Q1. What is the role of the National Coordinators in the SWAYAM platform.
(a) National Coordinators only manage technical issues
(b) They handle student registrations and certification
(c) They are responsible for content creation and quality assurance across different academic streams
(d) Their role is limited to promotional activities
Ans.(c)
Sol. National Coordinators oversee specific academic disciplines within SWAYAM. Their key responsibilities include coordinating content development with domain experts, ensuring that courses meet academic standards, and maintaining the quality and relevance of materials. They also facilitate institutional collaboration and ensure smooth course delivery and updates, thus safeguarding the platform's academic integrity.
Information Booster:
• Coordinators help align courses with university curricula and regulatory standards.
• They play a crucial role in faculty training and monitoring.
• Their oversight helps maintain consistency across diverse courses.
Additional Knowledge:
• This decentralized structure leverages domain expertise while maintaining a unified platform.
• Continuous feedback and quality assurance mechanisms are instituted.

Q2. Which of the following is the function of Placement Evaluation?
(a) To know entry Behaviour
(b) To know mastery in content
(c) To solve learning difficulties
(d) To certify the learner
Ans.(a)
Sol. Placement evaluation is conducted before the start of an instructional program or course to determine a learner's current level of knowledge, skills, and entry behaviour. The main function is to assess the preparedness of the learner and place them in the appropriate learning group or level that matches their existing capabilities. This helps in tailoring instruction according to learners' needs.
• (A) To know entry behaviour correctly describes the purpose of placement evaluation.
• (B) To know mastery in content relates more to formative or summative evaluations conducted during or after instruction.
• (C) To solve learning difficulties is primarily the role of diagnostic evaluation.
• (D) To certify the learner is the function of summative or certification evaluation.
Information Booster:
1. Placement evaluation helps in appropriate grouping and course planning.
2. It identifies learners' prior knowledge and readiness for new learning.
3. Avoids mismatch between learner ability and instructional level.
4. Facilitates differentiated instruction by understanding entry levels.
5. Does not assess mastery of content learned in the course.
6. Diagnostic evaluation focuses on identifying specific learning problems.
7. Summative evaluation is aimed at final certification or grading.

Additional Knowledge:

- Entry behaviour (A): Skills or knowledge a learner possesses before starting new instruction.
- Mastery in content (B): Measured by formative or summative assessments after learning.
- Learning difficulties (C): Diagnosed by specialized evaluations to provide remedial help.
- Certify the learner (D): Done after course completion to formally recognize learning achievements.

Q3. What are the four quadrants of content offered in SWAYAM MOOCs, and how do they enhance learning outcomes?
(a) Video lectures, Assignments, Forums, Exams
(b) Video lectures, Reading materials, Self-assessment tests, Discussion forums
(c) Textbooks, Video lectures, Live chats, Quizzes
(d) Reading materials, Exams, Peer review, Certificates
Ans.(b)
Sol. SWAYAM MOOCs are uniquely structured into four quadrants to provide a comprehensive learning experience:

- Video Lectures: Core content delivered by expert instructors, providing visual and auditory learning.
- Reading Materials: Supplementary notes and textbooks deepen understanding and support varied learning styles.
- Self-assessment Tests: Regular quizzes help learners evaluate their grasp of concepts, reinforcing learning and identifying gaps.
- Discussion Forums: These encourage peer-to-peer interaction and instructor support, facilitating collaborative learning and doubt resolution.

This multi-modal approach supports different learner preferences and helps improve knowledge retention and engagement.

Information Booster:

- The quadrant system reflects active learning principles, encouraging participation beyond passive watching.
- Discussion forums foster community, essential in online environments to reduce learner isolation.
- Self-assessments provide immediate feedback, crucial for formative evaluation.

Additional Knowledge:

- Many MOOC platforms globally adopt similar multi-component models.
- The balance of content delivery and interaction supports both self-paced and guided learning.

Q4. In hypothesis testing, what does the significance level (α) represent?
(a) Probability of accepting the null hypothesis when it is false
(b) Probability of rejecting the null hypothesis when it is true
(c) Probability of making a Type II error
(d) The power of the test
Ans.(b)
Sol. The significance level α is the threshold probability for making a Type I error—rejecting the null hypothesis (H_0) when it is actually true (false positive). Typical values are 0.05 or 0.01, reflecting a 5% or 1% risk of such an error.

Information Booster:

• Lowering α reduces Type I errors but increases Type II errors (β).
• Choice of α depends on the context; critical in medical or safety studies where errors have high consequences.
• Statistical tests compare the p-value against α to decide on H_0 rejection.

Additional Knowledge:

• Power of the test = 1 - β, the probability of correctly rejecting a false H_0.
• Balancing α and β is key in experimental design and sample size determination.

Q5. In which of the following sampling methods, the sample is also known as an accidental sample and a haphazard sample?
(a) Purposive sampling
(b) Quota sampling
(c) Stratified random sampling
(d) Convenience sampling

Ans.(d)

Sol. Convenience sampling is a non-probability sampling method where researchers select participants based on their easy availability, accessibility, and willingness to participate. It is often referred to as an accidental sample or haphazard sample because the researcher chooses subjects based on convenience rather than a structured plan.
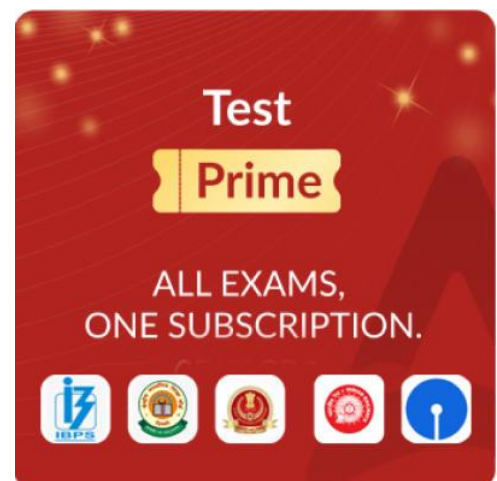
• This method is commonly used in exploratory research, pilot studies, and quick data collection when a random sample is difficult to obtain.
• Since it does not involve random selection, the results may lack generalizability to a larger population.

