

(1-5)

The following table shows the 40% of the number of cameras sold and half of the number of Printers sold by four different shops, namely, A, B, C and D, along with the ratio of the number of Cameras to Speakers sold. Based on the data in the table, answer the questions that follow:

Shop-wise Sale Details of Cameras, Printers and Speakers.			
Shop	40% of the number of Cameras sold	Half of the number of Printers sold	Ratio of number of Cameras to Speakers sold
A	200	-	5:3
B	320	220	-
C	-	300	-
D	240	190	6:7

Note: (1) Total number of Cameras, Printers and Speakers sold by shop A is 1160.
(2) Ratio of number of Cameras to Speakers sold by B is 10:7
(3) For shop C, the number of Cameras sold is four times the number of Speakers sold.
(4) Some Values are missing in the table that you are expected to compute, if needed.

1. What is the ratio of the number of speakers sold by shop B to the number of speakers sold by shop D?
- (A) 9:2
(B) 7:8
(C) 4:5
(D) 3:2

Correct Answer: (C) 4 : 5

Explanation:

1. Correct Option (C) – 4:5

- Shop B: Cameras = $320 \times 2.5 = 800$
→ Ratio = 10:7, so Speakers = $(800 \times 7) / 10 = 560$
- Shop D: Cameras = $240 \times 2.5 = 600$
→ Ratio = 6:7, so Speakers = $(600 \times 7) / 6 = 700$
- Ratio B:D = $560 : 700 = 4:5$

2. Incorrect Options:

- (A) 9:2 – Too high.
- (B) 7:8 – Closer, but not matching.
- (D) 3:2 – Too low

2. If the average number of Printers and Speakers sold by shop C is 350, then what is the average number of Cameras and Printers sold by shop C?
- (A) 480
 - (B) 540
 - (C) 420
 - (D) 500

Correct Answer: (D) 500

Explanation:

1. Correct Option (D)

- Given: Average of Printers and Speakers = 350 → Total = 700
- Half Printers = 300 → Printers = 600
- Speakers = 700 - 600 = 100
- Cameras = 4 × Speakers = 400
- Average of Cameras and Printers = $(400 + 600) / 2 = 500$

2. Incorrect Options:

- (A) 480 – Slightly less.
- (B) 540 – Too high.
- (C) 420 – Too low.

3. The total number of Cameras and Printers sold by shop A is _____ more than the number of printers sold by shop D.
- (A) 480
 - (B) 380
 - (C) 640
 - (D) 300

Correct Answer: (A) 480

Explanation:

1. Correct Option (A)

- Shop A: Cameras = $200 \times 2.5 = 500$
→ Printers = 1160 - 500 - Speakers
→ Speakers = $(500 \times 3/5) = 300$

→ Printers = $1160 - 500 - 300 = 360$

→ Total Cameras + Printers = $500 + 360 = 860$

- Shop D: Printers = $190 \times 2 = 380$
- Difference = $860 - 380 = 480$

2. Incorrect Options:

- (B) 380 – Too low.
- (C) 640 – Too high.
- (D) 300 – Doesn't match.

4. For shop B, the number of Printers and Speakers sold is _____ % more than the number of cameras sold.

- (A) 40
- (B) 25
- (C) 10
- (D) 35

Correct Answer: (B) 25%

Explanation:

1. Correct Option (B)

- Cameras = $320 \times 2.5 = 800$
- Printers = $220 \times 2 = 440$
- Speakers = $(800 \times 7) / 10 = 560$
- Total Printers + Speakers = $440 + 560 = 1000$
- % more than Cameras = $(1000 - 800) / 800 \times 100 = 25\%$

2. Incorrect Options:

- (A) 40 – Too high.
- (C) 10 – Too low.
- (D) 35 – Slightly high.

5. In shop A, if the number of Pen Drives sold is 120% of the average number of Speakers and Cameras sold, then what is the difference between the number of Pen Drives and Printers sold?

- (A) 120
- (B) 180
- (C) 140
- (D) 160

Correct Answer: (A) 120

Explanation:

1. Correct Option (A)

- Cameras = 500, Speakers = 300
- Average = $(500 + 300) / 2 = 400$
- Pen Drives = 120% of 400 = 480
- Printers = 360
- Difference = $480 - 360 = 120$

2. Incorrect Options:

- (B) 180 – Too high.
- (C) 140 – Not matching.
- (D) 160 – Overestimated.

6. Identify the correct chronological sequence of the following:

- (a) Codex
- (b) Television
- (c) Radio
- (d) Newspaper
- (e) Technicolour Cinema

Choose the correct answer from the options given below:

- (A) (c), (d), (e), (a), (b)
- (B) (a), (d), (e), (c), (b)
- (C) (b), (e), (a), (d), (c)
- (D) (d), (c), (b), (e), (a)

Correct Answer: (B) (a), (d), (e), (c), (b)

Explanation:

1. **Codex** (Earliest – 1st century AD)
→ An early form of a book replacing scrolls; handwritten on parchment.
2. **Newspaper** (Early 17th century)
→ First printed newspapers appeared around the **1600s**.
3. **Technicolor Cinema** (1920s–1930s)
→ Color film process introduced in the **1920s**, popularized in the 1930s (e.g., *The Wizard of Oz*).
4. **Radio** (Early 20th century – 1920s)
→ Mass radio broadcasting began in the **1920s**.
5. **Television** (1930s–1940s)
→ Became widespread in **mid-20th century**, post-World War II.

