

(1-5)

The following table shows the total exports (in ₹ Core) of six countries A-F over the five years from 2019 to 2023. Based on the data in the table, answer the questions that follow.

Country-wise Details of Exports

Country	Exports (in ₹ core) in the year				
	2019	2020	2021	2022	2023
A	40	80	120	90	180
B	60	50	30	100	200
C	100	110	140	180	130
D	90	120	40	30	50
E	120	100	110	200	220
F	48	80	120	150	240

Note: Income = Exports – Imports

1. What was the income of all the six countries together in the year 2023 if the total imports of all these countries together was ₹770 crores in the same year?

Choose the correct answer from the options given below:

- A. ₹250 crores
- B. ₹320 crores
- C. ₹560 crores
- D. ₹480 crores

Correct Answer: A. ₹250 crores

Explanation:

Total exports in 2023 = 180 + 200 + 130 + 50 + 220 + 240 = ₹1020 crores

Income = Exports – Imports = 1020 – 770 = **₹250 crores**

2. In the year 2019, if the ratio of exports to imports for country D and country F are 1:2 and 4:1, respectively, then what is the total import of countries F and D together in the same year?

Choose the correct answer from the options given below:

- A. ₹104 crores
- B. ₹184 crores

- C. ₹192 crores
- D. ₹130 crores

Correct Answer: C. ₹192 crores

Explanation:

- Country D (2019): Export = ₹90 crores; Ratio = 1:2 $\Rightarrow$ Import = $90 \times 2 = ₹180$ crores
- Country F (2019): Export = ₹48 crores; Ratio = 4:1 $\Rightarrow$ Import = $48 \div 4 = ₹12$ crores
Total import = $180 + 12 = ₹192$ crores

3. What is the approximate percentage increase in the export of all the countries together in the year 2022 in comparison to the year 2020?

Choose the correct answer from the options given below:

- A. 40.67%
- B. 72.39%
- C. 38.89%
- D. 62.99%

Correct Answer: C. 38.89%

Explanation:

- Total exports in 2020 = ₹540 crores
- Total exports in 2022 = ₹750 crores
Percentage increase = $\frac{(750-540)}{540} \times 100 = \frac{(750-540)}{540} \times 100 = 38.89\%$

4. If the export of country A in the year 2024 is 20% more than the combined export of country B in 2022 and the export of country E in 2021 together, then what is the income of country A (in ₹ crore) in the year 2024, if its import is ₹184 crore for that year?

Choose the correct answer from the options given below:

- A. ₹106
- B. ₹44
- C. ₹92
- D. ₹68

Correct Answer: D. ₹68

Explanation:

Export of A in 2024 = $1.2 \times (B_{2022} + E_{2021}) = 1.2 \times (100 + 110) = ₹252$ crores

Income = Export - Import = $252 - 184 = ₹68$ crores

5. Over all the given years, the average export of country E is _____ % more than the average export of country C.

Choose the correct answer from the options given below:

- A. 13.7%
- B. 11%
- C. 91%
- D. 7%

Correct Answer: A. 13.7%

Explanation:

- Average export of country E = ₹150 crores
- Average export of country C = ₹132 crores
Percentage more = $\frac{(150-132)}{132} \times 100 = \frac{(150-132)}{132} \times 100 = 13.64\% \approx 13.7\%$

6. Reena wanted to eat an ice-cream. She took out a phone number online. She repeated the number over and over again while dialing. After the order was delivered, she forgot the number. This is an example of the use of which memory process?

- A. Short-term memory
- B. Automatic processing
- C. Echoic memory
- D. Iconic memory

Correct Answer: A. Short-term memory

Explanation:

Reena used her short-term memory to temporarily hold and rehearse the phone number. Once the task was complete, the memory was discarded, which is typical of short-term memory.

7. The contents of Swayamprabha channel -4 with the theme of "Education and Home Science" are provided by:

- A. CEC, New Delhi
- B. IIT, Madras
- C. IGNOU, New Delhi
- D. IIT Delhi

Correct Answer: A. CEC, New Delhi

Explanation:

CEC (Consortium for Educational Communication), New Delhi provides the content for Channel 4 of the Swayam Prabha DTH service, which is dedicated to Education and Home Science.