Information Booster:

1. Purposive Sampling: Researchers intentionally select participants based on specific characteristics relevant to the study.
2. Quota Sampling: Involves selecting participants proportionally from different subgroups based on predefined quotas.
3. Stratified Random Sampling: A probability sampling method where the population is divided into strata (subgroups), and random samples are drawn from each stratum for better representation.

Q6. The mean and standard deviation of 75 observations are 45 and 10, respectively. If 2 is added to each observation, the new mean and standard deviation will be
(a) 47, 12
(b) 47, 14
(c) 47, 10
(d) 46, 12

Ans.(c)

Sol. Adding a constant value to each observation in a data set will shift the mean by the same constant value but will not change the standard deviation.

Here's the breakdown:

- Original mean: 45
- Value added: 2
- New mean: Original mean + value added = 45 + 2 = 47

The standard deviation represents the spread of the data around the mean. Adding a constant value to each data point simply shifts the entire dataset together, maintaining the same relative distances between the points. Therefore, the standard deviation remains the same.

- Original standard deviation: 10
- New standard deviation: Remains the same = 10

Therefore, the new mean will be 47 and the new standard deviation will be 10.

Q7. Given below are two statements:

Statement I: Like correlation, statistical regression examines the association or relationship variables.

Statement II: The primary purpose of regression is prediction.

In light of the above statements, choose the most appropriate answer from the options given below:

(a) Both Statement I and Statement II are correct.

(b) Both Statement I and Statement II are incorrect.

(c) Statement I is correct but I Statement II is incorrect.

(d) Statement I is incorrect but Statement II is correct.

Ans.(a)

Sol. Statement I: This is correct. Statistical regression, like correlation, examines the association or relationship between variables. However, regression analysis goes further by modeling the relationship between a dependent variable and one or more independent variables.

Statement II: This is also correct. The primary purpose of regression is prediction. Regression models can be used to predict the value of the dependent variable based on the values of the independent variables.

Q8. Which one of the following is a tool of grounded theory?

(a) Constant comparison

(b) Auditing

(c) Deconstruction of narratives

(d) Use of uncritical language

Ans.(a)

Sol. Constant comparison is a key tool in grounded theory, a qualitative research methodology that involves systematically gathering and analyzing data to develop theories grounded in real-world observations. In grounded theory, researchers constantly compare new data with existing data to refine categories and concepts as they emerge. This iterative process helps in developing a theory that is closely connected to the data.

Information Booster: 1. Grounded theory is designed to generate theory from data through a continuous process of data collection, analysis, and theory development.

2. Constant comparison involves comparing data against other data points to identify patterns, themes, and categories.

3. This method ensures that the theory remains "grounded" in the actual data and not in preconceived hypotheses or models.

4. Grounded theory is particularly useful in exploring areas where there is little pre-existing theory.

5. The constant comparison method helps in the refinement of categories, ensuring that the emerging theory is comprehensive and well-supported.

6. Memo writing and theoretical sampling are other important techniques in grounded theory.

Q9. Today mass media exercise enormous
(a) Corporate power
(b) Ethical might
(c) Economic influence
(d) Trade unionism
Ans.(a)
Sol. Mass media today exercise enormous corporate power because large media corporations influence global communication, culture, and politics. Media conglomerates own and control vast networks of content distribution across various platforms, giving them significant power in shaping public opinion, trends, and even political landscapes.

Information Booster: · Corporate power in mass media refers to the control media conglomerates have over content creation and distribution.

- Major media companies control large shares of the global market, giving them substantial influence over public discourse.
- These corporations also drive advertising revenues, which in turn shape the economy and consumer behaviors.
- The consolidation of media companies into a few large conglomerates has increased the concentration of power in the media industry.

Additional Knowledge:

Ethical might (b): While media entities have ethical responsibilities, their power lies more in their corporate control than in ethical influence.

Economic influence (c): Although the media has economic impact, corporate power better describes their overall control and influence.

Trade unionism (d): Trade unionism is not directly linked to the operation of mass media companies.

Q10. In a certain code, the following sentences have been coded as mentioned below:
'Arjun is walking to school' is coded as
'NA', 'SI', 'AG', 'DR', 'VI'
'Krishna is speaking to Arjun' is coded as
'KA', 'TK', 'DR', 'SI', 'NA'
'School is within walking distance of Krishna' is coded as
'VI', 'SI', 'NIH', 'AG', 'LE', 'KA', 'OP'
What is the code for 'walking'?
(a) TK
(b) NA
(c) AG
(d) SI

Ans.(c)
Sol. To determine the code for 'walking,' let's examine the sentences and their corresponding codes:
- In the sentence 'Arjun is walking to school': 'walking' corresponds to 'AG'.
- In the sentence 'Krishna is speaking to Arjun', 'walking' is not present.
- In the sentence 'School is within walking distance of Krishna', the word 'walking' corresponds to 'AG' again.

Thus, 'AG' is the code for 'walking'.

Q11. Which informal fallacy is committed in the following statement- "American Indians are disappearing. That man is an American Indian'.
(a) Red Herring
(b) Hasty Generalization
(c) Begging the question
(d) Fallacy of division
Ans.(d)
Sol. The statement "American Indians are disappearing. That man is an American Indian" commits the fallacy of division. This fallacy occurs when one erroneously attributes something true of a group (in this case, "American Indians are disappearing") to an individual member of that group (the specific man being referred to as an American Indian).

Q12. Which of the following statements are logically equivalent?
A. Some animals are herbivores
B. Some non-herbivores are not animals
C. Some animals are non-herbivores
D. Some animals are not non-herbivores
Choose the correct answer from the options given below:
(a) A, B and C only
(b) A and B only
(c) B, C and D only
(d) A and D only
Ans.(d)
Sol. A. "Some animals are herbivores"
Logical Form:I-type(Some S are P).
D. "Some animals are not non-herbivores"
"Not non-herbivores" =herbivores(double negation).
So, it means: "Some animals are herbivores"(same as A).
Thus, A and D are logically equivalent(they mean the same thing).
Information booster
Two statements arelogically equivalentif theyalways have the same truth value(i.e., both true or both false in every possible scenario).
Key Tests for Equivalence:
1. Same Meaning:Rephrased versions of the same statement.
    o Example:
    o "Some S are P" ≡ "Some S are not non-P" (double negation).
2. Truth Tables:Columns for both statements match in all cases.
3. Logical Rules:
    o Obversion/Conversion(e.g., "No S are P" ≡ "No P are S").
    o Double Negation(e.g., "Not non-P" = "P").