Hence, the correct **chronological order** is:

→ **Codex** → **Newspaper** → **Technicolor Cinema** → **Radio** → **Television**

7. 'Fear of missing out' is part of

- A. Mass communication concentration
- B. Internet addiction
- C. Media control
- D. Media fragmentation

Correct Answer: (B) Internet addiction

Explanation:

1. **Internet addiction** (Correct)
→ "Fear of missing out" (FOMO) refers to the **anxiety of not being part of current happenings**, especially on **social media**. It's a psychological effect associated with excessive internet use and addiction.
2. **Mass communication concentration** (Incorrect)
→ Refers to **media ownership consolidation**, not individual psychological effects.
3. **Media control** (Incorrect)
→ Involves regulation or manipulation of media, not user behavior.
4. **Media fragmentation** (Incorrect)
→ Describes the **spread of audience across many media outlets**, not user anxiety.

8. "Step on scale, please" represents which function of the language?

- (A) Informative
- (B) Expressive
- (C) Directive
- (D) Performative

Correct Answer: (c) Directive

Explanation:

1. **Directive** (Correct)
→ This phrase **instructs someone to do something**. Directive language is used to give commands or instructions.
2. **Informative** (Incorrect)
→ Used to **convey facts or information**, not commands.
3. **Expressive** (Incorrect)
→ Conveys feelings or emotions, which this does not.
4. **Performative** (Incorrect)
→ Performs an action through the utterance itself (e.g., "I now pronounce you married").

9. Match the LIST - I with LIST - II

LIST - I (Concept)	LIST - II (Description)
(a) Media intrusion	(I) Focuses on the practical use of knowledge
(b) Social capital	(II) Subversion of politics by media
(c) Media literacy	(III) The influence of potential leaders because of social group membership and participation
(d) Pragmatism	(IV) The ability to analyse media messages

Choose the correct answer from the options given below:

- A. (a)-(I), (b)-(II), (c)-(III), (d)-(IV)
- B. (a)-(II), (b)-(III), (c)-(IV), (d)-(I)
- C. (a)-(III), (b)-(IV), (c)-(I), (d)-(II)
- D. (a)-(IV), (b)-(I), (c)-(II), (d)-(III)

Correct Answer: (B) (a)-(II), (b)-(III), (c)-(IV), (d)-(I)

Explanation:

1. **Media intrusion → Subversion of politics** (Correct)
→ Describes how **media can intrude or dominate** political processes.
2. **Social capital → Group influence** (Correct)
→ Indicates **networks and relationships** that help individuals gain power or information.
3. **Media literacy → Analysis of media** (Correct)
→ The ability to **critically evaluate and interpret** media messages.
4. **Pragmatism → Practical use of knowledge** (Correct)
→ A **philosophical tradition** focusing on what works in practice.

10. Which of the following are characteristics of computer-mediated mass communication?

- (a) One-way communication
- (b) Massification
- (c) Interactivity
- (d) Demassification
- (e) Asynchronicity

Choose the correct answer from the options given below:

- (A) (a), (b), (c) only
- (B) (b), (c), (d) only
- (C) (c), (d), (e) only
- (D) (a), (b), (e) only

Correct Answer: (C) (c), (d), (e) only

Explanation:

1. **Interactivity, Demassification, Asynchronicity** (Correct)
→ These are **core features** of computer-mediated communication:

- **Interactivity:** Two-way engagement possible online.
 - **Demassification:** Customized content for smaller segments.
 - **Asynchronicity:** Communication doesn't happen simultaneously (e.g., email).
2. **One-way communication** (Incorrect)
→ Characteristic of traditional media, not modern computer-mediated systems.
 3. **Massification** (Incorrect)
→ Opposite of **demassification**; not a feature of personalized digital communication.

11. Which of the following were the recommendations of the Indian Universities Commission, 1902?

- (a) Adoption of American system of education
- (b) Establishment of medical universities
- (c) Reorganization of University government
- (d) Changes in curricula
- (e) Changes in the methods of examination

Choose the correct answer from the options given below:

- a) (a), (b), (c) Only
- b) (b), (c), (d) Only
- c) (a), (d), (e) Only
- d) (c), (d), (e) Only

Correct Answer: (d) (c), (d), (e) Only

Explanation:

1. **Reorganization of University Government (Correct)** – The 1902 Commission emphasized restructuring university administration and management.
2. **Changes in Curricula (Correct)** – Recommended to diversify and modernize the university curricula.
3. **Changes in Examination Methods (Correct)** – Called for reform in the examination system, focusing on qualitative assessment.
4. **Adoption of American system (Incorrect)** – This was not part of the 1902 recommendations; British models were followed.
5. **Establishment of Medical Universities (Incorrect)** – No specific recommendation for separate medical universities in this report.

12. Vikramashila was a renowned centre of

- A. Physical education
- B. Pictorial art

- C. Tantric Buddhism
- D. Culinary art

Correct Answer: (C) Tantric Buddhism

Explanation:

1. **Tantric Buddhism (Correct)** – Vikramashila, established by King Dharmapala (Pala dynasty), was a major centre for Vajrayana (Tantric Buddhism).
2. **Physical education (Incorrect)** – Not associated with Vikramashila.
3. **Pictorial art (Incorrect)** – Although some Buddhist art was taught, it was not the primary focus.
4. **Culinary art (Incorrect)** – No historical records link it with culinary traditions.

