CUET 2024 General Studies - SET A Question Paper with Solutions

Question 1: Which pass connects Jammu with Srinagar?

(1) Banihal Pass

(2) Nathu La Pass

(3) Niti Pass

(4) Rohtang Pass

Answer: (1) Banihal Pass.

Solution:

1. Jammu and Srinagar are connected by the Banihal Pass.
2. This pass is a part of the Pir Panjal mountain range.
3. It is a crucial point for road connectivity between these regions.

Quick Tip

Banihal Pass is an essential connection in the Pir Panjal range.

Question 2: Which of the following is not correctly matched regarding Padma Awards 2024?

(1) Padma Vibhushan → Konidela Chiranjeevi

(2) Padma Shri → Mithun Chakraborty

(3) Padma Bhushan → M. Fathima Beevi

(4) Padma Bhushan → Sitaram Jindal

Answer: (2) Padma Shri → Mithun Chakraborty.

Solution:

1. Mithun Chakraborty was not awarded the Padma Shri in 2024.
2. The other mentioned awards were correctly given to the respective individuals.
3. Therefore, option (2) is incorrectly matched.

Quick Tip

Always verify award recipients from official announcements to avoid errors.

Question 3: Match List-I with List-II:

List-I (Person)	**List-II (Area of Work)**
A. Vishakhadatta	I. Medicine
B. Kartikeya Sarabhai	II. Poet
C. Charaka	III. Environmentalist
D. Satyendra Nath Bose	IV. Mathematics

Choose the correct answer:

(1) (A)-(I), (B)-(III), (C)-(IV), (D)-(II)

(2) (A)-(II), (B)-(III), (C)-(I), (D)-(IV)

(3) (A)-(II), (B)-(I), (C)-(III), (D)-(IV)

(4) (A)-(III), (B)-(IV), (C)-(I), (D)-(II)

Answer: (2) (A)-(II), (B)-(III), (C)-(I), (D)-(IV).

Solution:

1. Vishakhadatta was a poet, so he matches with (II) Poet.
2. Kartikeya Sarabhai is known for environmental work, so he matches with (III) Environmentalist.
3. Charaka was a pioneer in medicine, thus matching with (I) Medicine.

4. Satyendra Nath Bose made significant contributions to mathematics, matching with (IV) Mathematics.

Quick Tip

Familiarize yourself with important historical figures and their contributions to different fields.

Question 4: If $\sin A = \frac{4}{5}$, then $(3 - \tan A)(2 + \cos A)$ is:

(1) $\frac{12}{5}$

(2) $\frac{13}{3}$

(3) $\frac{13}{5}$

(4) 3

Answer: (2) $\frac{13}{3}$.

Solution:

1. Given $\sin A = \frac{4}{5}$, we know $\sin A = \frac{\text{opposite}}{\text{hypotenuse}}$, so the adjacent side will be $\sqrt{5^2 - 4^2} = 3$, giving $\cos A = \frac{3}{5}$ and $\tan A = \frac{4}{3}$.
2. Now, substituting in the expression:
$$(3 - \tan A)(2 + \cos A) = \left(3 - \frac{4}{3}\right) \times \left(2 + \frac{3}{5}\right) = \frac{5}{3} \times \frac{13}{5}$$
3. Simplifying this:
$$\frac{5}{3} \times \frac{13}{5} = \frac{13}{3}$$

Quick Tip

Use trigonometric identities and Pythagorean theorem to simplify such expressions.

Question 5: A man can row a boat at 8 km/h in still water. If the speed of the water current is 2 km/h and it takes him 2 hours to row to a place and come back, how far off (in km) is the place?

(1) 7.5

(2) 6

(3) 9.5

(4) 10

Answer: (1) 7.5.

Solution:

1. Let d be the distance to the place.
2. Speed downstream = $8 + 2 = 10$ km/h and speed upstream = $8 - 2 = 6$ km/h.
3. Total time for the trip is 2 hours. So,
$$\frac{d}{10} + \frac{d}{6} = 2$$
4. Solving for d:
$$\frac{3d + 5d}{30} = 2 \quad \Rightarrow \quad 8d = 60 \quad \Rightarrow \quad d = 7.5\,\text{km}$$

Quick Tip

For problems involving speed in water currents, use time $= \frac{\text{distance}}{\text{speed}}$ for both upstream and downstream calculations.

Question 6: The following states were formed after 1960. What was the correct sequence of their formation?

A) Haryana B) Sikkim C) Nagaland D) Goa

(1) (C), (B), (A), (D)

(2) (C), (A), (B), (D)

(3) (C), (D), (A), (B)

(4) (D), (C), (A), (B)

Answer: (2) (C), (A), (B), (D).