Q13. In square of opposition which one of the following is contradictory of 'All S is P?
(a) All S is Q
(b) Some S is not P
(c) No S is P
(d) Some S is P
Ans.(b)
Sol. In the square of opposition, contradictory statements are pairs where one is always true, and the other is always false.
- The universal affirmative 'All S is P' (A-type proposition) states that every member of S belongs to P.
- The contradictory of this is the particular negative 'Some S is not P' (O-type proposition), which states that at least one member of S does not belong to P.
If "All S is P" is true, then "Some S is not P" must be false, and vice versa, making them contradictory.
Information Booster
1. Contradictory statements: One is true, and the other is false (e.g., A and O; E and I).
2. Contrary statements: Both cannot be true but can be false (e.g., A and E).
3. Subalternation: Truth flows downward (A → I, E → O), and falsity flows upward.
4. Sub-contrary statements: Both cannot be false but can be true (e.g., I and O).
5. The square of opposition visually represents these logical relationships among categorical propositions.

Q14. Statement I: Indian Logic makes a distinction between deduction and induction.
Statement II: Indian Logic studies thought as such and not the forms of thought alone.
In light of the above statements, choose the correct answer from the options given below:
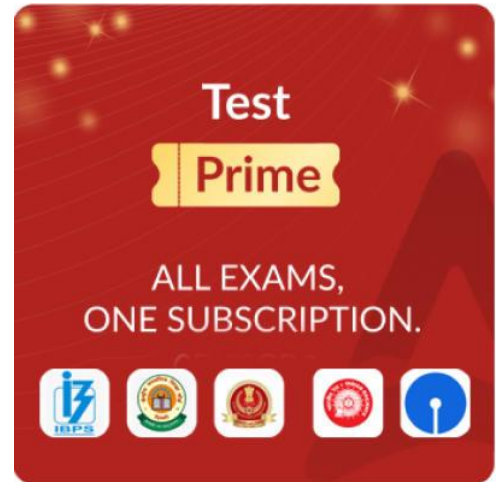Given below are two statements:
(a) Both Statement I and Statement II are true
(b) Both Statement I and Statement II are false
(c) Statement I is true but Statement II is false
(d) Statement I is false but Statement II is true
Ans.(d)
Sol. Statement I is false because Indian logic (especially in the Nyaya school) does not make a clear distinction between deduction and induction as understood in Western logic. Nyaya logic focuses more on the methods of reasoning that combine elements of both induction and deduction in the process of inference (Anumana). Statement II is true, as Indian logic studies thought not only through its formal structures but also as a process of cognition and epistemology. Indian logic is concerned with how knowledge is attained, structured, and validated through perception, inference, and testimony.
Information Booster: 1. Nyaya focuses on valid reasoning (Anumana) and does not explicitly distinguish between deduction and induction.
2. Indian logic covers epistemology, including how knowledge is obtained and verified.
3. The study of thought in Indian philosophy goes beyond forms and investigates processes like perception and inference.
4. Nyaya epistemology combines aspects of induction (generalizing from observation) and deduction (applying general rules).
5. Indian logic uses categories like Pramana (means of knowledge) and Hetu (cause or reason) to explore cognition.

Q15. What is the ratio between the total number of HDDs purchased by males from shop A on Tuesday and Wednesday together to the total number of HDDs purchased by females from shop B on Thursday and Friday together?

Comprehension:The following table shows the number of Hard Disk Drives (HDDs) sold by two different computer shops A and B on five different days from Monday to Friday along with the percentage of the number of HDDs purchased by females from these two shops. Based on the date in the table, answer the questions that follow.

Day-wise sale Details of HDDs by Shops				
Day	Shop A		Shop B	
	Number of HDDs Sold	Percentage (%) of number of HDDs Purchased by Females	Number of HDDs Sold	Percentage (%) of number of HDDs Purchased by Females
Monday	460	30%	640	30%
Tuesday	560	45%	880	65%
Wednesday	720	40%	540	80%
Thursday	720	60%	760	25%
Friday	840	65%	550	40%

(a) 45:73

(b) 71:41

(c) 73:41

(d) 74:41

Ans.(d)

Sol. Solution:

Step 1: Shop A – Males on Tuesday and Wednesday

Tuesday (Shop A):

- Total = 560
- Female % = 45% => Female = 45% of 560 = 252
- Male = 560 - 252 = 308

Wednesday (Shop A):

- Total = 720
- Female % = 40% => Female = 40% of 720 = 288
- Male = 720 - 288 = 432

Total Males (Shop A, Tue + Wed) = 308 + 432 = 740

Step 2: Shop B – Females on Thursday and Friday

Thursday (Shop B):

- Total = 760
- Female % = 25% => Female = 25% of 760 = 190

Friday (Shop B):

- Total = 550

- Female % = 40% => Female = 40% of 550 = 220

Total Females (Shop B, Thu + Fri) = 190 + 220 = 410

Final Ratio:

740410=7441410740=4174

Q16. What is the total number of HDDs purchased by males from shop B on all the five days?

Comprehension:The following table shows the number of Hard Disk Drives (HDDs) sold by two different computer shops A and B on five different days from Monday to Friday along with the percentage of the number of HDDs purchased by females from these two shops. Based on the date in the table, answer the questions that follow.