13. The Banaras Sanskrit college was set up by

- A. Jonathan Duncan
- B. Pandit Madan Mohan Malaviya
- C. Bishop Middleton
- D. Surendranath Banerjee

Correct Answer: (A) Jonathan Duncan

Explanation:

1. **Jonathan Duncan (Correct)** – Established the Banaras Sanskrit College in **1791**, aiming to promote Indian classical learning.
2. **Madan Mohan Malaviya (Incorrect)** – He founded Banaras Hindu University much later.
3. **Bishop Middleton (Incorrect)** – Focused on Christian missionary education and English education.
4. **Surendranath Banerjee (Incorrect)** – He was a political leader, not involved in founding this institution.

14. Match the LIST - I with LIST - II

LIST - I (Document)	LIST - II (Recommendation)
(a) Macaulay's minute	(I) Promotion of Science knowledge among inhabitants
(b) Dispatch of 1854	(II) Establishment of a Sanskrit College at Calcutta
(c) Rajaram Mohan Roy Memorandum	(III) Establishment of a college in Nadiea
(d) Lord Minto's minute	(IV) Closure of oriental learning institutions

Choose the correct answer from the options given below:

- A. (a)-(I), (b)-(II), (c)-(III), (d)-(IV)
- B. (a)-(II), (b)-(III), (c)-(IV), (d)-(I)
- C. (a)-(III), (b)-(IV), (c)-(I), (d)-(II)
- D. (a)-(IV), (b)-(I), (c)-(II), (d)-(III)

Correct Answer: (D) (a)-(IV), (b)-(I), (c)-(II), (d)-(III)

Explanation:

1. **Macaulay's Minute** → (IV) – Advocated English education and the **closure of oriental institutions**.
2. **1854 Dispatch** → (I) – Known as **Wood's Dispatch**, promoted scientific and practical education.
3. **Raja Rammohan Roy's Memorandum** → (II) – Called for the **establishment of a Sanskrit college** in Calcutta.
4. **Lord Minto's Minute** → (III) – Focused on **regional education expansion**, like in Nadiea.

15. Identify the correct chronological sequence of the establishment of the following universities?

- (a) Bhoj Open University
- (b) Karnataka State Open University
- (c) Netaji Subhash Open University
- (d) Nalanda Open University
- (e) Yashwant Rao Chavan Open University

Choose the correct answer from the options given below:

- (A) (a), (e), (b), (d), (c)
- (B) (d), (e), (a), (b), (c)
- (C) (b), (d), (e), (c), (a)
- (D) (c), (d), (e), (a), (b)

Correct Answer: (B) (d), (e), (a), (b), (c)

Explanation:

1. **Nalanda Open University – 1987 (Correct 1st)**
2. **Yashwant Rao Chavan Open University – 1989 (Correct 2nd)**
3. **Bhoj Open University – 1991 (Correct 3rd)**
4. **Karnataka State Open University – 1996 (Correct 4th)**
5. **Netaji Subhas Open University – 1997 (Correct 5th)**

Thus, the correct chronological order is:

(d), (e), (a), (b), (c)

16. Jatin's smartphone has a SIM card installed but Amit's Tablet is without a SIM card. Amit would like to access the internet using Jatin's smartphone network connection. Which of the following could be used to connect the tablet device to the internet?

- A. GPS
- B. Notifications
- C. Tethering
- D. Messaging

Correct Answer: (C) Tethering

Explanation:

1. **Tethering (Correct)**
→ Tethering allows one device (e.g., a smartphone with a SIM and internet) to **share its internet connection** with another device (like a tablet), either via **Wi-Fi, USB, or Bluetooth**.
2. **GPS (Incorrect)**
→ GPS (Global Positioning System) is used for **location tracking**, not internet sharing.
3. **Notifications (Incorrect)**
→ Notifications inform users of updates/messages but don't provide internet access.
4. **Messaging (Incorrect)**
→ Messaging apps require an **internet connection** but don't provide one.

17. World Wide Web (WWW) can be best described as

- A. an another name for the Internet
- B. a network of computers accessible by people living in a wide geographical area.
- C. a system of interlinked hypertext documents accessed through the Internet.
- D. A company's private digital workspace.

Correct Answer: (C) a system of interlinked hypertext documents accessed through the Internet

Explanation:

1. **(C) WWW as interlinked hypertext (Correct)**

→ The **World Wide Web** is a collection of **hyperlinked documents**, websites, and resources accessible through the internet using browsers.

2. **(A) Another name for the internet (Incorrect)**

→ The Internet is the infrastructure; the **WWW is a service** on the internet.

3. **(B) Network of computers (Incorrect)**

→ This defines a **network**, not the WWW specifically.

4. **(D) Company's private workspace (Incorrect)**

→ Describes **Intranet**, not the [WWW](http://www).

18. If (L)M represents a number L in base-M number system, then identify the correct ascending order of the following numbers A-D when converted to decimal number system.

(a) $(11001.11)_2$

(b) $(123.2)_4$

(c) $(31.5)_8$

(d) $(19.6)_{16}$

Choose the correct answer from the options given below:

- A. (d), (a), (c), (b)
- B. (b), (c), (d), (a)
- C. (c), (d), (a), (b)
- D. (d), (c), (a), (b)

Correct Answer: (D) (d), (c), (a), (b)

Explanation:

Let's convert to **decimal system**:

1. **(a) $(11001.11)_2 = 25.75$**
2. **(b) $(123.2)_4 = 27.5$**
 $\rightarrow 1 \times 16 + 2 \times 4 + 3 + 2 \times (1/4) = 16 + 8 + 3 + 0.5 = 27.5$
3. **(c) $(31.5)_8 = 25.625$**
 $\rightarrow 3 \times 8 + 1 + 5 \times (1/8) = 24 + 1 + 0.625 = 25.625$
4. **(d) $(19.6)_{16} = 25.375$**
 $\rightarrow 1 \times 16 + 9 + 6 \times (1/16) = 16 + 9 + 0.375 = 25.375$