Solution:

1. Nagaland was formed in 1963, Haryana in 1966, Sikkim in 1975, and Goa in 1987.
2. Therefore, the correct sequence is Nagaland, Haryana, Sikkim, and Goa.

Quick Tip

Memorize the formation years of Indian states to handle questions related to Indian geography.

Question 7: Out of the given options,which scheme's objective is to conduct an annual survey at the gram panchayat level to monitor the progress in the development process of rural areas?

(1) Mission Antyodaya (2022-23)

(2) Mission Karmayogi (2022-23)

(3) Mission Rashtriya Gokul (2022-23)

(4) Mission Atmanirbhar Bharat (2022-23)

Answer: (1) Mission Antyodaya(2022-23).

Solution:

1. Mission Antyodaya aims to improve rural infrastructure through annual surveys at the gram panchayat level. This survey helps to assess development needs and resource allocation effectively.
2. The other missions have different objectives, such as skill enhancement (Mission Karmayogi), conservation of bovine breeds (Mission Rashtriya Gokul), and promoting self-reliance (Mission Atmanirbhar Bharat).

Quick Tip

Stay updated with government schemes aimed at rural development and welfare.

Question 8: Which one of the following countries is *not* a member of the "Quadrilateral Security Dialogue", also known as "QUAD"?

(1) China

(2) Japan

(3) India

(4) Australia

Answer: (1) China.

Solution:

1. The ”Quadrilateral Security Dialogue” (QUAD) is a strategic alliance comprising the United States, Japan, India, and Australia.
2. China is not a member of this group, which is aimed at promoting security and stability in the Indo-Pacific region.

Quick Tip

Remember key international alliances and their member countries, especially those involving India.

Question 9: Who has become the first woman chairperson of the Railway Board of Indian Railways in 2023?

(1) Jaya Verma Sinha

(2) Mita Vashishth

(3) Ravneet Kaur

(4) Vasudha Gupta

Answer: (1) Jaya Verma Sinha.

Solution:

1. Jaya Verma Sinha became the first woman to hold the position of chairperson of the Railway Board in 2023, marking a significant milestone in Indian Railways.

Quick Tip

Keep track of important firsts in government and public sector appointments for current affairs.

Question 10: Match List-I with List-II:

List-I (Country)	List-II (Currency)
A. Myanmar	I. Ruble
B. Russia	II. Ngultrum
C. Malaysia	III. Kyat
D. Bhutan	IV. Ringgit

(1) (A)-(III), (B)-(I), (C)-(II), (D)-(IV)

(2) (A)-(III), (B)-(I), (C)-(IV), (D)-(II)

(3) (A)-(IV), (B)-(I), (C)-(III), (D)-(II)

(4) (A)-(II), (B)-(I), (C)-(IV), (D)-(III)

Answer: (2) (A)-(III), (B)-(I), (C)-(IV), (D)-(II).

Solution:

1. Myanmar uses Kyat, Russia uses Ruble, Malaysia uses Ringgit, and Bhutan uses Ngultrum.

Quick Tip

Make a list of countries and their currencies to remember these pairings.

Question 11: "Jhulaghat Suspension Bridge" between India and which country has become fully operational now?

(1) Bhutan

(2) Nepal

(3) China

(4) Myanmar

Answer: (2) Nepal.

Solution:

1. The Jhulaghat Suspension Bridge connects India and Nepal and is now fully operational.

Quick Tip

Important border infrastructure developments like bridges should be noted.

Question 12: Due to ocean acidification, when the ocean becomes more acidic, what happens to the pH level of the ocean?

(1) The pH level goes down.

(2) The pH level stays the same.

(3) The pH level goes up.

(4) The pH level becomes zero.

Answer: (1) The pH level goes down.

Solution:

1. Ocean acidification refers to the reduction of the pH level of seawater due to the absorption of carbon dioxide (CO) from the atmosphere. As CO dissolves in seawater, it forms carbonic acid, which lowers the pH of the ocean.

Quick Tip

The pH level of the ocean decreases due to increased CO absorption, which causes ocean acidification.

Question 13: Who is the first para-athlete to receive the Padma Bhushan award in India?

(1) Bhavina Patel

(2) Devendra Jhajharia

(3) Avani Lekhara

(4) Mariyappan Thangavelu

Answer: (2) Devendra Jhajharia.

Solution:

1. Devendra Jhajharia, a javelin thrower, is the first para-athlete to receive the prestigious Padma Bhushan award in India for his exceptional contribution to sports.

Quick Tip

Keep track of significant awardees in sports and their achievements.

Question 14: Zemu Glacier is located in which state of India?

(1) Uttarakhand

(2) Himachal Pradesh

(3) Sikkim

(4) Arunachal Pradesh

Answer: (3) Sikkim.