Day-wise sale Details of HDDs by Shops				
Day	Shop A		Shop B	
	Number of HDDs Sold	Percentage (%) of number of HDDs Purchased by Females	Number of HDDs Sold	Percentage (%) of number of HDDs Purchased by Females
Monday	460	30%	640	30%
Tuesday	560	45%	880	65%
Wednesday	720	40%	540	80%
Thursday	720	60%	760	25%
Friday	840	65%	550	40%

(a) 882

(b) 1704

(c) 1764

(d) 1664

Ans.(c)

Sol. Solution:

Monday:

Total sold = 640

Female % = 30% => Female = 30% of 640 = 192

Male = 640 - 192 = 448

Tuesday:

Total sold = 880

Female % = 65% => Female = 65% of 880 = 572

Male = 880 - 572 = 308

Wednesday:

Total sold = 540

Female % = 80% => Female = 80% of 540 = 432

Male = 540 - 432 = 108

Thursday:

Total sold = 760

Female % = 25% => Female = 25% of 760 = 190

Male = 760 - 190 = 570

Friday:

Total sold = 550

Female % = 40% => Female = 40% of 550 = 220

Male = 550 - 220 = 330

Total Males (Shop B):

448+308+108+570+330=1764

Final Answer:

1764 HDDs purchased by males from Shop B on all five days.

Q17. Total number of HDDs sold by shop A on Thursday and Friday together is _____ % of the total number of HDDs sold by shop B on Wednesday and Thursday together.

Comprehension:The following table shows the number of Hard Disk Drives (HDDs) sold by two different computer shops A and B on five different days from Monday to Friday along with the percentage of the number of HDDs purchased by females from these two shops. Based on the date in the table, answer the questions that follow.

Day-wise sale Details of HDDs by Shops				
Day	Shop A		Shop B	
	Number of HDDs Sold	Percentage (%) of number of HDDs Purchased by Females	Number of HDDs Sold	Percentage (%) of number of HDDs Purchased by Females
Monday	460	30%	640	30%
Tuesday	560	45%	880	65%
Wednesday	720	40%	540	80%
Thursday	720	60%	760	25%
Friday	840	65%	550	40%

(a) 125

(b) 100

(c) 120

(d) 80

Ans.(c)

Sol. Solution:

Step 1: Shop A – Total HDDs on Thursday and Friday

- Thursday (A) = 720
- Friday (A) = 840
- Total (A) = 720 + 840 = 1560

Step 2: Shop B – Total HDDs on Wednesday and Thursday

- Wednesday (B) = 540
- Thursday (B) = 760
- Total (B) = 540 + 760 = 1300

Step 3: Find the Percentage

Required %=(15601300)×100=120%Required %=(13001560)×100=120%

Final Answer:

120%

Q18. Total number of HDDs purchased by females from shop A on Wednesday and Thursday together is _____ % less than the total number of HDDs purchased by males from shop B on Thursday and Friday together:

Comprehension:The following table shows the number of Hard Disk Drives (HDDs) sold by two different computer shops A and B on five different days from Monday to Friday along with the percentage of the number of HDDs purchased by females from these two shops. Based on the date in the table, answer the questions that follow.

Day-wise sale Details of HDDs by Shops				
Day	Shop A		Shop B	
	Number of HDDs Sold	Percentage (%) of number of HDDs Purchased by Females	Number of HDDs Sold	Percentage (%) of number of HDDs Purchased by Females
Monday	460	30%	640	30%
Tuesday	560	45%	880	65%
Wednesday	720	40%	540	80%
Thursday	720	60%	760	25%
Friday	840	65%	550	40%

(a) 18
(b) 20
(c) 22.22
(d) 25

Ans.(b)

Sol. Solution:

Step 1: HDDs purchased by females from Shop A on Wednesday and Thursday

Wednesday (Shop A):

Total = 720

Female % = 40%

Females = 40% of 720 = 288

Thursday (Shop A):

Total = 720

Female % = 60%

Females = 60% of 720 = 432

Total females (Wednesday + Thursday) = 288 + 432 = 720

Step 2: HDDs purchased by males from Shop B on Thursday and Friday

Thursday (Shop B):

Total = 760

Female % = 25%

Females = 25% of 760 = 190

Males = 760 - 190 = 570

Friday (Shop B):

Total = 550
Female % = 40%
Females = 40% of 550 = 220
Males = 550 - 220 = 330
Total males (Thursday + Friday) = 570 + 330 = 900
Step 3: Percentage less calculation
Difference = 900 - 720 = 180
Percentage less = (180 / 900) × 100 = 20%
Final Answer:
20% less

Q19. If the total number of HDDs purchased from shop A and shop B on Saturday are 20% more and 30% more than the total number of HDDs sold by shop A and shop B on Wednesday, respectively, then what is the total number of HDDs purchased from shop A and shop B together on Saturday?
Comprehension:The following table shows the number of Hard Disk Drives (HDDs) sold by two different computer shops A and B on five different days from Monday to Friday along with the percentage of the number of HDDs purchased by females from these two shops. Based on the date in the table, answer the questions that follow.

Day-wise sale Details of HDDs by Shops				
Day	Shop A		Shop B	
	Number of HDDs Sold	Percentage (%) of number of HDDs Purchased by Females	Number of HDDs Sold	Percentage (%) of number of HDDs Purchased by Females
Monday	460	30%	640	30%
Tuesday	560	45%	880	65%
Wednesday	720	40%	540	80%
Thursday	720	60%	760	25%
Friday	840	65%	550	40%

(a) 1656
(b) 1566
(c) 1624
(d) 1646
Ans.(b)
Sol. Solution:
Step 1: HDDs sold on Wednesday
From the table:
Shop A (Wednesday): 720 HDDs
Shop B (Wednesday): 540 HDDs
Step 2: Saturday sales
Shop A on Saturday:
20% more than Wednesday
= 720 + (20% of 720)
= 720 + 144
= 864 HDDs

Shop B on Saturday:

30% more than Wednesday

= 540 + (30% of 540)

= 540 + 162

= 702 HDDs

Step 3: Total on Saturday

Total = 864 (Shop A) + 702 (Shop B) = 1566 HDDs

Final Answer:

1566 HDDs purchased from both shops on Saturday.

Q20. In computing, a Trojan horse is classified as a type of_____.

(a) Antivirus

(b) Shareware

(c) Freeware

(d) Malware

Ans.(d)

Sol.

• A Trojan horse is a sort of malware that seems to be legitimate software.

