

SSC CGL T-I Similar Paper (Held on 12 Sep 2025 S3) English

Q.1 If $a \% b = a^2 - b^2$ and $a \% b = 63$, find a and b .

- A. 9, 6
- B. 10, 7
- C. 8, 1
- D. 7, 4

Answer: C

Sol: Given:

If $a \% b = a^2 - b^2$ and $a \% b = 63$
Now, we check each options.

Option (a): 9, 6

$$9^2 - 6^2 = 81 - 36 = 45 \neq 63$$

Option (b): 10, 7

$$10^2 - 7^2 = 100 - 49 = 51 \neq 63$$

Option (c): 8, 1

$$8^2 - 1^2 = 64 - 1 = 63$$

Option (d): 7, 4

$$7^2 - 4^2 = 49 - 16 = 33 \neq 63$$

So, the value of **a = 8** and **b = 1**.

Thus, correct option is (c).

Q.2 How many letters will remain unchanged if the word EDUCATION is arranged alphabetically?

- A. One
- B. Zero
- C. Three
- D. Two

Answer: B

Sol: Given: EDUCATION

Given Letters EDUCATION

Alphabetical Order ACDEINOTU

Transformed letters: A, C, D, E, I, N, O, T, U

So, **zero** letters will remain unchanged if the word is arranged alphabetically.

Thus, correct option is (b).

Q.3 Select the letter-cluster that will replace (?):

B, F, J, N, R, V, Z, ?

- A. A
- B. C
- C. B
- D. D

Answer: D

Sol: Given: B, F, J, N, R, V, Z, ?

1	2	3	4	5	6	7	8	9	10	11	12	13
A	B	C	D	E	F	G	H	I	J	K	L	M
Z	Y	X	W	V	U	T	S	R	Q	P	O	N
26	25	24	23	22	21	20	19	18	17	16	15	14

Logic: Letters are increasing + 4 place.

$$B + 4 = F$$

$$F + 4 = J$$



$$J + 4 = N$$

$$N + 4 = R$$

$$R + 4 = V$$

$$V + 4 = Z$$

$$Z + 4 = D$$

So, the missing term is **D**.
Thus, correct option is (d).

Q.4 Pointing to a boy, a woman said, "He is the son of my father's only daughter." How is the boy related to the woman?

- A. Son
- B. Brother
- C. Nephew
- D. Cousin

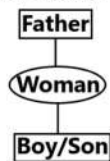
Answer: A

Sol: Given:

Pointing to a boy, a woman said, "He is the son of my father's only daughter."

Symbol in Diagram	Meaning
- / O	Female
+ / □	Male
==	Married Couple
—	Siblings
	Difference Of Generation

From the given information blood relation diagram will be.



So, the boy is the **son** of the woman.
Thus, correct option is (a).

Q.5 If $4 \oplus 3 = 19$ and $5 \oplus 2 = 17$, then $6 \oplus 4 = ?$

- A. 24
- B. 28
- C. 34
- D. 32

Answer: C

Sol: Given:

$$\text{If } 4 \oplus 3 = 19 \text{ and } 5 \oplus 2 = 17$$

Logic: (1st number $\times$ 2nd number) + (1st number + 2nd number) = 3rd number

$$\text{For, } 4 \oplus 3 = 19$$

$$(4 \times 3) + (4 + 3) = 12 + 7 = 19$$

$$\text{For, } 5 \oplus 2 = 17$$

$$(5 \times 2) + (5 + 2) = 10 + 7 = 17$$

Similarly,

$$6 \oplus 4 = ?$$

$$(6 \times 4) + (6 + 4) = 24 + 10 = \mathbf{34}$$

Thus, correct option is (c).

Q.6 If $3x + 7 = 28$, find x.

- A. 7
- B. 6
- C. 5



D. 8

Answer: A

Sol: Given:

$$\text{If } 3x + 7 = 28$$

Solution:

$$3x + 7 = 28$$

$$3x = 28 - 7$$

$$3x = 21$$

$$x = \frac{21}{3}$$

$$x = 7$$

So, the value of $x = 7$

Thus, correct option is (a).

Q.7 Apply the same pattern used in the following group and find the correct option.

METAL : LATEM :: FIBER : ?

- A. ERFIB
- B. BIFER
- C. REBIF
- D. RIFEB

Answer: C

Sol: Given: METAL : LATEM :: FIBER : ?

Logic: Place value of letters are interchanged.

For, METAL : LATEM

M E T A L
↓ ↓ ↓ ↓ ↓
L A T E M

Similarly,

FIBER : ?

F I B E R
↓ ↓ ↓ ↓ ↓
R E B I F

So, FIBER : **REBIF**

Thus, correct option is (c).

Q.8 If '+' = '-' and '-' = 'x', find the value of:

$$12 + 4 - 3 = ?$$

- A. 5
- B. 0
- C. 1
- D. 3

Answer: B

Sol: Given: $12 + 4 - 3 = ?$

Given Sign + -

New Sign - x

Using **BODMAS** rule.



Operation preference wise	Symbol
Brackets	$\{, [, ()$
Orders, of	$(power), \sqrt{\text{root}}, of$
Division	$\div$
Multiplication	$\times$
Addition	$+$
Subtraction	$-$

New equation: $12 - 4 \times 3 = ?$

$12 - 12 = ?$

$? = 0$

Thus, correct option is (b).

Q.9 Find the odd one out.

- A. 4 : 16 : 256
- B. 3 : 9 : 81
- C. 5 : 25 : 125
- D. 6 : 36 : 1296

Answer: C

Sol: Logic: $(1st\ number)^2 = 2nd\ number$, $(2nd\ number)^2 = 3rd\ number$
Now, we check each options.