Ascending Order:

(d) 25.375 < (c) 25.625 < (a) 25.75 < (b) 27.5

19. Match the LIST - I with LIST - II

LIST - I (Phrase)	LIST - II (ICT Term)
(a) An example of high-level computer programming language	(I) Mainframe
(b) A non-volatile memory that you can read from but not write to	(II) LAN
(c) These computers are used by airline companies to handle the large volume of data such as ticket reservations	(III) Java
(d) A type of network where computers are connected together within a home or a company	(IV) ROM

Choose the correct answer from the options given below:

- A. (a)-(III), (b)-(I), (c)-(IV), (d)-(II)
- B. (a)-(III), (b)-(IV), (c)-(I), (d)-(II)
- C. (a)-(II), (b)-(III), (c)-(I), (d)-(IV)
- D. (a)-(I), (b)-(II), (c)-(IV), (d)-(III)

Correct Answer: (B) (a)-(III), (b)-(IV), (c)-(I), (d)-(II)

Explanation:

1. **(a)-(III) Java (Correct)**
 $\rightarrow$ Java is a **high-level programming language**.
2. **(b)-(IV) ROM (Correct)**
 $\rightarrow$ **ROM** (Read Only Memory) is **non-volatile**, readable but not writable.
3. **(c)-(I) Mainframe (Correct)**
 $\rightarrow$ **Mainframe computers** are used in airlines and banks for heavy data processing.

4. **(d)-(II) LAN (Correct)**

→ **Local Area Network (LAN)** connects computers within a **small area** like a home or office.

20. With reference to the snapshot of MS-EXCEL worksheet given below, which of the following formulae A-E when entered into cell A4 can be used to add the values 10, 20 and 30?

	A	B	C
1	10		
2	20		
3	30		
4			

(a) = SUM (A1:A3)

(b) = SUM (A1, A3)

(c) = A1+A2+A3

(d) =SUM (A1, A2, A3)

(e) = SUM (A1-A3)

Choose the correct answer from the options given below:

A. (a), (c) and (d) Only

B. (b), (c) and (d) Only

C. (d) and (e) Only

D. (a), (c), (d) and (e) Only

Correct Answer: (A) (a), (c) and (d) Only

Explanation:

1. **(a) =SUM(A1:A3) (Correct)**

→ Adds all values from A1 to A3. Output: **60**

2. **(b) =SUM(A1, A3) (Incorrect)**

→ Adds only A1 and A3 (10 + 30 = 40), **excludes A2**

3. **(c) =A1+A2+A3 (Correct)**

→ Adds the values manually. Result: **60**

4. **(d) =SUM(A1, A2, A3) (Correct)**

→ Another correct method for summing values explicitly listed.

5. **(e) =SUM(A1-A3) (Incorrect)**

→ This subtracts A3 from A1 (10 - 30 = -20), not summation.

21. Identify the figure of the following - 'All great scientists are college graduates. Some professional athletes are college graduates.'

Therefore, some professional athletes are great scientists'

- (A) Ist figure
- (B) IInd figure
- (C) IIIrd figure
- (D) IVth figure

Correct Answer: (B) IInd figure

Explanation:

1. **IInd figure** (Correct)
 - Structure:
 - Major premise: All great scientists are college graduates $\rightarrow A \rightarrow B$
 - Minor premise: Some professional athletes are college graduates $\rightarrow C \rightarrow B$
 - Conclusion: Some C are A
 - The middle term (college graduates) is the predicate in both premises, which is the structure of the **second figure**.
2. **Ist figure** (Incorrect)
 - In this figure, the middle term must be subject in major and predicate in minor — not followed here.
3. **IIIrd figure** (Incorrect)
 - In this figure, the middle term is subject in both premises — not applicable here.
4. **IVth figure** (Incorrect)
 - Middle term is predicate in major and subject in minor — not the case here.

22. According to Nyāya, Kārana is also known as

- a. SamavāyīKārana
- b. AsamvāyīKārana
- c. NimittaKārana
- d. Sahaj Kārana.

Correct Answer: (C) NimittaKārana

Explanation:

1. **NimittaKārana** (Correct)
 - In Nyāya philosophy, **Nimitta Kārana** is the instrumental or efficient cause—the agent or condition that initiates the production of an effect.
2. **SamavāyīKārana** (Incorrect)

- This is the **inherent cause**, meaning the material that inherently resides in the effect (e.g., threads in cloth).
- 3. **AsamvāyīKārana** (Incorrect)
 - This refers to the **non-inherent cause**, which indirectly contributes to the production of the effect.
- 4. **Sahaj Kārana** (Incorrect)
 - This is not a standard term in Nyāya terminology for causes.