• Cyber-thieves and hackers can use Trojans to obtain access to a user's computer system.

• Social engineering is commonly used to influence users to download and run Trojans on their computers.

• Trojans can be used by cybercriminals to spy on you, steal your personal data, and get backdoor access to your system once they have been launched.

Q21. Which of the following are the types/sub-types of long term memory?

A. Declarative memory

B. Procedural memory

C. Episodic memory

D. Semantic memory

Choose the correct answer from the options given below:

(a) A, C and D only

(b) B and C only

(c) A and D only

(d) A, B, C and D

Ans.(d)

Sol. Long-term memory (LTM) is the system responsible for storing information over extended periods. It can be broadly classified into two types:

1. Declarative (Explicit) Memory – Memory that can be consciously recalled.

   o Episodic Memory – Memory of personal experiences and specific events.

   o Semantic Memory – General knowledge and facts about the world.

2. Non-Declarative (Implicit) Memory – Memory that influences behavior without conscious awareness.

   o Procedural Memory – Memory of motor skills and tasks (e.g., riding a bicycle).

Since all four options represent different types or subtypes of long-term memory, the correct answer is d (A, B, C and D)

Information Booster:
1. Declarative memory is responsible for storing facts and experiences, making it essential for learning and problem-solving.
2. Procedural memory plays a key role in skill acquisition and motor functions, involving brain structures like the basal ganglia and cerebellum.
3. Episodic memory enables individuals to recall past events, supporting personal identity and autobiographical recall.
4. Semantic memory contributes to knowledge of the world, language comprehension, and abstract thinking.

Q22. Assume six devices are arranged in a fully connected mesh topology, how many input output ports must each device have?
(a) 6
(b) 5
(c) 7
(d) 3

Ans.(b)
Sol. In a fully connected mesh, every device must link directly to every other device. With six devices total, each one needs a separate port for the other five devices, resulting in 5 I/O ports per device to ensure that all pairwise connections are established without intermediary switching hardware.
Important Key Points:
1. A full mesh requires each node to connect directly to all other nodes.
2. For N devices, each device needs N – 1 ports for direct links.
3. With 6 devices, that becomes 6 – 1 = 5 ports per device.
4. This topology maximizes redundancy and fault tolerance through multiple parallel paths.
Knowledge Booster:
* 6: Incorrect—providing 6 ports would include an unnecessary extra port that has no counterpart.
* 7: Incorrect—it exceeds the needed count (N – 1) and adds wasted hardware.
* 3: Incorrect—only connecting to three peers leaves two devices without direct links, breaking the full mesh.

Q23. Identify the correct order in which the following actions A-D take place in an interaction between a web browser and a web server when you plan to visit the Amazon website to purchase a Solid State Drive (SSD).
(A) The web browser requests a webpage using HTTP.
(B) The web browser establishes a TCP connection with the Amazon's web server.
(C) The web server sends the requested webpage using HTTP.
(D) The web browser finds the IP address of Amazon's website using DNS.
Choose the correct answer from the options given below:
(a) (A), (B), (D), (C)
(b) (B), (A), (C), (D)
(c) (C), (D), (B), (A)
(d) (D), (B), (A), (C)

Ans.(d)

Sol. The correct order of actions is as follows:

(D) The web browser first finds the IP address of Amazon's website using DNS (Domain Name System). This step translates the domain name (amazon.com) into an IP address that the browser can use to locate the server.

(B) The web browser then establishes a TCP connection with the Amazon web server using the Transmission Control Protocol (TCP), which ensures reliable communication between the client and server.

(A) After the TCP connection is established, the browser requests the webpage using HTTP (HyperText Transfer Protocol) to fetch the content from Amazon's web server.

(C) Finally, the web server sends the requested webpage to the browser using HTTP.

Information Booster:

1. DNS (Domain Name System) is responsible for resolving human-readable domain names into IP addresses.

2. TCP ensures a reliable, ordered, and error-checked communication between the client (browser) and the server.

3. HTTP (HyperText Transfer Protocol) is the protocol used by browsers to request and receive web pages from a server.

4. The TCP connection is the first step in ensuring that the devices can communicate reliably before exchanging HTTP requests and responses.

5. DNS resolution happens before any data transmission takes place, as the browser needs the IP address to contact the web server.

Q24. Which of the following is a malware?
(A) Virus
(B) Worms
(C) Ransomware
(D) Trojan
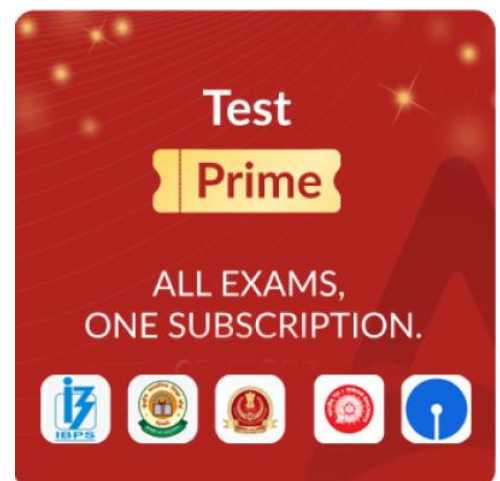Choose the correct answer from the options given below:
(a) (A) Only
(b) (A) and (D) Only
(c) (A), (B), (C) and (D)
(d) (B) and (C) Only

Ans.(c)

Sol. Malware (malicious software) is any software intentionally designed to cause damage to a computer, server, client, or computer network. The following are common types of malware:

- Virus (A): A virus is a malicious program that attaches itself to legitimate software and spreads to other programs and files.
- Worms (B): A worm is a self-replicating malware that spreads across networks without the need for human intervention.
- Ransomware (C): Ransomware encrypts the victim's data and demands a ransom payment to unlock it.

- Trojan (D): A Trojan is a type of malware that tricks the user into installing it, often appearing as a legitimate file, but then causes damage or steals information.

Hence, all the listed options (A), (B), (C) and (D) are types of malware. Therefore, the correct answer is (c): (A), (B), (C) and (D).