Solution:

1. Zemu Glacier is one of the largest glaciers in the Eastern Himalayas and is located in the state of Sikkim.

Quick Tip

Be familiar with major geographical features and their locations in India, like glaciers, rivers, and mountains.

Question 15: Who among the following is Chile's first woman President?

(1) Mary Robinson

(2) Michelle Bachelet

(3) Kim Campbell

(4) Jennifer Shipley

Answer: (2) Michelle Bachelet.

Solution:

1. Michelle Bachelet was elected as the first female President of Chile in 2006, marking a significant milestone in the country's political history.

Quick Tip

Stay updated on notable political figures and their contributions globally.

Question 16: Which organization developed and launched the 'Ugram' Indigenous Assault Rifle for the armed forces?

(1) ISRO

(2) BEL

(3) HAL

(4) DRDO

Answer: (4) DRDO.

Solution:

1. DRDO (Defence Research and Development Organisation) developed the Ugram Indigenous Assault Rifle, which is designed for use by the Indian Armed Forces.

Quick Tip

Keep track of important defense technologies and their developers.

Question 17: Which of the following substances is a bad conductor of electricity?

(1) Diamond

(2) Gold

(3) Silver

(4) Graphite

Answer: (1) Diamond.

Solution:

1. Diamond is a poor conductor of electricity, unlike graphite, which conducts electricity due to free-moving electrons within its structure.

Quick Tip

Diamond and graphite are both allotropes of carbon, but their different atomic structures result in different electrical properties.

Question 18: Which of the following diseases is caused due to the deficiency of proteins?

(1) Arthritis

(2) Kwashiorkor

(3) Goitre

(4) Night Blindness

Answer: (2) Kwashiorkor.

Solution:

1. Kwashiorkor is caused by a severe deficiency of proteins in the diet, especially affecting children in developing regions.

Quick Tip

Be aware of common diseases caused by nutrient deficiencies for general knowledge and healthcare awareness.

Question 19: Match List-I with List-II:

List-I (Navy Institution)	**List-II (Place)**
(A) INS Chilka	(I) Odisha
(B) INS Hansa	(II) Goa
(C) INS Satavahana	(III) Andhra Pradesh
(D) INS Garuda	(IV) Kerala

Choose the correct answer:

(1) (A)-(III), (B)-(I), (C)-(II), (D)-(IV)

(2) (A)-(I), (B)-(IV), (C)-(II), (D)-(III)

(3) (A)-(IV), (B)-(I), (C)-(III), (D)-(II)

(4) (A)-(IV), (B)-(I), (C)-(II), (D)-(III)

Answer: (4) (A)-(IV), (B)-(I), (C)-(II), (D)-(III).

Solution: INS Chilka is located in Odisha, INS Hansa is in Goa, INS Satavahana is in Andhra Pradesh, and INS Garuda is in Kerala.

Quick Tip

Remember the names and locations of naval institutions for questions on Indian defense geography.

Question 20: DRDO has conducted the first successful flight test of Agni-5 missile equipped with MIRV technology. What is the full form of MIRV?

(1) Multiple Independently Targetable Re-Entry Vehicle

(2) Mission India Target Re-Entry Vehicle

(3) Multiple Independently Technology Re-Entry Vehicle

(4) Multiple Indirect Targetable Re-Entry Vehicle

Answer: (1) Multiple Independently Targetable Re-Entry Vehicle.

Solution:

1. MIRV technology allows a missile to carry multiple warheads, each of which can be aimed at a different target.

Quick Tip

Stay updated with defense technologies and acronyms, especially those related to missiles and space.

Question 21: Which Indian has won the "Ramon Magsaysay Award-2023"?

(1) Korvi Rakshand

(2) Ashwini Kumar

(3) Dipti Ranjan Sahoo

(4) Dr. Ravi Kannan R.

Answer: (4) Dr. Ravi Kannan R.

Solution:

1. Dr. Ravi Kannan R. was honored with the prestigious Ramon Magsaysay Award in 2023 for his outstanding contributions to healthcare in India.

Quick Tip

Stay updated with international awards and recent Indian awardees to enhance general knowledge.

Question 22: Who has been appointed the Chairman of the 16th Finance Commission of India?

(1) Ajay Narayan Jha

(2) Smt. Annie George Mathew

(3) Pradip Kumar Mohanty

(4) Dr. Arvind Panagariya

Answer: (3) Pradip Kumar Mohanty.

Solution:

1. Pradip Kumar Mohanty has been appointed as the Chairman of the 16th Finance Commission of India.

Quick Tip

Finance Commissions play an important role in the fiscal distribution between the Union and the States.

Question 23: Sri Ranganathaswamy Temple, which is situated in Tamil Nadu, is dedicated to which deity?

(1) Lord Shiva

(2) Lord Vishnu

(3) Goddess Durga

(4) Goddess Lakshmi

Answer: (2) Lord Vishnu.