23. Match the LIST - I with LIST - II

LIST - I (Intension)	LIST - II (Description)
(a) Subjective	(I) When a word, phrase is defined in terms of another word or phrase that has the same meaning
(b) Objective	(II) The commonly accepted intension of a term
(c) Conventional	(III) Set of all attributes the speaker believes to be possessed by the object
(d) Synonymous	(IV) Total set of attributes shared by all the objects in the extension of a term

Choose the correct answer from the options given below:

- a. (a)-(II), (b)-(III), (c)-(I), (d)-(IV)
- b. (a)-(I), (b)-(II), (c)-(III), (d)-(IV)
- c. (a)-(III), (b)-(IV), (c)-(II), (d)-(I)
- d. (a)-(IV), (b)-(I), (c)-(III), (d)-(II)

Correct Answer: (C)

(a)-(III), (b)-(IV), (c)-(II), (d)-(I)

Explanation:

- (a) **Subjective** → (III)
 - Refers to attributes **believed** by the speaker to be associated with the term.
- (b) **Objective** → (IV)
 - Refers to the **actual** shared attributes of all items in the extension of a term.
- (c) **Conventional** → (II)
 - Refers to the **commonly accepted** or dictionary meaning.
- (d) **Synonymous** → (I)
 - A definition using a word or phrase with **the same meaning**.

24. Match the LIST - I with LIST - II

LIST - I (Square of opposition)	LIST - II (Result)
(a) If 'A' is True	(I) 'A' is undetermined: 'I' is True
(b) If 'E' is False	(II) 'E' is False, 'A' is True
(c) If 'I' is True	(III) 'I' is true, 'E' is False
(d) If 'O' is False	(IV) 'O' is undetermined 'E' is false

Choose the correct answer from the options given below:

- A. (a)-(I), (b)-(II), (c)-(III), (d)-(IV)
- B. (a)-(IV), (b)-(I), (c)-(II), (d)-(III)
- C. (a)-(IV), (b)-(III), (c)-(II), (d)-(I)
- D. (a)-(III), (b)-(I), (c)-(IV), (d)-(II)

Correct Answer: (D) (a)-(III), (b)-(I), (c)-(IV), (d)-(II)

Explanation:

- (a) If 'A' is True → (III)
 - Then 'I' is true (subaltern) and 'E' is false (contrary).
- (b) If 'E' is False → (I)
 - Then 'A' is undetermined, but 'I' is true (since I and E are contradictories).
- (c) If 'I' is True → (IV)
 - Then 'E' is false (I and E are contradictories); O is undetermined.
- (d) If 'O' is False → (II)
 - Then 'A' is true (A and O are contradictories), 'E' is false.

25. Which of the following is incorrect?

- A. Truth is an attribute of propositions
- B. Validity is an attribute of an argument
- C. Invalidity is an attribute of an argument
- D. Falsity is an attribute of an argument

Correct Answer: (D) Falsity is an attribute of an argument

Explanation:

1. **Truth is an attribute of propositions** (Correct)
 - Only propositions (statements) can be **true or false**.
2. **Validity is an attribute of an argument** (Correct)
 - Arguments are evaluated for **validity** or **invalidity**, not truth.
3. **Invalidity is an attribute of an argument** (Correct)
 - Just like validity, **invalidity** applies to the structure of arguments.
4. **Falsity is an attribute of an argument** (Incorrect)

- **Falsity** applies only to **propositions**, not to arguments. An argument cannot be false—it can only be valid/invalid or sound/unsound.

26. Match the LIST - I with LIST - II

LIST - I (Standard Normal Variate (z) Interval)	LIST - II (Probability)
(a) $-1 \leq Z \leq +\infty$	(I) ~ 0.98
(b) $-2 \leq Z \leq +1$	(II) ~ 0.48
(c) $-\infty \leq Z \leq +2$	(III) ~ 0.84
(d) $0 \leq Z \leq +2$	(IV) ~ 0.82

Choose the correct answer from the options given below:

- A. (a)-(III), (b)-(IV), (c)-(I), (d)-(II)
- B. (a)-(IV), (b)-(III), (c)-(II), (d)-(I)
- C. (a)-(I), (b)-(IV), (c)-(II), (d)-(III)
- D. (a)-(II), (b)-(III), (c)-(I), (d)-(IV)

Correct Answer: (A) (a)-(III), (b)-(IV), (c)-(I), (d)-(II)

Explanation:

Based on the standard normal distribution:

- (a) $-1 \leq Z \leq +\infty \rightarrow P(Z > -1) \approx 0.84 \rightarrow$ (III)
- (b) $-2 \leq Z \leq +1 \rightarrow P(Z < 1) - P(Z < -2) \approx 0.84 - 0.02 \approx 0.82 \rightarrow$ (IV)
- (c) $-\infty \leq Z \leq +2 \rightarrow P(Z < 2) \approx 0.98 \rightarrow$ (I)
- (d) $0 \leq Z \leq +2 \rightarrow P(Z < 2) - P(Z < 0) = 0.98 - 0.50 = 0.48 \rightarrow$ (II)

27. Find the fourth proportional to 4, 9, 12 and third proportional to 16 and 36.

- A. 25, 77 respectively
- B. 27, 81 respectively
- C. 28, 81 respectively
- D. 27, 77 respectively

Correct Answer: (B) 27, 81 respectively

Explanation:

- Fourth proportional:
 $4 : 9 = 12 : x \rightarrow x = (9 \times 12) / 4 = 108 / 4 = 27$
- Third proportional:
 $16 : 36 = 36 : x \rightarrow x = (36 \times 36) / 16 = 1296 / 16 = 81$

28. Find the number that can replace the question mark (?) in the series given below: 1, 4, 27, 16, 125, ?, 343

- A. 25
- B. 64
- C. 49
- D. 36

Correct Answer: (B) 64 and (D) 36 (both accepted based on interpretation)

Explanation:

Split into two sequences:

- Odd positions: 1, 27, 125, 343 $\rightarrow$ These are cubes of odd numbers: $1^3, 3^3, 5^3, 7^3$
- Even positions: 4, 16, ? $\rightarrow$ These are squares of even numbers: $2^2, 4^2, 6^2 \rightarrow$ So, ? = 36

Therefore, the missing number is **36** (Option D).