Information Booster:

1. Virus: Requires a host program to replicate and spread. Can corrupt files and disrupt computer operations.

2. Worm: Spreads through networks by exploiting vulnerabilities, often without requiring any user interaction.

3. Ransomware: Encrypts files and demands ransom payment, usually in cryptocurrency, to unlock the data.

4. Trojan: Disguises itself as legitimate software to trick users into installing it, allowing attackers to gain unauthorized access.

Additional Knowledge:

- Antivirus software: To protect against these types of malware, antivirus software can detect and remove viruses, worms, Trojans and ransomware.
- Phishing: One of the common methods to deliver Trojans and ransomware is through phishing emails.

Q25. Electrostatic Precipitators are used to control
(a) Air Pollution
(b) Water Pollution
(c) Soil Pollution
(d) Noise Pollution
Ans.(a)
Sol. Electrostatic precipitators (ESPs) are devices that remove dust and particulate matter from industrial and power plant emissions. They work by ionizing the particles in the air, which causes them to stick to a negatively charged electrode. ESPs are very effective at removing fine particles from the air, and they are an important part of air pollution control systems.

Q26. In water treatment Aeration is the process which
(a) Removes excess and objectionable gases
(b) Readjusts the pH of water
(c) Removes the large particles of floc from water
(d) Removes the solid particles 4.
Ans.(a)
Sol. In water treatment, aeration is a process primarily used to remove excess and objectionable gases from water. During aeration, air and water are brought into close contact, which allows gases trapped in the water to be released and, conversely, oxygen from the air to be dissolved into the water. Common gases removed during this process include carbon dioxide, methane, and hydrogen sulfide. Aeration also helps to oxidize dissolved iron and manganese, making them easier to remove during subsequent treatment processes. While aeration may incidentally affect the pH of water and assist in the precipitation of some particles, its primary purpose is the removal of gases.

Q27. What is the correct chronological order of the following from older to newer?
(A) Paris agreement
(B) Convention on biodiversity
(C) Kyoto Protocol
(D) Montreal Protocol
(E) Stockholm Conference
Choose the correct answer from the options given below:
(a) B, D, C, E, A
(b) B, C, D, E, A
(c) E, D, C, B, A
(d) E, D, B, C, A
Ans.(d)
Sol. The chronological order is:
1. Stockholm Conference (1972)
2. Montreal Protocol (1987)
3. Kyoto Protocol (1997)
4. Convention on Biodiversity (1992)
5. Paris Agreement (2015).
Information Booster · Stockholm Conference: Marked the beginning of international environmental governance.
• Montreal Protocol: Focused on phasing out ozone-depleting substances.
• Kyoto Protocol: Aimed at reducing greenhouse gas emissions globally.
• Convention on Biodiversity: Addressed the conservation of biological diversity.
• Paris Agreement: Targeted climate change mitigation with specific commitments from nations.

Q28. Ozone layer is in_____
(a) Thermosphere
(b) Mesosphere
(c) Stratosphere
(d) Troposphere
Ans.(c)
Sol. The ozone layer is located in the stratosphere, which is the second layer of the Earth's atmosphere. It plays a crucial role in absorbing the majority of the Sun's harmful ultraviolet (UV) radiation, protecting living organisms from its damaging effects.

Q29. Who was the Chairman of Kothari Commission?
(a) Dr. D. S. Kothari
(b) Dr. D. P. Kothari
(c) Dr. S. P. Kothari
(d) Dr. T. H. Kothari

Ans.(a)
Sol. Dr. D. S. Kothari was the Chairman of the Kothari Commission (1964–1966), also known as the Education Commission of India. The Kothari Commission was established by the Government of India to examine all aspects of the educational system in India and to recommend changes for its improvement. The commission's report laid the foundation for major educational reforms in the country, including the introduction of the 10+2+3 system of education.

Information Booster: 1. Kothari Commission (1964-66): Tasked with reforming India's education system, its recommendations have had long-lasting impacts on the structure and content of education in India.

2. The commission emphasized national integration, development of a common school system, and quality education for all.

3. The 10+2+3 system recommended by the commission became the standard structure for school and higher education in India.

4. Dr. D. S. Kothari, a prominent physicist, played a significant role in shaping India's scientific and educational policies.

5. The commission stressed moral education, work experience, and the development of scientific temper in students.

Q30. The objectives of All India Council of Technical Education (AICTE) are:
(A) Promotion of quality in technical education
(B) Funding salary of teachers in engineering colleges.
(C) Planning and coordinating development of technical education system.
(D) Promoting continuous and open learning in technical education
(E) Regulation and maintenance of norms and standards
Choose the correct answer from the options given below:
(a) A, D, E Only
(b) A, B, E Only
(c) A, C, E Only
(d) A, C, D Only
Ans.(c)
Sol. The correct answer is A, C, E Only because the primary objectives of the AICTE are to ensure the promotion of quality in technical education (A), to plan and coordinate the development of the technical education system (C), and to regulate and maintain norms and standards (E). The AICTE does not directly fund the salaries of teachers in engineering colleges (B), and while promoting continuous and open learning (D) is valuable, it is not a core stated objective of the AICTE.

Information Booster: 1. Promotion of Quality (A): AICTE strives to improve the standards of technical education by promoting quality assurance mechanisms and continuous improvement.

2. Planning and Coordination (C): AICTE is responsible for ensuring systematic development in technical education across India, including new programs and initiatives.

3. Regulation and Standards (E): AICTE sets norms for academic curricula, infrastructure, and other standards to ensure consistency and quality in institutions.

4. Funding Salaries (B): This is not within AICTE's purview; funding is usually the responsibility of the institutions or relevant state governments.

5. Continuous and Open Learning (D): While AICTE supports innovative learning methodologies, this is an indirect outcome rather than a core objective.

Q31. The National Knowledge Commission suggested that the proposed national universities should not have:
(a) Affiliated colleges
(b) Public funding
(c) Linkage with industries
(d) Teaching departments

Ans.(a)

Sol. The National Knowledge Commission (NKC), chaired by Sam Pitroda, was established in 2005 to make recommendations for improving India's knowledge base and higher education system. The commission suggested several reforms to enhance the quality and autonomy of universities.