Option (a): 4 : 16 : 256 **(Follow)**

$(4)^2 = 16$, $(16)^2 = 256$

Option (b): 3 : 9 : 81 **(Follow)**

$(3)^2 = 9$, $(9)^2 = 81$

Option (c): 5 : 25 : 125 **(Not Follow)**

$(5)^2 = 25$, $(25)^2 \neq 125$

Option (d): 6 : 36 : 1296 **(Follow)**

$(6)^2 = 36$, $(36)^2 = 1296$

So, **5 : 25 : 125** is odd one out.

Thus, correct option is (c).

Q.10 Eight people P, Q, R, S, T, U, V, W sit around a circle facing the center. P is second right of Q. R is opposite P. S is immediate left of R. T is third to the right of Q. U is sits to the immediate left of S. W is opposite T. Who is immediate right of Q?

- A. P
- B. R
- C. W
- D. V

Answer: D

Sol: Given:

Eight people P, Q, R, S, T, U, V, W sit around a circle facing the center.

P is second right of Q.

R is opposite P.

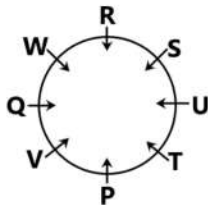
S is immediate left of R.

T is third to the right of Q.

U is sits to the immediate left of S.

W is opposite T.

From the given information seating arrangement will be.



So, **V** is immediate right of Q.

Thus, correct option is (d).



Q.11 Find the missing term in the series.
ACE, EGI, IKM, MOQ, ?

- A. QSU
- B. PQS
- C. QRT
- D. RSU

Answer: A

Sol: **Given:** ACE, EGI, IKM, MOQ, ?

1	2	3	4	5	6	7	8	9	10	11	12	13
A	B	C	D	E	F	G	H	I	J	K	L	M
Z	Y	X	W	V	U	T	S	R	Q	P	O	N
26	25	24	23	22	21	20	19	18	17	16	15	14

Logic: Letters are increasing + 4 place.

A + 4 = E, E + 4 = I, I + 4 = M, M + 4 = Q

C + 4 = G, G + 4 = K, K + 4 = O, O + 4 = S

E + 4 = I, I + 4 = M, M + 4 = Q, Q + 4 = U

So, the missing term is **QSU**.

Thus, correct option is (a).

Q.12 What will come in place of (?)
2, 6, 18, 54, ?

- A. 108
- B. 324
- C. 216
- D. 162

Answer: D

Sol: **Given:** 6, 18, 54, ?, 486

Logic: Number are multiply by 3.

$6 \times 3 = 18$

$18 \times 3 = 54$

$54 \times 3 = 162$

$162 \times 3 = 486$

So, the missing term is **162**.

Thus, correct option is (d).

Q.13 Which word cannot be formed from DEMOCRACY?

- A. READY
- B. CORE
- C. MAYOR
- D. CAREER

Answer: D

Sol: **Given:** DEMOCRACY

Now, we check each options:

Option (a): READY → R, E, A, D, Y (**possible**)

Option (b): CORE → C, O, R, E (**possible**)

Option (c): MAYOR → M, A, Y, O, R (**possible**)

Option (d): CAREER → C, A, R, E, E, R (**not possible**)

Needs E twice, but DEMOCRACY has only one E

So, **CAREER** word cannot be formed.

Thus, correct option is (d).

Q.14 What comes next?
8, 20, 44, 92, ?



- A. 180
- B. 188
- C. 196
- D. 204

Answer: B

Sol: Given: 8, 20, 44, 92, ?

Logic: Numbers are multiply by 2 and + 4 place.

$$8 \times 2 + 4 = 20$$

$$20 \times 2 + 4 = 44$$

$$44 \times 2 + 4 = 92$$

$$92 \times 2 + 4 = \mathbf{188}$$

So, the missing term is **188**.

Thus, correct option is (b).

Q.15 In a certain code language, "apple is sweet fruit" is written as "ka lo mi te", "mango is sweet" is written as "lo mi ra" and "apple mango fresh" is written as "ka ra su". How is "sweet" coded?

- A. su
- B. mi
- C. ra
- D. te

Answer: B

Sol: Given:

In a certain code language, "apple is sweet fruit" is written as "ka lo mi te", "mango is sweet" is written as "lo mi ra" and "apple mango fresh" is written as "ka ra su".

apple is sweet fruit = ka lo mi te

mango is sweet = lo mi ra

apple mango fresh = ka ra su

So, the code of **sweet** is **mi**.

Thus, correct option is (b).

Q.16 The ratio of two numbers is 5 : 7 and their sum is 96. Find the numbers.

- A. 40, 56
- B. 45, 51
- C. 48, 48
- D. 35, 61

Answer: A

Sol: Given:

The ratio of two numbers is 5 : 7 and their sum is 96.

Solution:

Let the two numbers be 5x and 7x.

$$5x + 7x = 96$$

$$12x = 96$$

$$x = 8$$

The numbers are:

$$5x = 5 \times 8 = 40$$

$$7x = 7 \times 8 = 56$$

So, the numbers are **40, 56**.

Thus, correct option is (a).

Q.17 If A is the brother of B, and B is the mother of C, how is A related to C?

- A. Brother
- B. Father



- C. Uncle
D. Cousin

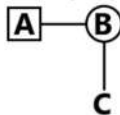
Answer: C

Sol: Given:

If A is the brother of B, and B is the mother of C.