However, if the series was misunderstood as alternating cubes (e.g., $1^3, 3^3, 5^3, ? = 4^3 = 64$), some may mark (B) 64. But based on position, **36 is correct**.

29. Find the value of the expression given below, correct upto 2 decimal places.

$$\frac{(0.96)^3 - (0.1)^3}{(0.96)^2 + 0.096 + (0.1)^2}$$

- A. 0.84
- B. 0.81
- C. 0.86
- D. 0.82

Correct Answer: (C) 0.86

Explanation:

Numerator: $(0.96)^3 - (0.1)^3 = 0.884736 - 0.001 = \mathbf{0.883736}$

Denominator: $(0.96)^2 + 0.096 + (0.1)^2 = 0.9216 + 0.096 + 0.01 = \mathbf{1.0276}$

Result = $0.883736 / 1.0276 \approx \mathbf{0.86}$

30. In a certain code language, "INDORE" is coded as, "KPFQTG". How "CHENNAI" shall be coded in that language?

- A. EIGOPBK
- B. DIFOOBJ
- C. EJGPPCK
- D. KCPPGJE

Correct Answer: (C) EJGPPCK

Explanation:

Each letter is shifted by **+2 positions** in the alphabet:

- C → E
- H → J
- E → G
- N → P
- N → P
- A → C
- I → K

So, "CHENNAI" → **EJGPPCK**

31. The approach to the study of reality that suggests that only knowledge gained through experience and the senses is acceptable, refers to

- A. Symbolic interactionism
- B. Postmodernism
- C. Empiricism
- D. Objectivism

Correct Answer: (C) Empiricism

Explanation:

- **Empiricism (Correct):** It is a philosophical approach that emphasizes knowledge through sensory experience and observation. It forms the foundation of scientific methodology.
- **Symbolic interactionism (Incorrect):** A sociological perspective focusing on symbolic meanings and interactions in social life.
- **Postmodernism (Incorrect):** A critical theory rejecting absolute truths and focusing on relativism and fragmentation in knowledge.
- **Objectivism (Incorrect):** A philosophy asserting the existence of objective reality and rational self-interest, not necessarily grounded in sensory experience.

32. Match the LIST - I with LIST - II

LIST - I (Standard Normal Variate (z) Interval)	LIST - II (Probability)
(a) $-1 \leq Z \leq +\infty$	(I) ~ 0.98
(b) $-2 \leq Z \leq +1$	(II) ~ 0.48
(c) $-\infty \leq Z \leq +2$	(III) ~ 0.84
(d) $0 \leq Z \leq +2$	(IV) ~ 0.82

Choose the correct answer from the options given below:

- A. (a)-(III), (b)-(IV), (c)-(I), (d)-(II)
- B. (a)-(IV), (b)-(III), (c)-(II), (d)-(I)
- C. (a)-(I), (b)-(IV), (c)-(II), (d)-(III)
- D. (a)-(II), (b)-(III), (c)-(I), (d)-(IV)

Correct Answer: (A) (a)-(III), (b)-(IV), (c)-(I), (d)-(II)

Explanation:

List-I (Z Interval)	List-II (Probability)	Calculation
(a) $-1 \leq Z \leq +\infty$	(III) ~ 0.84	$P(Z > -1) \approx 0.8413$
(b) $-2 \leq Z \leq +1$	(IV) ~ 0.82	$P(-2 < Z < 1) \approx 0.8186$
(c) $-\infty \leq Z \leq +2$	(I) ~ 0.98	$P(Z < 2) \approx 0.9772$
(d) $0 \leq Z \leq +2$	(II) ~ 0.48	$P(0 < Z < 2) \approx 0.4772$

33. When a person responds the same way to just about every item on a rating scale, this respondent is engaging in

- A. Telescoping
- B. Satisficing
- C. Nondifferentiation
- D. Optimizing

Correct Answer: (C) Nondifferentiation

Explanation:

- **Nondifferentiation (Correct):** This is when respondents select the same response option for all items, regardless of the content. It indicates a lack of engagement or effort.
- **Telescoping (Incorrect):** A memory error where past events are recalled as more recent.
- **Satisficing (Incorrect):** Choosing a satisfactory solution rather than the optimal one, often due to cognitive fatigue.
- **Optimizing (Incorrect):** Actively seeking the best possible answer, the opposite of satisficing.

34. Identify the scale(s) of measurement that has/have an absolute zero point

- (a) Nominal
- (b) Interval
- (c) Ratio
- (d) Ordinal

Choose the correct answer from the options given below:

- (A) (a) and (d) Only
- (B) (b) and (c) Only
- (C) (c) Only
- (D) (b), (c) and (d) Only

Correct Answer: (C) (c) Only – Ratio Scale

Explanation:

- **Ratio scale (Correct):** Has all properties of interval scale with a true zero point (e.g., height, weight).
- **Nominal scale (Incorrect):** Categories without numerical meaning (e.g., gender).
- **Ordinal scale (Incorrect):** Ranks items, but intervals are not equal (e.g., 1st, 2nd).
- **Interval scale (Incorrect):** Has equal intervals but no true zero (e.g., temperature in Celsius).

35. Arrange the following in correct order of their appearance in the APA style of writing a conference presentation reference.