One of its key recommendations was the creation of national universities that would operate as unitary institutions without affiliated colleges. This model aims to:

1. Promote academic and administrative autonomy.
2. Focus on high-quality education and research.
3. Avoid the management challenges associated with affiliated colleges.

In contrast, traditional universities in India often have numerous affiliated colleges, which can dilute the focus on research and academic excellence.

Information Booster:
1. National Knowledge Commission (NKC):
- Established by the Government of India in 2005.
- Aimed to transform India into a knowledge-driven economy.
2. Recommendations for Higher Education:
- Create 50 national universities with a focus on excellence.
- Decentralize administration and promote autonomy.
- Increase public funding for higher education.
- Encourage interdisciplinary research and global collaboration.
3. Unitary Universities:
- Operate independently without affiliated colleges.
- Focus on quality education and cutting-edge research.
4. Challenges with Affiliated Colleges:
- Administrative burdens on universities.
- Variability in academic standards among affiliated colleges.

Q32. Which of the following universities were established in the same year of 1916?
(A)Bombay University
(B) Banaras Hindu University
(C) Mysore University
(D) S.N.DT Women University
(E) Punjab University
Choose the correct answer from the options given below :
(a) (A), (B) and (C) Only
(b) (B), (C) and (D) Only
(c) (C), (D) and (E) Only
(d) (A), (C) and (E) Only

Sol. The universities established in the year 1916 are Banaras Hindu University (B), Mysore University (C), and S.N.D.T. Women's University (D). Banaras Hindu University (BHU) was founded by Pandit Madan Mohan Malaviya in 1916 as a premier institution aimed at promoting education and culture in India. The University of Mysore was also established in 1916, becoming the first university in the erstwhile princely state of Mysore, now Karnataka. Similarly, S.N.D.T. Women's University was founded by Dr. Dhondo Keshav Karve in 1916 to promote women's education in India.

Information Booster:

Bombay University (A): Founded in 1857, it is one of the oldest universities in India and was not established in 1916.

Punjab University (E): Originally established in 1882 in Lahore (now in Pakistan), it was re-established in Chandigarh, India, after partition but was not founded in 1916.

Q33. Arrange the following ancient Indian institutions from east to west:

A. Taxila

B. Nalanda

C. Vikramshila

D. Sharada Peeth

Select the correct answer from the options below:

(a) A, D, C, B

(b) B, C, A, D

(c) D, A, B, C

(d) C, B, D, A

Ans.(d)

Sol. The correct answer is (d) C, B, D, A. Arranging from east to west:

1. C. Vikramshila: Located in present-day Bihar, eastern India, near the Bhagalpur district, it is the easternmost of these institutions.

2. B. Nalanda: Also situated in Bihar, but slightly west of Vikramshila, Nalanda was a renowned Buddhist center of learning in ancient Magadha.

3. D. Sharada Peeth: Located in present-day Pakistan-administered Kashmir (near Neelum Valley), it was a prominent site for Hindu and Buddhist scholarship.

4. A. Taxila: Situated in modern-day Pakistan, near Islamabad, it was the westernmost institution among these and known for its teachings in various subjects.

Information Booster: 1. Vikramshila (C): Established by the Pala dynasty, known for its specialization in Tantric Buddhism.

2. Nalanda (B): Famous for its extensive library and Buddhist teachings, attracting students from across Asia.

3. Sharada Peeth (D): An ancient center for Hindu and Buddhist studies, dedicated to goddess Saraswati.

4. Taxila (A): One of the earliest known universities, with diverse disciplines, including philosophy, medicine, and politics.

Q34. which of the one is odd in this number series.

3, 12, 36, 144, 432, 1738

(a) 36

(b) 144

(c) 1738

(d) 12

Ans.(c)

Sol. Step-by-step check:

3 to 12 → multiplied by 4

12 to 36 → multiplied by 3

36 to 144 → multiplied by 4

144 to 432 → multiplied by 3

432 to 1738 → should be multiplied by 4

Check:

432 × 4 = 1728

But the given number is 1738

That's 10 more than expected, so the pattern breaks here.

Pattern observed:

The correct pattern is:

×4, ×3, ×4, ×3, ×4…

So after 432, the next number should be 1728, not 1738

Final Answer:

1738 is the odd one out.

Q35. In an inclusive classroom, the teacher:

(a) Modifies the curriculum and pedagogical strategies to suit varied needs of children.

(b) Tries to encourage children to do better by promoting competitive spirit.

(c) Identifies 'deficits' in children and correctly labels them.

(d) Segregates children based on differing academic capabilities.

Ans.(a)

Sol. In an inclusive classroom, the teacher modifies the curriculum and pedagogical strategies to suit the varied needs of children. Inclusivity means accommodating diverse learning needs, including those of children with disabilities, different learning styles, and varied cultural or linguistic backgrounds. This approach ensures that every child receives an equitable education and can participate actively in the classroom.

Q36. What is the link language of the region as mentioned in the passage?

Read the given passage and answer the following questions

Assamese or 'Asomiya' is the most commonly spoken language in the state of Assam. Besides, it also serves the purpose of a link language in the whole region. As a language, it is considered to have evolved out of Magadhi, a form of old Prakrit language. However, on account of various influences over the years, the language has come to acquire some variations in its form of speech. These are called the groups of dialects of Assamese. Of these, the eastern group of dialects is spoken mainly in the Sibsagar district and its adjoining areas. Similarly, the central group of dialects is mostly spoken in the Nagaon district and the areas adjacent to it. In the west, on the other hand, there are two distinct groups of dialects. These are called the Goalparia and the Kamrupi groups.

Bodo or 'Bo-Ro' is another important spoken language of the state. It belongs to the Tibeto-Burman language family and is mostly spoken in the areas coming under the Bodoland Territorial Council, where it is the official language. By the 92nd Amendment of the Constitution of India 2003, Bodo has also become one of the 22 scheduled languages of the country.

(a) Asomiya
(b) Bodo
(c) Nagamese
(d) Kamrupi

Ans.(a)

Sol. Asomiya, also known as Assamese, is explicitly mentioned in the passage as the most commonly spoken language in Assam and serves as the link language of the region.