Symbol in Diagram	Meaning
- / O	Female
+ / □	Male
==	Married Couple
—	Siblings
	Difference Of Generation

From the given information blood relation diagram will be,



So, A is the **uncle** of C.
Thus, correct option is (c).

Q.18 If "ROAD" is coded as *4@# and "READ" as *@4#, what is the code for "RAOD"?

- A. *@#4
B. *4#@
C. *@4#
D. *#@4

Answer: C

Sol: Given:

If "ROAD" is coded as *4@# and "READ" as *@4#.
So, the code of **RAOD** is ***@4#**. Because O and A are interchanged.
Thus, correct option is (c).

Q.19 In a tournament of 9 players, each plays every other player once. How many matches are played?

- A. 72
B. 40
C. 42
D. 36

Answer: D

Sol: Given:

Total number of players = 9
Each pair of players plays one match

Formula Used:

Total matches in a round-robin tournament:

$$\text{Number of matches} = \frac{n(n-1)}{2}$$

Where n = number of players

$$\text{Matches} = \frac{9 \times (9-1)}{2}$$

$$= \frac{9 \times 8}{2}$$

$$= \frac{72}{2}$$

$$= 36$$

So, **36** matches are played.
Thus, correct option is (d).



- Q.20** Identify the similar address:
12, Lake View Road, Anna Nagar, Chennai - 600040
- A. 12 Lake View Rd Anna Nagar Chennai 600040
 - B. Anna Nagar, 12 Lake Road, Chennai
 - C. 12 Lake Road, Chennai - 600004
 - D. 21 Lake View Road, Anna Nagar, Chennai

Answer: A

Sol: Given:
12, Lake View Road, Anna Nagar, Chennai - 600040
Check the options:
Option (a): 12 Lake View Rd Anna Nagar Chennai 600040
Same house number, road (abbreviated), locality, city, and PIN code.
Option (b): Missing "View", order changed, and PIN code missing
Option (c): Different road name and different PIN code (600004)
Option (d): Different house number (21 instead of 12)
So, **12 Lake View Rd Anna Nagar Chennai 600040** is identically same.
Thus, correct option is (a).

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- Q.21 Statement:**
Online education is expanding rapidly; hence quality standards must be maintained.
Assumptions:
I. Online education affects learning outcomes.
II. Quality control is necessary in education.
- A. Only I
 - B. Only II
 - C. Both I and II
 - D. Neither I nor II

Answer: C

Sol: Statement:
Online education is expanding rapidly; hence quality standards must be maintained.
Assumptions:
I. Online education affects learning outcomes.
The statement argues that because online education is expanding, quality standards must be maintained. This implies that online education does have an impact on learning outcomes → **Assumption I is implicit.**
II. Quality control is necessary in education.
Saying that quality standards must be maintained clearly assumes that quality control is necessary in education → **Assumption II is also implicit.**
So, **both I and II** are implicit.
Thus, correct option is (c).

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- Q.22** If $8 \$ 3 = 32$ and $6 \$ 4 = 30$, then $5 \$ 4 = ?$
- A. 28
 - B. 20
 - C. 24
 - D. 25

Answer: D

Sol: Given:
If $8 \$ 3 = 32$ and $6 \$ 4 = 30$
Logic: (1st number $\times$ 2nd number) + 1st number = 3rd number
For, $8 \$ 3 = 32$
 $(8 \times 3) + 8 = 24 + 8 = 32$
For, $6 \$ 4 = 20$
 $(6 \times 4) + 6 = 24 + 6 = 30$
Similarly,
 $5 \$ 4 = ?$
 $(5 \times 4) + 5 = 20 + 5 = 25$
Thus, correct option is (d).



Q.23 If + means $\times$ and - means $\div$, which is incorrect?

- A. $8 - 2 + 3 = 12$
- B. $6 + 3 - 2 = 9$
- C. $4 - 2 + 5 = 15$
- D. $9 + 1 - 3 = 3$

Answer: C

Sol: Given:

Given Sign $+$ $\times$

New Sign $-$ $\div$

Using **BODMAS** rule.

Operation preference wise	Symbol
Brackets	$[], \{, ()$
Orders, of	$(power), \sqrt{(root)}, of$
Division	$\div$
Multiplication	$\times$
Addition	$+$
Subtraction	$-$

Now, we check each options.

Option (a): $8 - 2 + 3 = 12$ **(Correct)**

$$= 8 \div 2 \times 3$$

$$= 4 \times 3$$

$$= 12$$

Option (b): $6 + 3 - 2 = 9$ **(Correct)**

$$= 6 \times 3 \div 2$$

$$= 18 \div 2$$

$$= 9$$

Option (c): $4 - 2 + 5 = 15$ **(Incorrect)**

$$= 4 \div 2 \times 5$$

$$= 2 \times 5$$

$$= 10 \neq 15$$

Option (d): $9 + 1 - 3 = 3$ **(Correct)**

$$= 9 \times 1 \div 3$$

$$= 9 \div 3$$

$$= 3$$

Thus, correct option is (c).

Q.24 Apply the same pattern used in the following group and find the correct option.

COUNTRY : FRXQWUB :: SCHOOL : ?

- A. VFIPPM
- B. VFKRRO
- C. VFJPPN
- D. VEKPPM

Answer: B

Sol: Given: COUNTRY : FRXQWUB :: SCHOOL : ?

1	2	3	4	5	6	7	8	9	10	11	12	13
A	B	C	D	E	F	G	H	I	J	K	L	M
Z	Y	X	W	V	U	T	S	R	Q	P	O	N
26	25	24	23	22	21	20	19	18	17	16	15	14

Logic: Letters are increasing + 3 place.