- (a) Name of conference
- (b) Year of presentation
- (c) Last name of author
- (d) Location of conference

Choose the correct answer from the options given below:

- (A) (a), (b), (c), (d)
- (B) (a), (d), (c), (b)
- (C) (c), (b), (a), (d)
- (D) (c), (a), (d), (b)

Correct Answer: (C) (c), (b), (a), (d)

Explanation:

APA reference format for a conference presentation is:

Author's last name, Initials. (Year). Title of presentation. Paper presented at the **Name of the Conference, Location.**

- (c) Last name of author → First
- (b) Year of presentation → Second
- (a) Name of conference → Third
- (d) Location of conference → Fourth

36. Match the LIST - I with LIST - II

LIST - I (Model of cognitive apprenticeship)	LIST - II (Meaning)
(a) Modelling	(I) Helping learner in starting and gradually fading the support
(b) Scaffolding	(II) Searching for new information, verifying to accept it as authentic knowledge
(c) Articulation	(III) Observing the performance of an expert
(d) Exploration	(IV) Giving words to their understanding of the process and content

Choose the correct answer from the options given below:

- A. (a)-(IV), (b)-(III), (c)-(II), (d)-(I)
- B. (a)-(III), (b)-(I), (c)-(IV), (d)-(II)
- C. (a)-(II), (b)-(IV), (c)-(I), (d)-(III)
- D. (a)-(I), (b)-(II), (c)-(III), (d)-(IV)

Correct Answer: (b) (a)-(III), (b)-(I), (c)-(IV), (d)-(II)

Explanation:

1. **(a) Modelling – (III)** (Correct)
 - o The expert **demonstrates a task**, and the learner observes.
 - o This is the **first stage** of apprenticeship.
2. **(b) Scaffolding – (I)** (Correct)
 - o The teacher **provides temporary support**, gradually removing it as the learner gains skill.
3. **(c) Articulation – (IV)** (Correct)
 - o Learners are encouraged to **verbalize their understanding**, making their thinking explicit.
4. **(d) Exploration – (II)** (Correct)
 - o Learners **search and investigate independently**, promoting deep understanding and transfer of knowledge.

37. Which of the following are the strategies of co-operative learning?

- (a) Rally coach
- (b) Talking chips
- (c) Schedule
- (d) Round table
- (e) Think-pair-share

Choose the correct answer from the options given below:

- (A) (a), (b), (d) and (e) only
- (B) (b) and (e) only
- (C) (a), (c) and (e) only
- (D) (b) and (d) only

Correct Answer: (A) (a), (b), (d), and (e) only

Explanation:

1. **(a) Rally Coach** (Correct)
 - o Partners take turns solving problems while the other **coaches or gives feedback**.
2. **(b) Talking Chips** (Correct)
 - o Students use chips to **take turns speaking**, ensuring equal participation.
3. **(c) Schedule** (Incorrect)
 - o A schedule is a **planning tool**, not a co-operative learning strategy.
4. **(d) Round Table** (Correct)
 - o Students pass a paper around, **adding responses collaboratively**.
5. **(e) Think-Pair-Share** (Correct)
 - o Students think individually, **discuss in pairs**, and then **share with the class**.

38. Which of the following tools can be used to create a virtual science lab experience?

- (a) Kahoot!
- (b) Labster

- (c) Turnitin
- (d) Phet simulation
- (e) Padlet

Choose the correct answer from the options given below:

- (A) (a), (b) and (d) only
- (B) (c) and (e) only
- (C) (a) and (e) only
- (D) (b) and (d) only

Correct Answer: (D) (b) and (d) only

Explanation:

1. **(b) Labster** (Correct)
 - o A **fully immersive virtual lab simulation** used widely for science education.
2. **(d) PhET Simulation** (Correct)
 - o Offers **interactive simulations** for physics, chemistry, biology, etc.
 - o Used to **replicate lab experiments virtually**.
3. **(a) Kahoot!** (Incorrect)
 - o A **quiz-based platform**, not used for lab simulation.
4. **(c) Turnitin** (Incorrect)
 - o A **plagiarism detection tool**, not a virtual lab platform.
5. **(e) Padlet** (Incorrect)
 - o A **collaborative online board** for sharing content, but **not a simulation tool**.

39. Direct instruction is best used when teachers do which one of the following?

- A. Assign critical thinking exercises
- B. Teach basic skills and explicit knowledge
- C. Have their students explore numerous pathways to solve a mathematics problem.
- D. Encourage their students to refine their creativity in art

Correct Answer: (B) Teach basic skills and explicit knowledge

Explanation:

1. **Teach basic skills and explicit knowledge** (Correct)
 - o **Direct instruction** is a **teacher-centered method** where content is explicitly taught in a **structured, step-by-step manner**.
 - o It is ideal for teaching **basic facts, procedures, and foundational knowledge** (e.g., arithmetic, grammar rules).

2. **Assign critical thinking exercises** (Incorrect)
 - These require **exploratory and discussion-based methods**, not direct instruction.
3. **Explore pathways to solve problems** (Incorrect)
 - This is better suited to **discovery learning or inquiry-based approaches**, not direct instruction.
4. **Refine creativity in art** (Incorrect)
 - Artistic creativity demands **open-ended exploration**, not structured teaching methods.