8. Which higher-order knowledge can make the difference between how well and quickly one's students learn material?

- A. Declarative
- B. Rote
- C. Metacognition
- D. Procedural

Correct Answer: C. Metacognition

Explanation:

Metacognition is the awareness and regulation of one's own learning processes. It includes planning, monitoring, and evaluating learning strategies, leading to more effective learning.

9. Which of the following are the interactive whiteboard softwares that allow teachers to create digital lessons, annotate documents and collaborate with students in real time?

- Jamboard
- Camtasia
- Stormboard
- Concept board
- Plotagon

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

Correct Answer: B. (a), (c) and (d) only

Explanation:

Jamboard, Stormboard, and Conceptboard are interactive whiteboard tools. Camtasia is a screen recording/editing tool, and Plotagon is for animated storytelling.

10. Identify the nominal variables:

- a) Gender
- b) Annoyance level
- c) Caste
- d) Temperature in Kelvin
- e) Economic status

- A. (a), (b), (c) and (d) only
- B. (a) and (c) only

- C. (b) and (e) only
- D. (a), (b), (c) and (e) only

Correct Answer: B. (a) and (c) only

Explanation:

Nominal variables are categorical with no inherent order. Gender and caste fall into this category. Annoyance and economic status are ordinal, while temperature in Kelvin is ratio.

11. Which of the following represents the epistemological orientation of quantitative research?

- A. Interpretivism
- B. Constructionism
- C. Positivism
- D. Inductivism

Correct Answer: C. Positivism

Explanation:

Positivism underpins quantitative research, which emphasizes objective measurements, statistical analysis, and the idea that reality can be measured and generalized through scientific observation.

12. The approach in which researchers use the existing data to create groups for comparison is called:

- A. Operational
- B. Ex post facto
- C. Experimental
- D. Quasi-experimental

Correct Answer: B. Ex post facto

Explanation:

In ex post facto research, groups are created based on pre-existing conditions, and no manipulation of variables occurs. It studies cause-effect relationships retrospectively based on naturally occurring data.

13. In which type of assessment do students measure their own progress against their previous performance rather than against external criteria or peers?

- A. Peer Assessment
- B. Ipsative Assessment
- C. Formative Assessment
- D. Summative Assessment

Correct Answer: B. Ipsative Assessment

Explanation:

Ipsative assessment allows students to compare their current performance with their past performance, fostering personal growth and self-awareness rather than competition with peers.

14. Which among the following is NOT a common pattern of Deductive Reasoning?

- A. Hypothetical Syllogism
- B. Categorical Syllogism
- C. Argument from Definition
- D. Predictive Argument

Correct Answer: D. Predictive Argument

Explanation:

Predictive argument is based on probability and inductive reasoning, not deduction. Deductive reasoning involves drawing logically certain conclusions from premises using structures like hypothetical syllogisms, categorical syllogisms, and arguments from definitions.

15. What among the following can be claimed of Deductive argument correctly?

- a. If the premises are true, then the conclusion is probably true.
- b. If the premises are true, then the conclusion must be true.
- c. It is unlikely for the premises to be true and the conclusion false.
- d. The conclusion follows necessarily from the premises.
- e. It is impossible for all the premises to be true and the conclusion false.

Choose the correct answer from the options given below:

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

Correct Answer: C. (b), (d) and (e) Only

Explanation:

Deductive arguments guarantee the truth of the conclusion if the premises are true. So if (b), (d), and (e) are all accurate: the conclusion must be true, it follows necessarily, and it's impossible for all premises to be true and the conclusion false.

16. Write the following types of communication in proper sequence:

- a. Group
- b. Public
- c. Mass communication

- d. Intrapersonal
- e. Interpersonal

Options:

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

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

Explanation:

Communication flows from individual (intrapersonal) to interaction (interpersonal), then group, public, and finally mass communication, which reaches large audiences.

17. Who sends what to whom in a communication process?

- a. Channel sends the message to sender.
- b. Sender sends messages to receiver.
- c. Sender sends the feedback receiver.
- d. Receiver sends messages to sender.

Options:

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

Correct Answer: B. (b) Only

Explanation:

In the Shannon-Weaver communication model, the sender initiates the message and sends it to the receiver via a channel.