For: COUNTRY : FRXQWUB

$$C + 3 = F, O + 3 = R, U + 3 = X, N + 3 = Q, T + 3 = W, R + 3 = U, Y + 3 = B$$

Similarly,

For: SCHOOL : ?

$$S + 3 = V, C + 3 = F, H + 3 = K, O + 3 = R, O + 3 = R, L + 3 = O$$

So, SCHOOL : **VFKRRO**

Thus, correct option is (b).



Q.25 Find the missing term:
3, 7, 15, 31, ?

- A. 47
- B. 63
- C. 61
- D. 64

Answer: B

Sol: Given: 3, 7, 15, 31, ?

Logic: Numbers are multiply by 2 and + 1 place.

$$3 \times 2 + 1 = 7$$

$$7 \times 2 + 1 = 15$$

$$15 \times 2 + 1 = 31$$

$$31 \times 2 + 1 = 63$$

So, the missing term is **63**.

Thus, correct option is (b).

Q.26 On Electrical Safety Day 2025, MoS Power and New & Renewable Energy Shri Shripad Naik unveiled:

- A. National Fire Safety Code
- B. Suraksha Shakti mascot
- C. Smart Meter Rollout Initiative
- D. Grid Digitalization Platform

Answer: B

Sol: The correct answer is (b) Suraksha Shakti mascot.

Explanation:

- On **Electrical Safety Day 2025, Shripad Naik**, Minister of State for Power and New & Renewable Energy, unveiled the "**Suraksha Shakti**" mascot.
- The mascot aims to promote **electrical safety awareness**, safe handling of electrical appliances, and accident prevention.
- It is part of the government's broader effort to strengthen **public outreach and behavioral change** in electrical safety.

Information Booster :

- Electrical Safety Day focuses on **preventing electrical accidents** at workplaces and homes.
- Awareness campaigns target **linemen, technicians, and consumers**.
- Mascots are increasingly used for **visual communication and mass awareness**.
- The Power Ministry regularly issues **safety advisories and guidelines**.

Additional Knowledge :

- National Fire Safety Code is issued separately under fire safety regulations.
- Smart meters and grid digitalization are part of **power sector reforms**, not Electrical Safety Day launches.
- Electrical safety is critical due to **rising electrification and renewable integration**.

Q.27 Anglo-Indian nomination in State Assemblies was terminated by:

- A. Governor's ongoing nomination power
- B. 42nd Amendment
- C. 104th Amendment
- D. Proportional representation election

Answer: C

Sol: The correct answer is (c) 104th Amendment.

Explanation:

- The **104th Constitutional Amendment Act, 2019** ended the **nomination of Anglo-Indian members** to State Legislative Assemblies.
- It retained **reservation for SCs and STs**, but discontinued Anglo-Indian nomination after **70 years** of the Constitution.

Information Booster :

- The original provision was under **Article 333**.
- The amendment came into force in **January 2020**.
- Anglo-Indian nomination to the **Lok Sabha** was also abolished.
- Reservation for SC/STs was extended for **10 more years**.

Additional Knowledge :

- The Governor earlier had discretionary power to nominate Anglo-Indians if underrepresented.
- This change reflects evolving **demographic and political considerations**.



Q.28 Which is generally not classified as a weather parameter?

- A. Temperature
- B. Humidity
- C. Soil pH
- D. Wind

Answer: C

Sol: The correct answer is (c) Soil pH.

Explanation:

- **Weather parameters** describe the state of the atmosphere at a given time and place.
- **Temperature, humidity, and wind** are atmospheric variables and are core weather elements.
- **Soil pH** relates to **soil chemistry** and agricultural science, not atmospheric conditions.

Information Booster :

- Major weather parameters include **temperature, atmospheric pressure, humidity, wind speed/direction, and precipitation**.
- Weather is studied by **meteorology**, while soil properties fall under **pedology/agricultural science**.
- Weather conditions can change **hourly or daily**, unlike soil pH which changes slowly.
- Instruments: thermometer (temperature), hygrometer (humidity), anemometer (wind).

Additional Knowledge :

- **Soil pH** influences **crop productivity and nutrient availability**, not weather forecasting.
 - Climate studies consider long-term averages of weather parameters, still excluding soil chemistry.
 - Soil pH becomes relevant in **agro-climatic studies**, but not as a direct weather parameter.
-

Q.29 Which pair correctly pairs a temple roof type with its structural feature?

- A. Latina – rectangular, wagon-like
- B. Phamsana – flat slabs sloping upward to a ridge
- C. Valabhi – steeply curving inward
- D. Latina – wide with tiered steps

Answer: B

Sol: The correct answer is (b) Phamsana – flat slabs sloping upward to a ridge.

Explanation:

- **Phamsana** type temples have roofs made of **flat slabs arranged in horizontal layers**, sloping upwards to meet at a ridge.
- This style is commonly found in **Nagari temple architecture**.

Information Booster :

- **Latina (Rekha-Prasada)** has a **curvilinear shikhara**, not rectangular.
- **Valabhi** roofs are **wagon-vaulted (barrel-shaped)**.
- Phamsana temples are usually **smaller subsidiary shrines**.

Additional Knowledge :

- Temple roof styles are part of **Indian architectural classification** in NCERT Class 11 (Fine Arts/History).
 - Nagara style dominates **North India**.
-

Q.30 Strict regulation of cricket ball weight and size in international games ensures:

- A. Advantage to bowlers with heavier balls, batsmen with lighter ones
- B. Consistent bounce, swing, and equity on uniform pitches
- C. Cost savings as per ICC rules
- D. Applies solely to red balls

Answer: B



Sol: The correct answer is (b) Consistent bounce, swing, and equity on uniform pitches.