Solution:

1. Sri Ranganathaswamy Temple is dedicated to Lord Vishnu and is one of the largest functioning Hindu temples in the world.

Quick Tip

Familiarize yourself with important temples and the deities they are dedicated to.

Question 24: The Election Commission of India gets the power to conduct elections from which of the following articles?

(1) Article 324

(2) Article 280

(3) Article 264

(4) Article 26

Answer: (1) Article 324.

Solution:

1. Article 324 empowers the Election Commission to conduct free and fair elections in India.

Quick Tip

Memorize key constitutional articles related to important bodies like the Election Commission.

Question 25: Match List-I with List-II:

List-I (Centre of Handicraft)	List-II (State)
(A) Mon	(I) Nagaland
(B) Nalbari	(II) Assam
(C) Pasighat	(III) Arunachal Pradesh
(D) Tura	(IV) Meghalaya

Choose the correct answer:

(1) (A)-(IV), (B)-(II), (C)-(I), (D)-(III)

(2) (A)-(I), (B)-(III), (C)-(IV), (D)-(II)

(3) (A)-(IV), (B)-(III), (C)-(I), (D)-(II)

(4) (A)-(I), (B)-(II), (C)-(IV), (D)-(III)

Answer: (1) (A)-(IV), (B)-(II), (C)-(I), (D)-(III).

Solution: Mon is in Nagaland, Nalbari is in Assam, Pasighat is in Arunachal Pradesh, and Tura is in Meghalaya.

Quick Tip

It's helpful to memorize the geographical locations of famous handicraft centers.

Question 26: In which state is "Amchang Wildlife Sanctuary" located?

(1) Assam

(2) Rajasthan

(3) Odisha

(4) Manipur

Answer: (1) Assam.

Solution: Amchang Wildlife Sanctuary is located in Assam, known for its rich biodiversity and wildlife population, especially elephants.

Quick Tip

Know the locations of key wildlife sanctuaries and national parks in India.

Question 27: India's first 3D-printed Post Office has been inaugurated in:

(1) Guwahati

(2) Kolkata

(3) Mumbai

(4) Bengaluru

Answer: (4) Bengaluru.

Solution: India's first 3D-printed post office was inaugurated in Bengaluru, setting a milestone in infrastructure development.

Quick Tip

3D printing technology is gaining importance in construction and infrastructure due to its efficiency and cost-effectiveness.

Question 28: What should come in the place of the question mark (?) in the following alphanumeric series?

A1X, B4P, E25J, J100F, ?

(1) O289D

(2) O225E

(3) Q289D

(4) Q225E

Answer: (3) Q289D.

Solution: The pattern involves increasing both letters and numbers systematically. For example, letters follow A, B, E, J, and then Q, while the numbers increase by the square of consecutive integers.

Quick Tip

Look for simultaneous patterns in both numbers and letters in alphanumeric series.

Question 29: In the given analogy, choose the word which will replace the question mark:

NEGI : MVTR :: SING : ?

(1) TRNS

(2) TRNT

(3) FRMT

(4) HRMT

Answer: (2) TRNT.

Solution: The pattern involves a shift in the letters following a reverse order coding system.

So, NEGI relates to MVTR just as SING relates to TRNT.

Quick Tip

Analogies often follow consistent letter coding rules—observe these shifts carefully.

Question 30: In a certain code language, 'ki ru pi' means 'nobody like cruel', 'ki mi cha' means 'king was cruel' and 'ru pi cha' means 'nobody like king'. What is the code for 'was' in the given code language?

(1) ki

(2) mi

(3) cha

(4) ru

Answer: (2) mi.

Solution: By eliminating common words across the three phrases, 'mi' represents 'was' in the code language.

Quick Tip

For coding-decoding problems, look for repeated words in different sentences to identify their codes.

Question 31: Read the following information carefully to choose the best option for the question:

'P % Q' means that 'P is the sister of Q'.

'P + Q' means that 'P is the son of Q'.

'P \times Q' means that 'P is the husband of Q'.

'P – Q' means that 'P is the brother of Q'.

Which of the following means 'A is the son-in-law of G'?

(1) A × U + S × G

(2) A + S % U × G

(3) A – S + U × G

(4) A × U % S + G

Answer: (1) A × U + S × G.

Solution: - A × U means A is the husband of U. - U + S means U is the son of S. - S × G means S is the husband of G.

Therefore, A is the son-in-law of G.

Quick Tip

For relational puzzles, follow the relationships based on symbols carefully to deduce the correct answer.

Question 32: If 26th January, 2020 was a Sunday, then what day of the week was it on 16th March of that year?

(1) Sunday

(2) Monday

(3) Tuesday

(4) Wednesday

Answer: (3) Tuesday.