18. Match List - I with List – II:

List - I (Communication terms)	List - II (Features)
(a) Effective verbal communication	(I) Knowledge and skills
(b) Effective communication	(II) Insufficient knowledge
(c) Effective non-verbal communication	(III) Effective speaking
(d) Barrier of communication	(IV) Body language

Options:

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

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

Explanation:

Effective verbal communication → Effective speaking

Effective communication → Knowledge and skills

Effective non-verbal communication → Body language

Barrier to communication → Insufficient knowledge

19. Devarshi Narada is treated as the first communicator, because:

- A. He always speaks against the others.
- B. He reports from the spot, mediates among the parties and thinks for the betterment of society.
- C. He is not everywhere every time.
- D. He is faithful to his lord.

Correct Answer: B. He reports from the spot, mediates among the parties and thinks for the betterment of society.

Explanation:

In mythology and communication folklore, **Narada** is considered the first communicator as he **transmitted messages** between gods and humans, **mediating with intent for social good**.

20. Which one of the following ancient sites in India is known for oldest forms of human communication?

- A. Dholavira
- B. Bhimbetka *
- C. Ropar
- D. Sinauli

Correct Answer: B. Bhimbetka

Explanation: Bhimbetka is a UNESCO World Heritage Site in Madhya Pradesh and is famous for its prehistoric cave paintings. These rock shelters contain some of the earliest known examples of human communication through visual art, dating back to the Paleolithic age. The

paintings depict scenes of everyday life, animals, and symbolic figures, making it the oldest form of recorded communication in India.

21. Find the next term in the number series: 2A11, 4D13, 12G17, 48J23, ?

- a) 245N32
- b) 228L30
- c) 240M31
- d) 230M29

Correct Answer: c) 240M31

Explanation:

Let's break the pattern into three parts: numbers, letters, and numbers.

First number pattern:

2, 4, 12, 48 → each is multiplied by increasing numbers:

$$2 \times 2 = 4$$

$$4 \times 3 = 12$$

$$12 \times 4 = 48$$

$$\text{So, } 48 \times 5 = 240$$

Second pattern: Letters:

A, D, G, J → Each increases by +3 positions in the alphabet:

A (1st), D (4th), G (7th), J (10th) → next: M (13th)

Third number pattern:

11, 13, 17, 23 → increases by 2, 4, 6 → next: +8 → 31

So, the correct term: 240M31

22. By selling 35 eggs for Rs 30, a man loses 25%. How many eggs should he sell for Rs 144 to gain 20%?

- a) 85
- b) 95
- c) 105
- d) 115

Correct Answer: c) 105

Explanation:

Step 1:

Selling 35 eggs for Rs. 30 means cost price is higher.

Loss = 25%, so

Cost Price (CP) = Selling Price / (1 - Loss%) = $30 / 0.75 = \text{Rs } 40$

So, CP of 35 eggs = Rs 40

$\Rightarrow$ CP of 1 egg = $40 / 35 = \text{Rs } 1.14$ (approx)

Step 2:

To gain 20%, $\text{SP} = 1.2 \times \text{CP} = 1.2 \times 1.14 \approx \text{Rs } 1.37$ per egg

He wants Rs 144.

No. of eggs = $144 / 1.37 \approx 105$ eggs

So, he should sell **105 eggs**.

23. Three successive discounts of 10%, 20%, and 30% on the marked price of an item are equivalent to a single discount of

- a) 60%
- b) 50.4%
- c) 54.6%
- d) 49.6%

Correct Answer: d) 49.6%

Explanation:

Let the marked price be 100.