Explanation:

- Standardization of **cricket ball weight and circumference** ensures **fair play**.
- It allows **consistent bounce, swing, and seam movement** across matches.

Information Booster :

- ICC specifies ball weight between **155.9–163 g**.
- Circumference ranges between **22.4–22.9 cm**.
- Applies to **red, white, and pink balls**.

Additional Knowledge :

- Uniform equipment standards are essential in **international sports governance**.
- Variations could unfairly favor bowlers or batters.

Q.31 Bharatiya Nagarik Suraksha Sanhita (BNSS) introduces:

- A. Full replacement of IPC provisions
- B. Video recording of confessions
- C. Assumption of guilt
- D. Elimination of bail provisions

Answer: B

Sol: The correct answer is (b) Video recording of confessions.

Explanation:

- The **BNSS, 2023** mandates **audio-video recording** of confessions and statements to enhance **transparency and accountability**.
- This reform aims to reduce **coercion, custodial abuse, and evidentiary disputes**.

Information Booster :

- BNSS replaces the **CrPC, 1973**.
- Encourages **technology-driven criminal procedure**.
- Strengthens safeguards under **Article 20(3)** (protection against self-incrimination).
- Part of the broader overhaul alongside **BNS** and **BNSS** reforms.

Additional Knowledge :

- IPC provisions are replaced by **Bharatiya Nyaya Sanhita (BNS)**, not BNSS.
- Bail provisions continue, with clearer timelines and safeguards.

Q.32 Order these classical dance forms by their earliest documented mentions (earliest first):

- 1. Bharatanatyam
- 2. Kathak
- 3. Mohiniyattam
- 4. Manipuri

- A. 1–3–2–4
- B. 1–2–4–3
- C. 1–3–4–2
- D. 1–4–3–2

Answer: B

Sol: The correct answer is (b) 1–2–4–3.

Explanation:

- **Bharatanatyam** has the **earliest documented roots** in the *Natya Shastra* (c. 200 BCE–200 CE).
- **Kathak** evolved from **ancient storytelling traditions** and temple rituals, gaining prominence during the **Bhakti movement**.
- **Manipuri** dance finds references in **medieval texts and Vaishnavite traditions** of Manipur.
- **Mohiniyattam** developed later in **Kerala**, with clear documentation from the **16th–17th centuries**.

Information Booster :

- Bharatanatyam originated in **Tamil Nadu** and is linked with the **Devadasi tradition**.
- Kathak flourished under **Mughal patronage**, incorporating Persian influences.
- Manipuri dance is closely associated with **Vaishnavism** and Ras Lila themes.
- Mohiniyattam emphasizes **lasya (graceful movements)** and feminine expression.

Additional Knowledge :

- All four are among the **eight classical dance forms** recognized by the **Sangeet Natak Akademi**.
- The *Natya Shastra* by **Bharata Muni** is the foundational text for Indian performing arts.
- Revival and codification of these dances largely occurred during the **20th century** through cultural reform movements.

Q.33 The Tutsa tribe of Arunachal Pradesh observes the Pongtu Festival mainly to invoke blessings from which god prior to millet sowing?



- A. Donyi-Polo
- B. Rangkhothak
- C. Rangfraa
- D. Nyegi-Nyapa

Answer: B

Sol: The correct answer is (b) Rangkhothak

Explanation:

- . Pongtu Festival is celebrated by the Tutsa tribe before the sowing of millet
- . The festival is observed to seek blessings from the supreme deity Rangkhothak
- . Prayers are offered for a good harvest and protection from pests and natural calamities
- . It marks the beginning of the agricultural cycle
- . It is also regarded as the traditional New Year of the Tutsa community

Information Booster:

- . Pongtu Festival is celebrated annually in April
- . The festival coincides with the pre-monsoon season and early millet growth in jhoom fields

Additional Knowledge:

Donyi-Polo (Option a)

- . A widely worshipped sun-moon deity among several tribes of Arunachal Pradesh
- . Not specifically associated with Pongtu Festival

Rangfraa (Option c)

- . A supreme deity worshipped mainly by the Tangsa and related tribes
- . Not the presiding deity of Pongtu Festival

Nyegi-Nyapa (Option d)

- . A deity associated with the Nyishi tribe
- . Not connected with Tutsa agricultural rituals

Q.34 What characterizes the book 'Hot Stage'?

- A. Anthology of contemporary Indian plays addressing societal concerns
- B. Chronicle of the independence movement
- C. Mythological fiction
- D. Narrative of Himalayan journeys

Answer: A

Sol: The correct answer is (a) Anthology of contemporary Indian plays addressing societal concerns.

Explanation:

- *Hot Stage* is an **anthology of modern Indian plays**.



- The plays focus on **contemporary social issues**, personal conflicts, and changing cultural values.
- The work reflects the **evolution of Indian English theatre** in the post-independence period.

Information Booster :

- *Hot Stage* includes plays by **leading contemporary Indian dramatists**.
- Themes often include **gender, identity, family, and social norms**.
- Such anthologies are important for understanding **modern Indian theatre trends**.
- Frequently referenced in **literature and culture-based competitive exams**.

Additional Knowledge :

- **Option (b)** relates to historical or political non-fiction, not drama.
- **Option (c)** refers to mythological narratives, which *Hot Stage* is not.
- **Option (d)** describes travel literature, unrelated to theatrical works.

Q.35 Assertion (A): Iron and steel qualifies as a heavy industry.
Reason (R): It uses lightweight inputs such as cotton and rubber.