Solution: The difference between 26th January and 16th March is 50 days. Dividing 50 by 7 gives a remainder of 2, so the day moves two days forward from Sunday, making it Tuesday.

Quick Tip

When counting days forward, divide by 7 to find the remainder, which represents the day change.

Question 33: What will be the measurement of the angle made by the hour and minute hands of a clock when the time is 'quarter past 3'?

(1) $6\frac{1}{2}$

(2) 10

(3) $7\frac{1}{2}$

(4) $8\frac{1}{2}$

Answer: (4) $8\frac{1}{2}$**.**

Solution: At 3:15, the minute hand is on the 3, while the hour hand is slightly ahead of 3. Using the formula Angle $= |30H - 5.5M|$, we get $|30(3) - 5.5(15)| = |90 - 82.5| = 7.5$, rounded to $8\frac{1}{2}$.

Quick Tip

Use the formula Angle $= |30H - 5.5M|$ to calculate clock angles.

Question 34: If in a certain code language, 'MERCURY' is coded as 'NGUGZXF', then how will 'ENTANGLE' be coded in the same code language?

(1) FPXFSMSM

(2) FPWESMSM

(3) FPWESNSN

(4) FPWFTNSM

Answer: (2) FPWESMSM.

Solution: The pattern in coding is based on shifting letters by a specific number of places in the alphabet. Applying the same rule to 'ENTANGLE', the code becomes FPWESMSM.

Quick Tip

Look for consistent letter shifts in coded language problems.

Question 35: The problem given below consists of a question and two statements numbered I and II. You have to decide whether the data provided in the statements are sufficient to answer the question.

How many sisters does Sunny have?

I. Sunny is the only son of his parents.

II. Sunny's parents have three children.

(1) Only statement I alone is sufficient to answer the question.

(2) Only statement II alone is sufficient to answer the question.

(3) Statements I and II together are sufficient to answer the question.

(4) Either statement I or II alone is sufficient to answer the question.

Answer: (3) Statements I and II together are sufficient to answer the question.

Solution: Since Sunny is the only son and his parents have three children, the remaining two children must be his sisters.

Quick Tip

For such logic problems, analyze all given statements together to reach a conclusion.

Question 36: A boy leaves his house. He travels 6 km towards South, then travels 8 km towards West and further travels 9 km towards South. How far and in which direction is he from his house now?

(1) 13 km, South West

(2) 17 km, South West

(3) 17 km, North West

(4) 13 km, West

Answer: (2) 17 km, South West.

Solution:

1. Total distance traveled South: $6 + 9 = 15$ km.
2. Total distance traveled West: 8 km.
3. Using the Pythagorean theorem to calculate the straight-line distance:

$$\text{Distance} = \sqrt{(15)^2 + (8)^2} = \sqrt{225 + 64} = \sqrt{289} = 17 \text{ km}$$

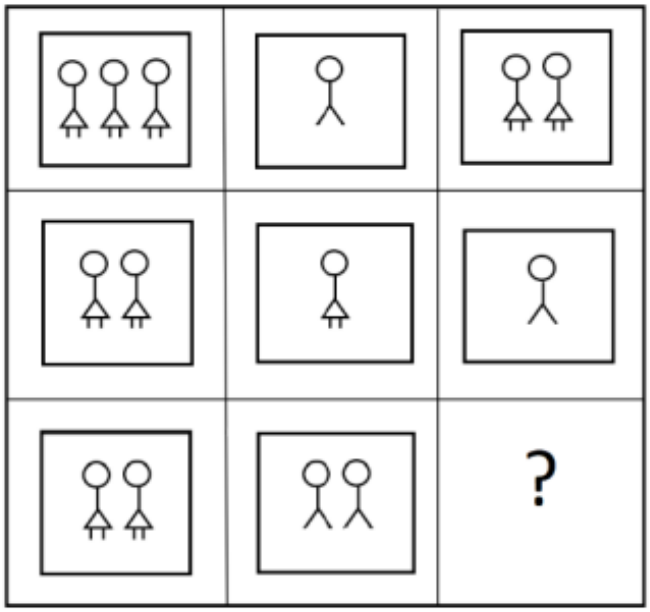
4. Since the movement is South and West, the direction is South West.

Quick Tip

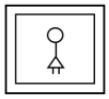
Use the Pythagorean theorem for distance and basic direction rules when calculating resultant positions.

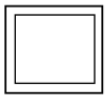
Question 37: Find out which of the answer figures completes the figure matrix:

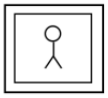
Problem figure :

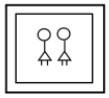


Options:

(1) 

(2) 

(3) 

(4) 

Answer: (3)

Solution:

1. Observe the arrangement in each row and column. The figures alternate between different types of frames.
2. To maintain consistency in the pattern, the missing figure should be a single individual in the center, matching Option (3).