First discount:

$$100 - 10\% = 90$$

Second discount:

$$90 - 20\% \text{ of } 90 = 90 \times 0.80 = 72$$

Third discount:

$$72 - 30\% \text{ of } 72 = 72 \times 0.70 = 50.4$$

So, final price = 50.4

Total discount = $100 - 50.4 = 49.6\%$

24. 'A' takes twice as much time as 'B' to complete a work and 'C' does it in the same time as both 'A' and 'B' together do it. If all three of them work together and complete the work in 5 days, then the time taken by 'B' to complete the work alone is:

- 12 days
- 14 days
- 15 days
- 18 days

Correct Answer: 15 days

Explanation:

Let B take x days $\Rightarrow$ A takes $2x$ days

Work rate: $A = 1/2x$, $B = 1/x$, $A+B = 3/2x$

C takes same time as $A+B \Rightarrow$ Time = $2x/3 \Rightarrow$ Rate = $3/2x$

Total rate = $1/2x + 1/x + 3/2x = (1+2+3)/2x = 6/2x = 3/x$

Together finish in 5 days:

$(3/x) \times 5 = 1 \Rightarrow x = 15$ days

25. Identify the number that occurs in the series 2, 10, 30, 68, 130, ...

738

349

520

222

Choose the correct answer from the options given below:

(a), (b) and (c) Only

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

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

(a), (b) and (d) Only

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

Explanation:

Differences: $+8, +20, +38, +62 \Rightarrow$ next $+92 \rightarrow 130+92 = 222$

Next: $+128 \rightarrow 222+128 = 350$; $+170 \rightarrow 520$; $+218 \rightarrow 738$

Numbers in sequence: 222, 520, 738 $\Rightarrow$ a, c, d

26. Match List I with List - II

List – I (Concept)	List – II (Description)
(a) Statement	(II) A sentence that can be viewed as True or False
(b) Premise	(IV) Reason why we should accept another statement or conclusion
(c) Conclusion	(I) A statement in an argument that is intended to be proved or supported by the premises
(d) Argument	(III) Group of statements intended to prove or support another statement

Options:

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

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

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

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

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

Explanation:

- A **statement** is a sentence that is either true or false.
- A **premise** gives a reason to believe a conclusion.
- A **conclusion** is what an argument attempts to establish.
- An **argument** is a set of premises leading to a conclusion.

27. Which among the following is NOT a common pattern of Deductive Reasoning?

Options:

- A) Hypothetical Syllogism
- B) Categorical Syllogism
- C) Argument from Definition
- D) Predictive Argument

Correct Answer: D) Predictive Argument

Explanation:

- Predictive arguments are typically **inductive** because they are based on probable future outcomes derived from past patterns.
- Deductive reasoning includes structured forms like **hypothetical** (if-then logic), **categorical syllogisms**, and **arguments based on definitions** which lead to **certain conclusions** if premises are true.

28. What among the following can be claimed of Deductive argument correctly?

Options:

- A) If the premises are true, then the conclusion is probably true.
- B) If the premises are true, then the conclusion must be true.
- C) It is unlikely for the premises to be true and the conclusion false.
- D) The conclusion follows necessarily from the premises.
- E) It is impossible for all the premises to be true and the conclusion false.

Answer Options:

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

Correct Answer: C) (b), (d), and (e) only

Explanation:

- In **deductive reasoning**, if the premises are **true**, the conclusion **must also be true**.
- Deductive logic deals with **necessity**, not probability.
- So, statements (b), (d), and (e) define key **features of valid deductive reasoning**.

29. What can be inferred from the following?

"Because $x = 3$ and $y = 5$, then $x + y = 8$ "**

Options:

- A) Deductive argument based on elimination
- B) Deductive argument based on Mathematics
- C) Inductive argument from Authority
- D) Inductive argument from Principle of Charity

Correct Answer: B) Deductive argument based on Mathematics

Explanation:

- This is a **purely deductive** inference, relying on established **mathematical rules**.
- The truth of the conclusion ($x + y = 8$) is a **logical necessity** once the premises are accepted.

30. Match List I with List - II (Classical Indian Logic)

List – I (Term/Concept)	List – II (Description)
(a) Upanaya	(III) Application of universal concomitance to the present case
(b) Parāmarśa	(I) Knowledge of Pakṣadharmatā as qualified by Vyāpti
(c) Vyāpti	(IV) Invariable association of the middle term with the major term
(d) Pakṣadharmatā	(II) Invariable relation of the middle term in the minor term

Options:

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

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

Explanation:

- **Upanaya** is the step of applying the general rule (Vyāpti) to the specific case.
- **Parāmarśa** refers to the cognition that includes both the presence of the middle term and the Vyāpti.

