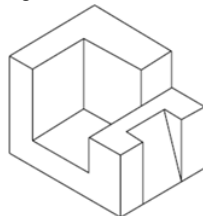


Options :

- a.
- b.
- c.
- d.

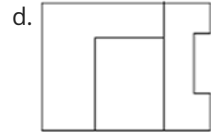
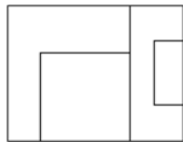
- Chosen Option :
- Correct Answer: b

Q.18 The 3- D figure shows the view of an object. Identify the correct top view from amongst the answer figures.



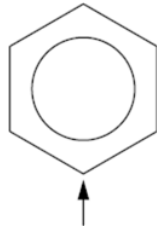
Options :

- a.
- b.
- c.

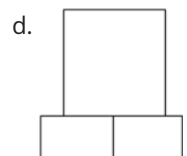
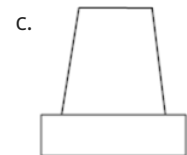
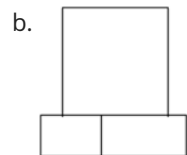
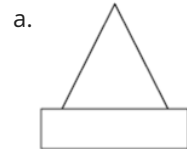


- Chosen Option :
- Correct Answer: c

Q.19 The top view of an object is shown in the figure. Identify the correct elevation from amongst the answer figures, looking in the direction of the arrow

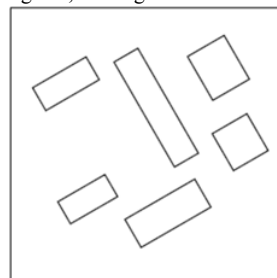


Options :



- Chosen Option :
- Correct Answer: d

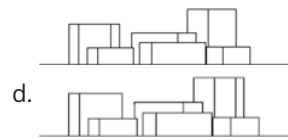
Q.20 The top view of objects is shown in the figure. Identify the correct elevation from amongst the answer figures, looking in the direction of the arrow.



Options :

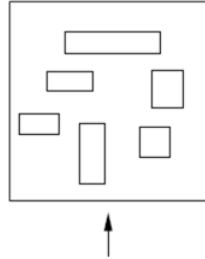


c.

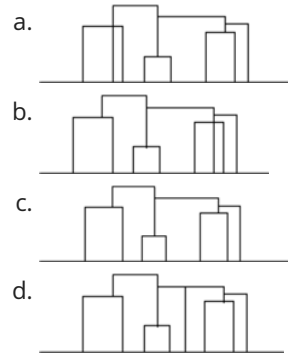


- Chosen Option :
- Correct Answer: b

Q.21 The top view of objects is shown in the figure. Identify the correct elevation from amongst the answer figures, looking in the direction of the arrow.



Options :



- Chosen Option :
- Correct Answer: c

Q.22 Who among the following is not an architect?

Options :

- a. Zaha Hadid
- b. M.F Hussain
- c. Hafiz Contractor
- d. Raj Rewal

- Chosen Option : c
- Correct Answer: b

Q.23 Who built Fatehpur Sikri?

Options :

- a. Jahangir
- b. Akbar
- c. Humayun
- d. Shah Jahan

- Chosen Option : b
- Correct Answer: b

Q.24 Where is Buckingham Palace located?

Options :

- a. Paris
- b. London
- c. Geneva
- d. Singapore

- Chosen Option :

- Correct Answer: b

Q.25 Which of the following is the most striking feature of the Sydney Opera House?

Options :

- Entrance hall
- Interior design
- Sail shaped roof
- Location

- Chosen Option :

- Correct Answer: c

Q.26 If $n(A) = 50$, $n(B) = 20$ and $n(A \cap B) = 10$, then $n(A \Delta B)$ is?

Options :

- 50
- 60
- 70
- 40

- Chosen Option :

- Correct Answer: a

Q.27 If A and B are two independent events such that

$P(A) = \frac{3}{10}$ and $P(A \cup B) = \frac{4}{5}$ then, $P(A \cap B)$ is equal to

Options :

- $\frac{3}{35}$
- $\frac{1}{5}$
- $\frac{1}{10}$
- $\frac{3}{14}$

- Chosen Option :

- Correct Answer: d

Q.28 If $U = \{a, b, c, d, e, f, g, h\}$ and $A = \{a, b, c\}$ then complement of A is

Options :

- $\{d, e, f\}$
- $\{a, b, c\}$
- $\{d, e, f, g, h\}$
- $\{d, e, g, h\}$

- Chosen Option :

- Correct Answer: c

Q.29 Which of the following is an empty set

Options :

- $\{\emptyset\}$
- $\{0\}$
- $\{n \in \mathbb{N} \text{ and } n < 1\}$
- The set of all even prime numbers

- Chosen Option :

- Correct Answer: c

Q.30 If $P(A) = 0.4$, $P(B) = 0.6$ and $P(A \cap B) = 0.15$, then the value of $P(A \cap A' \cup B')$ is

Options :

- a. $\frac{1}{17}$
- b. $\frac{4}{17}$
- c. $\frac{5}{17}$
- d. $\frac{10}{17}$

- Chosen Option : c
- Correct Answer: c

Q.31 Which one of the following relations on R is an equivalence relation?