Quick Tip

When solving figure matrix questions, look for consistent patterns in rows and columns to identify the missing figure.

Question 38: A clock seen through a mirror shows 'quarter to seven'. What is the correct time shown by the clock?

(1) 6:15

(2) 6:17

(3) 5:17

(4) 5:15

Answer: (4) 5:15.

Solution:

1. "Quarter to seven" means the time shown is 6:45.
2. To find the actual time, subtract the mirror image time from 12:00.
3. Calculation:

$$12:00 - 6:45 = 5:15$$

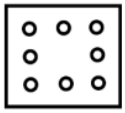
4. Therefore, the correct time is 5:15.

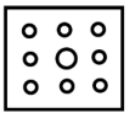
Quick Tip

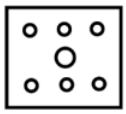
When solving mirror image clock questions, subtract the given time from 12:00 to find the actual time.

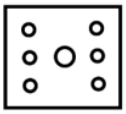
Question 39: The sequence of folding a piece of paper and the manner in which the folded paper has been cut is shown in the following figures. How would this paper look when unfolded?

Options:

(1) 

(2) 

(3) 

(4) 

Answer: (2)

Solution:

1. The paper is folded twice along the diagonals, resulting in a smaller triangular section.

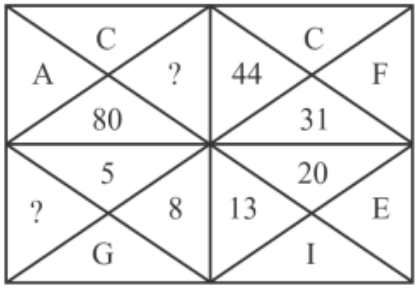
2. A circular cut is made on the folded corner, which will produce multiple symmetrical circles upon unfolding.

3. When unfolded, this creates a 3x3 pattern of circles, which matches Option (2).

Quick Tip

For paper folding problems, visualize each fold and cut's impact to predict the final unfolded pattern.

Question 40: Find out the missing (?) number and letter.



Options:

(1) 59 and K

(2) 61 and L

(3) 61 and K

(4) 59 and L

Answer: (3) 61 and K

Solution:

1. Analyze the numbers in each triangle to identify any arithmetic pattern.

2. Check the placement and order of letters for any sequential pattern.

3. Based on calculations, the missing values align with Option (3): 61 and K.

Quick Tip

When working with diagrams, look for symmetry, opposites, and arithmetic patterns to deduce missing elements.

Question 41: What will be the next number of the series

$3, 6, 10.5, 17, 26, ?$

(1) 31

(2) 38

(3) 40

(4) 41

Answer: 37.5 (not in options)

Solution:

1. Calculate the differences between consecutive terms: $3, 4.5, 6.5, 9$.
2. The next difference is 11.5, so add 11.5 to 26:

$$26 + 11.5 = 37.5$$

Quick Tip

Identify the pattern in the differences to find the next term in a series.

Question 42: In a class of 40 students, Anjali's rank is thrice that of Anita. There are 4 students who have ranks worse than that of Anjali. Anita's rank in the class is:

(1) 9^{th}

(2) 10^{th}

(3) 18^{th}

(4) 12^{th}

Answer: (4) 12^{th}

Solution:

1. Let Anita's rank be x. Then Anjali's rank is $3x$.
2. Since there are 4 students below Anjali, $3x = 36$.
3. Solving x:

$$x = \frac{36}{3} = 12$$

Quick Tip

Translate rank relationships into equations to solve ranking problems easily.

Question 43: Six people E, H, K, M, S and U are seated in a circle facing the centre. U and H are immediate neighbours of M. E is the only person sitting between K and S. H is to the immediate right of S. Who is to the immediate right of U?

(1) M

(2) E

(3) K

(4) S

Answer: (2) E

Solution:

1. From the clues, arrange the seating as $M - U - E - K - S - H$.
2. Therefore, the person to the immediate right of U is E.

Quick Tip

Draw seating arrangements for circular arrangement problems to avoid confusion.

Question 44: Find out which of the answer figures from the options can be formed using all the pieces given in the problem figure.

Problem figure

Options:

(1) 

(2) 

(3) 

(4) 

Answer: (4)

Solution:

1. The problem figure has two eyes with dots, curved lines, and a heart shape at the bottom.
2. Only Option (4) includes all these elements exactly as they appear in the problem figure.

Quick Tip

In visual matching questions, carefully compare each element in the problem figure with those in the options.

Question 45: Read the given statements and conclusions carefully assuming that the information given in the statements is true, even if it appears to be at variance with commonly known facts. Decide which of the given conclusion(s) logically follows from the statements. Statements:

- No keyboard is a mouse.
- All mouses are computers.
- All computers are laptops.