- A. Both true, R explains A
B. Both true, R does not explain A
C. A true, R false
D. A false, R true

Answer: C

Sol: The correct answer is (c) A true, R false.

Explanation:

- **Iron and steel** is classified as a **heavy industry** due to the use of **bulky raw materials**, high capital investment, and large-scale production.
- The reason is incorrect because iron and steel depend on **heavy inputs like iron ore, coal, and limestone**, not cotton or rubber.

Information Booster :

- Heavy industries are usually **energy-intensive and location-oriented**.
- Iron and steel plants are often located near **raw material sources**.
- India is among the **top steel producers globally**.
- Heavy industries form the base for **industrial development**.

Additional Knowledge :

- Cotton-based industries belong to **light industries**.

Q.36 Regarding the 61st National Chess Championship:
1. GM Karthik Venkataraman triumphed in Gurgaon, earning ₹6 lakh.
2. IM Neelash Saha took silver but was edged out in a tiebreak against Ganguly.

- A. Only 1
B. Only 2
C. Both 1 and 2
D. Neither 1 nor 2

Answer: C

Sol: The correct answer is (c) Both 1 and 2.

Explanation:

- **Karthik Venkataraman** won the **61st National Chess Championship** held in **Gurgaon**, securing the **winner's prize of ₹6 lakh**.
- **Neelash Saha** finished **second** and lost the title on **tiebreak**, finishing behind **Karthik Venkataraman** (ahead of **Ganguly** on points before tiebreak considerations).

- Hence, **both statements are correct**.

Information Booster :

- The National Chess Championship is organized by **All India Chess Federation (AICF)**.
- The tournament follows a **Swiss-system format**.
- Winning the national title strengthens chances for **international representation**.
- Tiebreaks are commonly decided using **Sonneborn-Berger or Buchholz systems**.

Additional Knowledge :

- **Gurgaon** has emerged as a frequent host for **national-level chess events** due to strong infrastructure.
- Indian chess has seen rapid growth with multiple **Grandmasters and International Masters** emerging annually.
- National championships often serve as **selection grounds** for continental and global events.

Q.37 Assertion (A): PSLV is ISRO's reliable mainstay launch vehicle.
Reason (R): PSLV's flexibility allows multi-payload launches to multiple orbits with excellent reliability.

- A. Both true, R explains A



- B. Both true, R does not explain A
C. A true, R false
D. A false, R true

Answer: A

Sol: The correct answer is (a) Both true, R explains A.

Explanation:

- The **PSLV (Polar Satellite Launch Vehicle)** of **ISRO** is regarded as its **most reliable workhorse**.
- PSLV's **multi-orbit, multi-satellite capability** and consistently **high success rate** explain why it is ISRO's mainstay.
- Its versatility across **LEO, SSO, and interplanetary missions** underpins this reliability.

Information Booster :

- PSLV first flew successfully in **1994** and has completed **numerous consecutive successes**.
- It enabled landmark missions like **Chandrayaan-1** and **Mars Orbiter Mission**.
- Known globally for **rideshare missions** carrying multiple international satellites.
- Uses a **four-stage configuration** with alternating solid and liquid propulsion.

Additional Knowledge :

- GSLV/LVM3 are designed for **heavier payloads**, not as frequently flown as PSLV.
- Reliability and flexibility together define a **mainstay launch vehicle**.

Q.38 IMD World Competitiveness Ranking 2025 shows Switzerland topping which dimension in both 2024 and 2025?

- A. Business Efficiency
B. Infrastructure
C. Economic Performance
D. Employment

Answer: B

Sol: The correct answer is (b) Infrastructure.

Explanation:

- In the **IMD World Competitiveness Rankings**, Switzerland has consistently ranked **first in the Infrastructure dimension**.
- Infrastructure includes **basic infrastructure, technological infrastructure, scientific infrastructure, health, and education**.
- Switzerland's strong public services, advanced research ecosystem, and transport efficiency explain its continued top position.

Information Booster :

- IMD rankings assess countries on **Economic Performance, Government Efficiency, Business Efficiency, and Infrastructure**.
- Switzerland is globally known for **high-quality transport, healthcare, and digital infrastructure**.
- The rankings are released annually by the **IMD World Competitiveness Center, Switzerland**.
- India's infrastructure ranking has shown gradual improvement in recent years.

Additional Knowledge :

- **Business Efficiency** measures productivity and labor markets, where Switzerland ranks high but not always first.
- **Economic Performance** fluctuates based on global growth trends.
- **Employment** is a sub-indicator, not a primary IMD dimension.

Q.39 Kalbelia dance symbolizes the sinuous motion of ____.

- A. Camels
B. Snakes
C. Birds
D. Horses

Answer: B

Sol: The correct answer is (b) Snakes.

Explanation:

- **Kalbelia**, a classical folk dance of **Rajasthan**, mimics the **graceful, serpentine movements of snakes**.
- It is traditionally performed by the **Kalbelia community**, historically associated with snake handling.

Information Booster :

- Recognized by **UNESCO** as **Intangible Cultural Heritage (2010)**.
- Dancers wear **black swirling skirts** symbolizing serpents.
- Accompanied by instruments like **been, dholak, and khanjari**.
- Lyrics often draw from **Rajasthani folklore**.

Additional Knowledge :

- The dance reflects a transition from **nomadic traditions to cultural performance**.
- Preservation efforts focus on **folk art sustainability and livelihoods**.



- Q.40** On MISHTI Scheme:
1. Targets mangrove afforestation via scientific techniques.
 2. Introduced in Budget 2023–24.
 3. Permits commercial mangrove leasing.
- A. 1 and 2 only
B. 2 and 3 only
C. 1 and 3 only
D. All 1, 2, and 3

Answer: A

Sol: The correct answer is (a) 1 and 2 only.