Options :

- a. $aR_1b \Leftrightarrow |a| = |b|$
- b. $aR_2b \Leftrightarrow a \geq b$
- c. $aR_3b \Leftrightarrow a$ divides b
- d. $aR_4b \Leftrightarrow a < b$

- Chosen Option :
- Correct Answer: a

Q.32 Two points A and B in a plane are related if $OA = OB$, where O is a fixed point. This relation is

Options :

- a. partial order relation
- b. equivalence relation
- c. reflexive but not symmetric
- d. reflexive but not transitive

- Chosen Option :
- Correct Answer: b

Q.33 If A and B be two finite sets such that in total, number of subsets of A is 960 more than the total number of subsets of B , then $n(A) - n(B)$ (where $n(X)$ denotes the number of elements in set X) is equal to

Options :

- a. 6
- b. 2
- c. 3
- d. 4

- Chosen Option :
- Correct Answer: d

Q.34 Let R be the relation on the set of all real numbers defined by $a R b$ if $|a - b| \leq 1$.

Options :

- a. Reflexive and symmetric
- b. symmetric only
- c. transitive only
- d. anti-symmetric only

- Chosen Option :
- Correct Answer: a

Q.35 The negation of $A \rightarrow (A \vee \neg B)$ is

Options :

- a. a tautology
 - b. equivalent to $(A \vee \sim B) \rightarrow A$
 - c. equivalent to $A \rightarrow (A \vee \sim B)$
 - d. a fallacy
- Chosen Option : d
 - Correct Answer: d

Q.36 What is texture?

Options :

- a. The way a surface looks and feels
 - b. A solid colour
 - c. A types of shape
 - d. Lines drawn in one colour
- Chosen Option :
 - Correct Answer: a

Q.37 Let $A = \{(x, y): x > 0, y > 0, x^2 + y^2 = 1\}$ and let $B = \{(x, y): x > 0, y > 0, x^6 + y^6 \leq 1\}$. Then, $A \cap B$ is equal to

Options :

- a. B
 - b. A
 - c. \emptyset (empty set)
 - d. $\{(0,1), (1,0)\}$
- Chosen Option :
 - Correct Answer: b

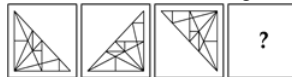
Q.38 How many triangles and squares are there in the figure given below



Options :

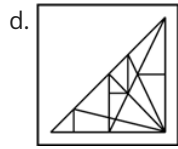
- a. 28 triangles, 5 squares
 - b. 24 triangles, 4 squares
 - c. 28 triangles, 4 squares
 - d. 24 triangles, 5 squares
- Chosen Option :
 - Correct Answer: a

Q.39 Which one of the answer figures will complete the sequence of the three problem figures?



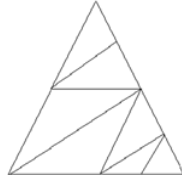
Options :

- a.
- b.
- c.



- Chosen Option :
- Correct Answer: a

Q.40 How many total numbers of triangles are there in the figure given below?



Options :

- a. 14
- b. 11
- c. 12
- d. 13
- Chosen Option :
- Correct Answer: d

Q.41 In the problem figure (1) and (2) have certain relation. Identify which one of the answer figures will have similar relationship between (3) and (4)?



(1) (2) (3) (4)

Options :

- a.
- b.
- c.
- d.

- Chosen Option :
- Correct Answer: d

Q.42 What is Green Architecture?

Options :

- a. Where green colour ed glass is used.
- b. Where buildings are painted green.
- c. Where building material used have consumed least energy.
- d. Where maximum green plants are used.

- Chosen Option :
- Correct Answer: c

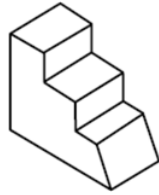
c

Q.43 Madhya Pradesh Vidhan Sabha is designed by

Options :

- a. Le Corbusier
- b. Uttam C Jain
- c. Charles Corres
- d. Raj Rewal
- Chosen Option : c
- Correct Answer: c

Q.44 Which one of the answer figures, shows the correct view of the 3 - D problem figure, after the problem figure is opened up?



Options :

- a.
- b.
- c.
- d.

- Chosen Option :
- Correct Answer: c

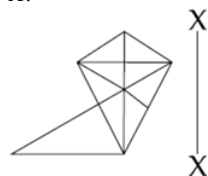
Q.45 Find the odd figure out in the figures given below.

Options :

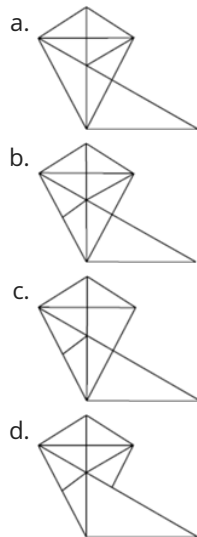
- a.
- b.
- c.
- d.

- Chosen Option :
- Correct Answer: c

Q.46 Which one of the answer figures is the correct mirror image of the problem figure with respect to X - X?



Options :



- Chosen Option :
- Correct Answer: b

Q.47 $(p \wedge \sim q) \wedge (\sim p \wedge q)$ is

Options :

- a tautology
- a contradiction
- both a tautology and a contradiction
- neither a tautology nor a contradiction

- Chosen Option :
- Correct Answer: b

Q.48 Which among the following is equivalent to $r \leftrightarrow s$

Options :

- $(r \wedge s) \vee (r \vee s)$
- $(r \vee s) \vee (r \vee \sim s)$
- $(\sim r \vee s) \vee (r \vee s)$
- $(r \wedge s) \vee (\sim r \wedge \sim s)$

- Chosen Option :
- Correct Answer: d

Q.49 Arc de Triomphe is a famous monument found in the city of

Options :

- London
- Rome
- Paris
- Athens

- Chosen Option :
- Correct Answer: c

Q.50 The temple of Angkor Wat is located in

Options :

- Vietnam
- Myanmar
- Cambodia
- Laos

- Chosen Option :
- Correct Answer: c