Conclusions:

1. All mouses are laptops.
2. All computers can never be keyboards.

Options:

(1) Only conclusion I follows

(2) Only conclusion II follows

(3) Neither conclusion I nor II follows

(4) Both conclusions I and II follow

Answer: (4) Both conclusions I and II follow

Solution: Conclusion I and II logically follow based on the statements provided.

Quick Tip

In syllogism questions, use the statements given and apply logical reasoning, ignoring commonly known facts.

Question 46: Simplify $24 \div 4 \times 2 + 8 - 4$

Options:

(1) 1

(2) 7

(3) 16

(4) 56

Answer: (3) 16

Solution: 1. Perform division and multiplication first: $24 \div 4 = 6$, then $6 \times 2 = 12$. 2. Continue with addition and subtraction: $12 + 8 - 4 = 16$.

Quick Tip

Remember the BODMAS/PEDMAS rule: first solve brackets, orders (exponents), division and multiplication (from left to right), then addition and subtraction.

Question 47: The difference of the greatest and smallest of the fractions $\frac{1}{2}, \frac{8}{11}, \frac{7}{8}, \frac{7}{9}, \frac{5}{6}$

Options:

(1) $\frac{3}{8}$

(2) $\frac{6}{7}$

(3) $\frac{7}{9}$

(4) $\frac{1}{3}$

Answer: (1) $\frac{3}{8}$

Solution: 1. Convert each fraction to a decimal to compare them. 2. The greatest is $\frac{7}{8}$ and the smallest is $\frac{1}{2}$. 3. The difference is $\frac{3}{8}$.

Quick Tip

To find the difference in fractions, convert them to a common base or use decimal equivalents to easily compare.

Question 48: The sum of LCM and HCF of two numbers is 854. If the LCM is 60 times the HCF and one of the numbers is 70, then the other number is:

Options:

(1) 160

(2) 164

(3) 168

(4) 172

Answer: (3) 168

Solution: 1. Let the HCF be x and LCM be $60x$. 2. $x + 60x = 854 \Rightarrow x = 14$. 3. HCF = 14, LCM = 840. Calculate the other number as 168.

Quick Tip

For problems involving LCM and HCF, set up equations based on their relationships to solve for unknowns.

Question 49: The present age of Harish is 8 times the sum of the ages of his two sons. After 8 years, his age will be twice the sum of the ages of his sons. What is Harish's present age?

Options:

(1) 31

(2) 32

(3) 33

(4) 34

Answer: (2) 32

Solution: 1. Let the sum of the ages of Harish's sons be x. 2. Harish's age is $8x$. 3. After 8

years, $8x + 8 = 2(x + 16)$. 4. Solving gives $x = 4$, so Harish's age is 32.

Quick Tip

Set up algebraic equations for age problems to solve efficiently.

Question 50: In an examination, it is required to get 300 marks to pass. A student gets 225 marks and is declared fail by 10% marks. What are the maximum marks of the examination?

Options:

(1) 700

(2) 750

(3) 800

(4) 850

Answer: (3) 800

Solution:

1. If a student is declared fail by 10% marks, then 225 marks is 90% of the passing marks.
2. Let the total marks be x.
3. Then, $0.9 \times 300 = 225 \Rightarrow x = 800$.

Quick Tip

Use percentages to calculate total marks when dealing with examination scores.

Question 51: In a class of 40 students, the ratio of boys and girls is 3 : 2 and the average marks scored by boys is 42 and by girls is 46. Then the average marks scored by the whole class is:

Options:

(1) 43.4

(2) 43.6

(3) 43.8

(4) 44

Answer: (2) 43.6

Solution:

1. Let the number of boys be $3x$ and girls be $2x$, where $3x + 2x = 40 \Rightarrow x = 8$.
2. Then, boys = 24 and girls = 16.
3. Total marks for boys = $24 \times 42 = 1008$.
4. Total marks for girls = $16 \times 46 = 736$.
5. Average marks for the class:

$$\text{Average} = \frac{1008 + 736}{40} = 43.6$$

Quick Tip

Use weighted averages when dealing with groups of different sizes.

Question 52: The sum of three numbers is 136. If the ratio between the first number and the second number is 2 : 3 and that between the second and the third number is 5 : 3, then the first number is:

Options:

(1) 42

(2) 40

(3) 36

(4) 32

Answer: (2) 40

Solution:

1. Let the three numbers be $2y$, $3y$, and $3z$.
2. Since $3y = 5z$, $y = \frac{5z}{3}$.
3. Substitute in the sum equation:

$$2y + 3y + 3z = 136 \Rightarrow \frac{10z}{3} + 3z = 136$$

4. Solving, the first number is 40.

Quick Tip

Break down ratios step-by-step to create a system of equations for complex problems.