Explanation:

- MISHTI (Mangrove Initiative for Shoreline Habitats & Tangible Incomes) focuses on **scientific mangrove plantation and restoration**.
- It was announced in the **Union Budget 2023–24**.
- The scheme **does not permit commercial leasing** of mangroves; conservation remains the priority.

Information Booster :

- MISHTI supports **coastal livelihoods and climate resilience**.
- It aligns with India's **Nationally Determined Contributions (NDCs)**.
- Mangroves act as **natural carbon sinks (blue carbon)**.
- Implemented through **state governments and local bodies**.

Additional Knowledge :

- Commercial exploitation of mangroves is **restricted under environmental laws**.
- MISHTI complements other initiatives like **CAMPA and coastal regulation frameworks**.

-
- Q.41** Who claimed India's inaugural Paralympic archery gold at Paris 2024?

- A. Sheetal Devi
B. Harvinder Singh
C. Rakesh Kumar
D. Preethi Pal

Answer: B

Sol: The correct answer is (b) Harvinder Singh.

Explanation:

- Harvinder Singh won **India's first-ever Paralympic gold medal in archery** at the **Paris Paralympics 2024**.
- He achieved the feat in the **men's individual recurve event**, marking a historic milestone for India in para-archery.
- This victory made archery India's **first gold-medal-winning sport** at the Paralympics.

Information Booster :

- Harvinder Singh also won a **bronze medal at Tokyo Paralympics 2020**, India's first Paralympic medal in archery.
- He hails from **Haryana** and overcame a physical disability caused by childhood illness.
- India made its **Paralympic archery debut in 2012 (London)**.
- Paris 2024 marked a **significant improvement** in India's Paralympic medal performance.

Additional Knowledge :

- **Sheetal Devi** is a para-archer known for competing **without arms**, but she did not win gold at Paris 2024.
- **Rakesh Kumar** is a prominent para-archer, medalist at world events, but not the gold winner here.
- **Preethi Pal** is a para-athlete (track events), not associated with archery.

-
- Q.42** Assertion (A): Chotanagpur Plateau forms the eastern continuation of Central Highlands.
Reason (R): It is chiefly drained by Chambal and Betwa rivers.

- A. Both A and R true, R explains A
B. Both true, R does not explain A
C. A true, R false
D. A false, R true

Answer: C

Sol: The correct answer is (c) A true, R false.

Explanation:

- The **Chotanagpur Plateau** is indeed the **eastern extension of the Central Highlands** of Peninsular India.
- However, it is mainly drained by rivers like the **Damodar, Subarnarekha, and Brahmani**, not Chambal and Betwa.
- Hence, the assertion is correct, but the reason is incorrect.

Information Booster :



- Chotanagpur Plateau spans **Jharkhand, Odisha, Chhattisgarh, and West Bengal**.
- It is rich in **minerals like coal, iron ore, and bauxite**.
- Chambal and Betwa drain the **Malwa and Bundelkhand regions**.
- The plateau has **undulating terrain with river valleys**.

Additional Knowledge :

- Central Highlands include **Malwa Plateau, Bundelkhand, and Baghelkhand**.
- Drainage pattern helps identify **physiographic divisions** in Indian geography.

Q.43 The BRICS Foreign Ministers' Meeting on 4 June 2018 took place in which city?

- A. Pretoria, South Africa
- B. Brasilia, Brazil
- C. Beijing, China
- D. New Delhi, India

Answer: D

Sol: The correct answer is (d) New Delhi, India.

Explanation:

- The **BRICS Foreign Ministers' Meeting** on **4 June 2018** was hosted by **New Delhi**.
- India held the **BRICS Chairship in 2018**, and New Delhi hosted several preparatory and ministerial meetings ahead of the BRICS Summit.
- The meeting focused on **global governance reforms, multilateralism, and regional security issues**.

Information Booster :

- BRICS comprises **Brazil, Russia, India, China, and South Africa**.
- India assumed the **BRICS chair** on **1 January 2018**.
- The **10th BRICS Summit (2018)** was later held in **Johannesburg, South Africa**.
- BRICS Foreign Ministers' Meetings help coordinate positions before the annual summit.

Additional Knowledge :

- **Pretoria** and **Brasilia** hosted BRICS meetings during their respective chairships.
- **Beijing** hosted major BRICS events when China held the chair.
- Hosting rights rotate annually among BRICS member countries.

Q.44 Abrogation of Article 370's special status for Jammu and Kashmir occurred via:

- A. Presidential Order under Article 370(3)
- B. Parliamentary amendment under Article 368
- C. Presidential Ordinance
- D. Article 356 Order

Answer: A

Sol: The correct answer is (a) Presidential Order under Article 370(3).

Explanation:

- The special status of **Jammu and Kashmir** under **Article 370** was effectively removed through a **Presidential Order issued under Article 370(3)**.
- This was done with the **concurrence of Parliament**, as the state was under President's Rule at the time.
- The action led to the **reorganization of the state into two Union Territories**.

Information Booster :

- Article 370 was a **temporary provision** in the Constitution.
- The abrogation took place in **August 2019**.
- Parliament also passed the **Jammu and Kashmir Reorganisation Act, 2019**.
- Fundamental Rights and Central laws became **fully applicable** thereafter.

Additional Knowledge :

- **Article 368** is used for constitutional amendments, but Article 370 followed a **special procedure**.
- Article 356 deals with **President's Rule**, not abrogation of special status.

Q.45 Which program enables postmen to deliver financial services?