40. Which of the following tools are more suitable for creating videos for teaching and learning?

- (a) Kahoot
- (b) Edpuzzle
- (c) Screen-cast-o-matic
- (d) Mindmeister
- (e) Jamboard

Choose the correct answer from the options given below:

- (A) (a), (c) and (d) only
- (B) (b) and (c) only
- (C) (c) and (e) only
- (D) (d) and (e) only

Correct Answer: (B) (b) and (c) only

Explanation:

1. **Edpuzzle** (Correct)
 - A platform where **teachers can create interactive video lessons** by embedding questions, notes, and audio into existing videos.
 - Ideal for **video-based teaching**.
2. **Screen-cast-o-matic** (Correct)
 - A tool to **record screen activities**, voice, and webcam, enabling teachers to create **instructional videos**.
 - Commonly used in **e-learning content creation**.
3. **Kahoot** (Incorrect)
 - Used for **interactive quizzes and assessments**, **not for video creation**.
4. **Mindmeister** (Incorrect)
 - A **mind mapping tool**, not for video production.
5. **Jamboard** (Incorrect)
 - A **collaborative whiteboard tool**, useful for brainstorming but **not for video creation**.

41. Match the following Environmental Treaties/Conventions with Focus Area:

LIST-I (Treaty/Convention)	LIST-II (Focus Area)
A. Bonn Convention	I. Migratory Species Conservation
B. CITES	II. Convention on Biological Diversity
C. Earth Summit	III. Trades in Endangered Species
D. Nagoya Protocol	IV. Sustainable Development

Options:

A) A–IV, B–III, C–II, D–I

B) A–I, B–III, C–IV, D–II

C) A–II, B–IV, C–III, D–I

D) A–III, B–I, C–IV, D–II

Correct Answer: **B) A–I, B–III, C–IV, D–II**

Explanation:

Bonn Convention – Focus on Migratory Species Conservation

CITES – Focus on regulating Trades in Endangered Species

Earth Summit – Major focus was on Sustainable Development (Agenda 21)

Nagoya Protocol – Access and Benefit Sharing under the Convention on Biological Diversity

42. Which of the following is represented by Noise Index L_{90} ?

Options:

A) Background noise level

B) Average noise level

C) Peak noise level

D) Threshold noise level

Correct Answer: **A) Background noise level**

Explanation:

L_{90} represents the noise level that is **exceeded for 90% of the measurement period**. It is considered a reliable measure of the **background noise level** in an environment, filtering out short-term peaks and sudden noises.

43. Which of the following soil types supports earthworm activity?

Options:

A) Loam soil

B) Gleyed soil

C) Rendzina

D) Podzol

Choose the correct answer:

A) A, B and C Only

B) B, C and D Only

C) A, C and D Only

D) A, B and D Only

Correct Answer: **A) A, B and C Only**

Explanation:

Loam soil – Ideal for earthworm activity because it is fertile, well-drained, and rich in organic

matter.

Gleyed soil – Though waterlogged at times, it can support earthworms especially when not saturated continuously.

Rendzina – Rich in organic matter and calcium; also supports earthworm activity.

Podzol – Highly acidic and low in nutrients; **not favorable** for earthworms.

44. Total gain in biomass by an animal is known as:

Options:

A) Gross Primary Productivity

B) Gross Secondary Productivity

C) Net Primary Productivity

D) Net Secondary Productivity

Correct Answer: **B) Gross Secondary Productivity**

Explanation:

Gross Secondary Productivity (GSP) refers to the **total amount of energy or biomass gained by heterotrophs (animals)** through consumption of organic matter.

It **does not account for energy lost through respiration**; that would be considered for net secondary productivity.

45. Artificial wetland is located in:

Options:

A) Keoladeo National Park

B) Rajaji National Park

C) Kanha National Park

D) Manas National Park

Correct Answer: **A) Keoladeo National Park**

Explanation:

Keoladeo National Park (formerly Bharatpur Bird Sanctuary) in Rajasthan, India, is a famous **artificial wetland** created for duck hunting during the British colonial period.

Today, it is a UNESCO World Heritage Site and supports a wide variety of migratory birds.

Comprehension:(46-50)

Read the following passage and answer the questions that follow:

Science is the art of organizing and classifying facts. When you wish to make sure you are dealing with facts, seek scientific sources for their testing wherever possible. Men of science have neither a reason nor the inclination to modify or change facts, nor to misrepresent. The scientists are the most accurate thinkers in the world, because they are searching for whatever is there, not for what they would like to find there.

When Madame Curie started out in search of radium, when nobody knew what radium was like, they didn't know how many molecules to the atom, they didn't know where to look for it; she started out with an open mind.

If she hadn't had an open mind, she never would have discovered the existence of radium. She went on the hypothesis through inductive reasoning that there must be a metal known as radium, and by following certain principles of science she eventually isolated that metal and brought it into captivity.

46. Science is the art of
- A. Indulging in flights of fancy
 - B. Fabricating things
 - C. Imagining things
 - D. Organizing and classifying facts

CORRECT ANSWER: D) Organizing and classifying facts

47. Madame Curie discovered
- A. Many metals
 - B. Radium
 - C. Molecule
 - D. Atom

CORRECT ANSWER: B) Radium

48. To ascertain that one is dealing with facts one should test them by
- A. Being scientific sources
 - B. Being guided by one's emotions
 - C. Being guided by one's close relatives
 - D. fudging facts

CORRECT ANSWER: A) Being scientific sources

49. Which of the following is true?
- A. Madame Curie had a closed mind
 - B. Madame Curie had a dream about a metal
 - C. Madame Curie discovered radium by following the principles of science
 - D. Madame Curie already knew what radium was like

CORRECT ANSWER: C) Madame Curie discovered radium by following the principles of science

50. Men of science are
- A. Prone to changing facts
 - B. Misrepresenting facts
 - C. The most accurate thinkers in the world
 - D. Prone to think inaccurately

CORRECT ANSWER: C) The most accurate thinkers in the world