Question 53: An item is sold for Rs. 504 after allowing 20% discount and still a profit of 5% has been earned. The marked price is how much more than the cost price?

Options:

(1) Rs. 120

(2) Rs. 135

(3) Rs. 150

(4) Rs. 160

Answer: (3) Rs. 150

Solution:

1. Let the cost price be x.
2. Selling price after 5% profit is $1.05x = 504$, so $x = \frac{504}{1.05} = 480$.
3. Marked price (before discount) is $\frac{504}{0.8} = 630$.
4. Difference between marked price and cost price is $630 - 480 = 150$.

Quick Tip

Use successive percentage formulas for discount and profit/loss calculations.

Question 54: A certain sum becomes Rs. 2,356 in 3 years and Rs. 2,660 in 5 years on simple interest. The value of the sum is:

Options:

(1) Rs. 1,800

(2) Rs. 1,880

(3) Rs. 1,900

(4) Rs. 1,980

Answer: (3) Rs. 1,900

Solution:

1. Difference in interest over 2 years: $2,660 - 2,356 = 304$.
2. Annual interest: $\frac{304}{2} = 152$.
3. Sum = $2,356 - (3 \times 152) = 1,900$.

Quick Tip

For simple interest problems, use the formula Interest = Principal $\times$ Rate $\times$ Time.

Question 55: In a square, lengths of the diagonals are $(4k + 6)$ cm and $(7k - 3)$ cm. The area of the square (in cm^2) is:

Options:

(1) 144

(2) 162

(3) 169

(4) 172

Answer: (2) 162

Solution:

1. Equate the diagonals: $4k + 6 = 7k - 3$.
2. Solving for k, find the diagonal and calculate area = $\frac{\text{diagonal}^2}{2}$.

Quick Tip

In a square, the area can be calculated as $\frac{\text{Diagonal}^2}{2}$.

Question 56: The volume of a cylinder with base radius 3 cm is 396 cm^3. Find its curved surface area (in cm^2).

Options:

(1) 280

(2) 301.5

(3) 264

(4) 320.6

Answer: (3) 264

Solution:

1. Use the formula for volume: $V = \pi r^2 h$.
2. Solving for height h, then use $2\pi rh$ for surface area.

Quick Tip

Remember the formulas for volume and surface area of a cylinder: $V = \pi r^2 h$ and Curved Surface Area $= 2\pi rh$.

Question 57: A tap can fill a tank in 6 hours. After half the tank is filled, three more similar taps are opened. What is the total time taken to fill the tank completely?

Options:

(1) 4 hours

(2) 5 hours

(3) 3 hours 30 minutes

(4) 3 hours 45 minutes

Answer: (3) 3 hours 30 minutes

Solution:

1. The first tap alone fills half the tank in 3 hours.
2. With 4 taps running, the remaining half is filled in 1.5 hours.
3. Total time = $3 + 1.5 = 4.5$ hours.

Quick Tip

For multi-tap problems, calculate how the additional taps speed up the process after each stage.

Question 58: A train running at the speed of 80 km/h crosses a 350 m long tunnel in 36 seconds. The length of the train (in m) is:

Options:

(1) 350

(2) 380

(3) 420

(4) 450

Answer: (4) 450

Solution:

1. Convert speed to meters per second: $80 \times \frac{1000}{3600} = 22.22$ m/s.
2. Total distance covered in 36 seconds: $22.22 \times 36 = 800$ meters.
3. Subtract tunnel length to find train length: $800 - 350 = 450$ meters.

Quick Tip

Convert speeds to the same units when working with time and distance problems.

Question 59: If the mean of 3, 4, 9, 2k, 10, 8, 6 and (k + 6) is 8, and mode of 2, 2, 3, 2p, (2p + 1), 4, 4, 5 and 6 (p is a natural number) is 4, then the value of (k – 2p) is :

Options:

(1) 0

(2) 1

(3) 2

(4) 3

Answer: (4) 3

Solution:

1. Using the mean and mode conditions, solve for k and p.
2. Substitute into $k - 2p$ to get the answer.

Quick Tip

Translate statistical conditions into equations for mean and mode problems.

Question 60: In triangle ABC, points D and E are on AB and AC respectively such that DE is parallel to BC. If $AD = 6$ cm, $DB = 4$ cm, $AE = 9$ cm, then the length of EC (in cm) is:

Options:

(1) 7

(2) 6.4

(3) 6

(4) 5.5

Answer: (2) 6.4

Solution:

1. Using similarity $\triangle ADE \sim \triangle ABC$, set up the ratio.
2. Solve for EC using proportions.

Quick Tip

Use the properties of similar triangles to solve for unknown lengths.