- **Vyāpti** is the universal relationship between middle and major terms.
- **Pakṣadharmatā** is the property of the subject (minor term) having the middle term.

31. With reference to open-source software, which of the following statements are correct?

- A. It is a software that is distributed with its source code
- B. It allows anyone to modify the software to best fit their needs
- C. It is a software that anyone can use on a trial basis before paying for it
- D. Linux is an example of open-source software

Options:

- A) A, B, and D only
- B) A, B, C, and D only
- C) A, C, and D only
- D) B and C only

Correct Answer: A) A, B, and D only

Explanation:

- Statement A is correct — Open-source software includes the source code.
- Statement B is correct — Users can modify and improve the software.
- Statement C is incorrect — This describes **shareware**, not open-source software.
- Statement D is correct — **Linux** is one of the most well-known open-source operating systems.

32. Match the List-I with List-II:

List - I (Malware types):	List - II (Characteristics):
a) Trapdoor	I. Produces varying but operationally equivalent copies of itself
b) Time Bomb	II. Code that allows unauthorized quick access at a later time
c) Polymorphic Virus	III. Instructions interpreted rather than executed
d) Macro virus	IV. Triggers action when specified time occurs

Options:

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

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

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

Explanation:

- a) Trapdoor → (II): Allows unauthorized access later
- b) Time Bomb → (IV): Executes when a certain time/event occurs
- c) Polymorphic Virus → (I): Modifies its code while retaining functionality
- d) Macro virus → (III): Uses interpreted macros, often from office files

33. Identify the sequence of words A-E that correctly fills the blanks in the following paragraph:

In the context of human-computer interaction, a ____ is an interface built around visual things and Windows-11 is an example of an ____ with these visual things. ____ is a region of the screen used to display information. ____ is a small picture that is used to represent folders, software, etc., whereas ____ is a list of options that the user can select from.

- A. OS
B. Menu
C. Window
D. Icon
E. GUI

Options:

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

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

Explanation:

- GUI (Graphical User Interface) is the visual interface → E
- OS (Windows 11) is an example of GUI → A
- Window is a screen region displaying information → C
- Icon represents software/folders → D
- Menu is a list of options → B

Correct sequence: GUI, OS, Window, Icon, Menu

34. Which of the following would create the most stable computer network with the fastest data transmission?

- A. Use a wireless access point to connect devices
- B. Connect devices wirelessly using mobile phone
- C. Use coaxial cables to connect devices in sequence
- D. Connect devices to a switch using optic fibre cables

Correct Answer: D. Connect devices to a switch using optic fibre cables

Explanation:

- **Optical fiber + switch** offers **maximum speed** and **high stability** with minimal interference.
- Wireless methods (A & B) are convenient but slower and less stable.
- Coaxial (C) is outdated and not as fast or scalable as fiber optics.

35. If (L)M represents a number L in base - M number system, then identify the correct descending order of the following numbers A-D, when converted to base-10 number system:

- A. $(9C)_{16}$
- B. $(233)_8$
- C. $(313)_7$
- D. $(10011110)_2$

Options:

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

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

Explanation:

Convert each number to base-10:

- A: $(9C)_{16} = 9 \times 16 + 12 = 144 + 12 = 156$
- B: $(233)_8 = 2 \times 64 + 3 \times 8 + 3 = 128 + 24 + 3 = 155$
- C: $(313)_7 = 3 \times 49 + 1 \times 7 + 3 = 147 + 7 + 3 = 157$
- D: $(10011110)_2 = 158$ (binary to decimal) = **158**

Descending order: 158 (D), 157 (C), 156 (A), 155 (B) → **(d), (c), (a), (b)**

36. Match the List-I with List-II

List -I (Nature of substances)	List - II (Effect)
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(a) Allergens	(I) Substances that cause cancer
(b) Carcinogens	(II) Substances that can hamper embryonic growth
(c) Mutagens	(III) Substances that activate the immune system
(d) Teratogens	(IV) Substances that can damage or alter genetic material

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

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

Explanation:

Allergens are substances that provoke an immune response, often triggering allergic reactions. Carcinogens are agents known to cause cancer. Mutagens alter or damage DNA, potentially leading to genetic disorders. Teratogens interfere with embryonic development, possibly resulting in congenital anomalies.