Q37. What is the official language of the areas under the Bodoland Territorial Council?
Read the given passage and answer the following questions
Assamese or 'Asomiya' is the most commonly spoken language in the state of Assam. Besides, it also serves the purpose of a link language in the whole region. As a language, it is considered to have evolved out of Magadhi, a form of old Prakrit language. However, on account of various influences over the years, the language has come to acquire some variations in its form of speech. These are called the groups of dialects of Assamese. Of these, the eastern group of dialects is spoken mainly in the Sibsagar district and its adjoining areas. Similarly, the central group of dialects is mostly spoken in the Nagaon district and the areas adjacent to it. In the west, on the other hand, there are two distinct groups of dialects. These are called the Goalparia and the Kamrupi groups.
Bodo or 'Bo-Ro' is another important spoken language of the state. It belongs to the Tibeto-Burman language family and is mostly spoken in the areas coming under the Bodoland Territorial Council, where it is the official language. By the 92nd Amendment of the Constitution of India 2003, Bodo has also become one of the 22 scheduled languages of the country.

(a) Rava
(b) Asomiya
(c) Bo-Ro
(d) Garo

Ans.(c)

Sol. Bo-Ro, also called Bodo, is highlighted in the passage as the official language of the Bodoland Territorial Council. It is part of the Tibeto-Burman language family and one of the 22 scheduled languages of India after the 92nd Amendment of the Constitution in 2003.

Q38. Which group of dialects is spoken in Sibsagar and adjoining areas?
Read the given passage and answer the following questions
Assamese or 'Asomiya' is the most commonly spoken language in the state of Assam. Besides, it also serves the purpose of a link language in the whole region. As a language, it is considered to have evolved out of Magadhi, a form of old Prakrit language. However, on account of various influences over the years, the language has come to acquire some variations in its form of speech. These are called the groups of dialects of Assamese. Of these, the eastern group of dialects is spoken mainly in the Sibsagar district and its adjoining areas. Similarly, the central group of dialects is mostly spoken in the Nagaon district and the areas adjacent to it. In the west, on the other hand, there are two distinct groups of dialects. These are called the Goalparia and the Kamrupi groups.

Bodo or 'Bo-Ro' is another important spoken language of the state. It belongs to the Tibeto-Burman language family and is mostly spoken in the areas coming under the Bodoland Territorial Council, where it is the official language. By the 92nd Amendment of the Constitution of India 2003, Bodo has also become one of the 22 scheduled languages of the country.

(a) Southern
(b) Eastern
(c) Western
(d) Northern

Ans.(b)

Sol. The passage specifies that the eastern group of Assamese dialects is predominantly spoken in Sibsagar and its adjoining regions.

Q39. From which language is Asomiya considered to have evolved?

Read the given passage and answer the following questions

Assamese or 'Asomiya' is the most commonly spoken language in the state of Assam. Besides, it also serves the purpose of a link language in the whole region. As a language, it is considered to have evolved out of Magadhi, a form of old Prakrit language. However, on account of various influences over the years, the language has come to acquire some variations in its form of speech. These are called the groups of dialects of Assamese. Of these, the eastern group of dialects is spoken mainly in the Sibsagar district and its adjoining areas. Similarly, the central group of dialects is mostly spoken in the Nagaon district and the areas adjacent to it. In the west, on the other hand, there are two distinct groups of dialects. These are called the Goalparia and the Kamrupi groups.

Bodo or 'Bo-Ro' is another important spoken language of the state. It belongs to the Tibeto-Burman language family and is mostly spoken in the areas coming under the Bodoland Territorial Council, where it is the official language. By the 92nd Amendment of the Constitution of India 2003, Bodo has also become one of the 22 scheduled languages of the country.

(a) Tibetan
(b) Magadhi
(c) Angika
(d) Thai

Ans.(b)

Sol. According to the passage, Asomiya is considered to have evolved from Magadhi, an old Prakrit language form

Q40. Which groups of dialects are spoken in the western regions of Assam?

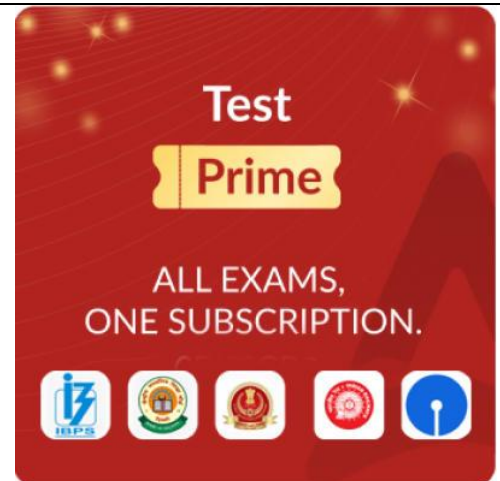Read the given passage and answer the following questions

Assamese or 'Asomiya' is the most commonly spoken language in the state of Assam. Besides, it also serves the purpose of a link language in the whole region. As a language, it is considered to have evolved out of Magadhi, a form of old Prakrit language. However, on account of various influences over the years, the language has come to acquire some variations in its form of speech. These are called the groups of dialects of Assamese. Of these, the eastern group of dialects is spoken mainly in the Sibsagar district and its adjoining areas. Similarly, the central group of dialects is mostly spoken in the Nagaon district and the areas adjacent to it. In the west, on the other hand, there are two distinct groups of dialects. These are called the Goalparia and the Kamrupi groups.

Bodo or 'Bo-Ro' is another important spoken language of the state. It belongs to the Tibeto-Burman language family and is mostly spoken in the areas coming under the Bodoland Territorial Council, where it is the official language. By the 92nd Amendment of the Constitution of India 2003, Bodo has also become one of the 22 scheduled languages of the country.

(a) Goalparia and Dimasa

(b) Kamrupi and Karbi

(c) Goalparia and Nalbaria

(d) Goalparia and Kamrupi

Ans.(d)

Sol. The passage clearly states that the western region of Assam is characterized by two distinct groups of Assamese dialects: Goalparia and Kamrupi.