37. Which of the following Green House Gases (GHGs) was considered during the second compliance period of Kyoto protocol at Doha?

- a. Sulphur Hexafluoride (SF_6)
 b. Hydrofluoro Carbons (HFCs)
 c. Nitrogen Trifluoride (NF_3)
 d. Perfluorocarbons (PFCs)

Correct Answer: C. Nitrogen Trifluoride (NF_3)

Explanation:

Nitrogen trifluoride was newly included in the list of greenhouse gases during the second commitment period of the Kyoto Protocol. SF_6 and PFCs were already included in the first phase. HFCs are regulated under a separate agreement — the Kigali Amendment to the Montreal Protocol.

38. Which of the following is an example of negative feedback in the context of climate change?

- a. Oceans remove carbon dioxide from the air
 b. Warming increases water vapour in air

- c. Snow cover loss and ice shelf melt reduce sun's reflection
- d. Global temperature increases due to global warming

Correct Answer: A. Oceans remove carbon dioxide from the air

Explanation:

When oceans absorb more carbon dioxide, they help reduce the atmospheric CO₂ concentration, acting as a negative feedback by mitigating further warming. The other processes mentioned amplify global warming, making them positive feedback mechanisms.

39. Burning of solid waste, such as cans, batteries, plastic etc. generate

- a. Microplastics
- b. Chlorofluorocarbons (CFCs)
- c. Dioxins
- d. Polychlorinated biphenyls (PCBs)
- e. Halons

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

Correct Answer: B. (a), (c) and (d) only

Explanation:

Burning plastics and electronics generates dioxins and PCBs, both highly toxic. Microplastics are released from the combustion of synthetic materials. CFCs and halons are not typically produced by burning solid waste; they are refrigerants released from appliances.

40. Match the List-I with List-II

List - I (Particulate Matter Terms)	List - II (Explanation)
(a) Aerosol	(I) Particles formed by incomplete combination with mixture of carbon volatiles
(b) Nano Particles	(II) Particles with size less than 2.5 micrometer
(c) Smoke	(III) Particles with size less than 0.2 micrometer
(d) Fine particles	(IV) Any solid or liquid particle suspended in air

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

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

Explanation:

Aerosols refer to tiny solid or liquid particles suspended in air. Nanoparticles are ultra-fine particles generally under 0.2 micrometers. Smoke is produced from combustion and consists of carbon-rich particles. Fine particles are typically classified as those smaller than 2.5 micrometers (PM_{2.5}).

41. Match the List-I with List-II:

List – I (Five Year Plan)	List – II (Agency Set Up)
a) First Five Year Plan	I. Autonomous colleges
b) Second Five Year Plan	II. University Grants Commission
c) Third Five Year Plan	III. Specialized departments of scientific study
d) Fifth Five Year Plan	IV. Two rural institutes in Wardha and Mysore

Options:

- 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:

- **First Plan (1951–56):** UGC was established in **1953** → (a)-(II)
- **Second Plan (1956–61):** Promoted **science and technology education** → (b)-(III)
- **Third Plan (1961–66):** Setup of **rural institutes** → (c)-(IV)
- **Fifth Plan (1974–79):** Introduction of **autonomous colleges** concept → (d)-(I)

42. A British official of the East India Company who was interested in higher learning in India was:

Options:

- A) Francis Gladwin
- B) William Ward
- C) William Adam
- D) William Jones

Correct Answer: D) William Jones

Explanation:

- **Sir William Jones** founded the **Asiatic Society** in 1784. He was a great Orientalist and deeply involved in promoting **Sanskrit, legal, and literary studies** in India.

43. Which of the following norms are prescribed for foreign universities to set up their campuses in India?

- a) Foreign universities must invest in the Indian manufacturing industry
- b) They should have secured a position within the top 500 in global ranking
- c) They should have secured a position within the top 500 in the subject-wise category
- d) They should employ only Indians for teaching and non-teaching
- e) They should possess outstanding expertise in a specific area

Options:

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

Correct Answer: D) (b), (c), (e) only

Explanation:

- According to UGC regulations:
 - Foreign universities should be in the **top 500** globally or subject-wise.
 - They must have **proven excellence** in their field.
 - There is **no requirement** to invest in manufacturing or employ only Indians.

44. The components of quality education identified in the National Education Policy, 2020 are:

- a) Political affiliation
- b) Curriculum
- c) Pedagogy
- d) Continuous assessment
- e) Higher fee

Options:

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

Correct Answer: B) (b), (c), (d) only

Explanation:

- NEP 2020 emphasizes:
 - **Curriculum reform**
 - **Innovative pedagogy**
 - **Continuous and formative assessment**
- **Political affiliation and high fees** are **not** part of the quality framework.

45. The National Education Policy, 2020 supported the idea of:

Options:

- A) Science only education
- B) Fragmented research
- C) Rigorous specialization
- D) Segregating humanities and science

Correct Answer: C) Rigorous specialization

Explanation:

- While NEP promotes **interdisciplinary learning**, it also allows for **rigorous specialization** through flexible, multidisciplinary curricula and multiple exit-entry options.
- It **opposes segregation and fragmentation** of learning.

Comprehension (46-50)

Read the following passage carefully and answer the questions:

A careful study of the Rig-Veda shows that even in the early times, karma and jñāna were recognized as two separate factors in the spiritual progress of man. Karma is connected with the world immediately above the one in which we live; and jñāna is connected with the world further above that. Agni and Indra are connected with sacrifices, and the gods of the highest world are connected with prayer, and jñāna. Since the Vedic Samhitās are intimately connected with sacrifices, it is but natural that the gods connected with sacrifices, the gods of the two lower regions, should be more prominent in the Rig-Veda. It is only through jñāna that the soul can get into a state of everlasting bliss. This jñāna is esoteric knowledge. At the time of the Rig-Veda, the rsis had evolved a highly complicated system of philosophy and that the value of jñāna as a means to final release from the world of physical bondage had been well established. The Yajur-Veda and the Sāma-Veda are of little importance to a student of ancient Indian culture. One notes the same optimistic tone in the Yajur-Veda, regarding man's life in this world and his future in the other world. Material plenty is also quite noticeable. Gold and ornaments are spoken of freely as covetable objects. Cows are mentioned in thousands. So far as culture is concerned, so far as religion and philosophy go, there is no difference between the Rig-Veda and the other two Vedas

46. At the time of Rig Veda, the rsis valued jñāna as means.

- A. To find signs of a gloomier side in man's life
- B. To sacrifice and dissociate
- C. To find release from the world of physical bondage
- D. To rule and regulate

Correct Answer: C. To find release from the world of physical bondage

Explanation:

The passage clearly states that jñāna was recognized as esoteric knowledge, a means by which the soul could attain everlasting bliss and liberation from material bondage.

47. The optimistic tone regarding man's life in this world and his/her future in the other world exists in:

- A. The Yajur-Veda
- B. The Sāma-Veda
- C. The Atharva Veda
- D. Rig-Veda

Correct Answer: A. The Yajur-Veda

Explanation:

The passage notes that an optimistic tone about man's current and future life is also found in the Yajur-Veda, particularly in its references to material wealth and rituals.

48. In Rig-veda, Agni is connected with.

- A. The world immediately above the one in which we live in
- B. Sacrifices
- C. Souls with everlasting bliss
- D. The gods of Wisdom

Correct Answer: B. Sacrifices

Explanation:

Agni, along with Indra, is mentioned in the passage as being associated with sacrifices, which relate to karma and the world just above the human realm.

49. What is the original source of cultural life of the Hindus?

- A. Itihāsas
- B. Purānas
- C. Manu
- D. Sacred Vedas

Correct Answer: D. Sacred Vedas

Explanation:

The passage emphasizes that the Vedas, particularly the Rig-Veda, Yajur-Veda, and Sāma-Veda, are primary to the religion, philosophy, and cultural life of the ancient Hindus.

50. According to Rig-Veda, Jñāna refers to.

- A. Primitive culture
- B. Predominance of sacrifice
- C. Everlasting bliss
- D. The gods of the highest world that are connected with sacrifices

Correct Answer: C. Everlasting bliss

Explanation:

Jñāna is described in the passage as esoteric knowledge through which the soul attains a state of everlasting bliss, separate from the ritualistic world of karma and sacrifice.