- A. NSAP
- B. IPPB
- C. PMJAY
- D. PRAGATI

Answer: B



Sol: The correct answer is (b) IPPB.

Explanation:

- **India Post Payments Bank (IPPB)** empowers **postmen and Gramin Dak Sevak**s to provide **banking services at the doorstep**.
- Services include **savings accounts, money transfers, bill payments**, and DBT facilitation.

Information Booster :

- Launched in **2018** under the **Department of Posts**.
- Operates on a **paperless, cashless, and biometric-enabled** model.
- Leverages India Post's vast **last-mile network**.
- Supports **financial inclusion** in rural and remote areas.

Additional Knowledge :

- NSAP is a **social assistance** program.
- PMJAY is a **health insurance** scheme.
- PRAGATI is a **governance review platform**.

Q.46 In Teen Taal from Hindustani music, the Khali beat falls on the ____ matra.

- A. 1
- B. 5
- C. 9
- D. 13

Answer: C

Sol: The correct answer is (c) 9.

Explanation:

- **Teen Taal** consists of **16 matras (beats)** divided into four vibhags of 4 beats each.
- The **Khali (empty beat)** occurs on the **9th matra**.

Information Booster :

- Teen Taal vibhag structure: **4 + 4 + 4 + 4**.
- Sam (most stressed beat) is on **1st matra**.
- Khali indicates **absence of clapping**, shown by a wave.

Additional Knowledge :

- Teen Taal is the **most commonly used taal** in Hindustani music.
- Taal concepts are covered in **Class 10–12 Indian Music (NCERT)**.

Q.47 Approval by both Houses of Parliament for a National Emergency Proclamation is needed within:

- A. 1 month
- B. 3 months
- C. 6 months
- D. 9 months

Answer: A

Sol: The correct answer is (a) 1 month.

Explanation:

- Under **Article 352 of the Indian Constitution**, a **National Emergency Proclamation** must be approved by **both Houses of Parliament within one month**.
- Approval requires a **special majority** in each House.
- Without parliamentary approval, the proclamation **ceases to operate**.

Information Booster :

- Once approved, National Emergency remains in force for **six months at a time**.
- It can be extended indefinitely with parliamentary approval every six months.
- Grounds include **war, external aggression, or armed rebellion**.
- The President issues the proclamation on **Cabinet advice**.

Additional Knowledge :

- The **44th Constitutional Amendment Act, 1978** strengthened safeguards against misuse.
- Parliamentary control ensures **democratic oversight**.
- Emergency provisions are covered in **Part XVIII** of the Constitution.

Q.48 The 2025 'Mangrove Cell' program is associated primarily with which state?

- A. Odisha
- B. Andhra Pradesh
- C. Maharashtra



D. West Bengal

Answer: C

Sol: The correct answer is (c) Maharashtra.

Explanation:

- The **Mangrove Cell** is a dedicated institutional mechanism of **Maharashtra** for **conservation, protection, and restoration of mangroves**.
- It functions under the state's **Environment and Climate Change Department**.
- In 2025, the program gained prominence for strengthening **coastal ecosystem resilience**.

Information Booster :

- Maharashtra has one of the **largest mangrove covers** in India.
- Mangroves protect coastlines from **erosion, cyclones, and storm surges**.
- The Mangrove Cell works in coordination with **forest and coastal regulation authorities**.
- India's mangrove cover has increased as per **ISFR reports**.

Additional Knowledge :

- West Bengal also has mangroves (Sundarbans), but the **Mangrove Cell as a named institutional program** is linked to Maharashtra.
- Mangrove conservation supports **blue carbon and climate adaptation goals**.

Q.49 Non-metallic minerals in India are best described as:

- A. Scarce for industrial applications
- B. Mainly gemstones with little industry role
- C. Abundant and essential for key sectors
- D. Secondary to metallic minerals in growth

Answer: C

Sol: The correct answer is (c) Abundant and essential for key sectors.

Explanation:

- Non-metallic minerals such as **limestone, mica, gypsum, and phosphorite** are **abundant in India**.
- They are crucial for **cement, fertilizer, construction, and chemical industries**.
- These minerals form the **backbone of infrastructure and manufacturing growth**.

Information Booster :

- India is one of the largest producers of **limestone**.
- **Mica belts** are found in Jharkhand, Bihar, and Andhra Pradesh.
- Gypsum is essential for **cement and soil conditioning**.
- Non-metallic minerals are vital for **industrialization**.

Additional Knowledge :

- Metallic minerals provide raw material, but **non-metallic minerals support processing and infrastructure**.
- Industrial growth depends on **both metallic and non-metallic resources**.

Q.50 The initial module of Bharatiya Antariksh Station (BAS) is slated for launch in:

- A. 2028
- B. 2030
- C. 2035
- D. 2040

Answer: A

Sol: The correct answer is (a) 2028.

Explanation:

- **ISRO** has planned the launch of the **first module of the Bharatiya Antariksh Station (BAS)** by **2028**.
- BAS will be India's **Indigenous space station**, supporting long-duration human spaceflight.
- The station will be assembled in **multiple phases** in low Earth orbit.

Information Booster :

- BAS is expected to operate at an altitude of about **400 km**.
- It will support **microgravity experiments** and astronaut training.
- The project builds upon experience from the **Gaganyaan mission**.
- India aims to sustain human presence in space for **scientific research**.

Additional Knowledge :

- China already operates the **Tiangong Space Station**.
 - The ISS is a **multinational collaboration**, unlike BAS which is indigenous.
 - Space stations enhance **strategic and technological capabilities**.
-



Q.51 A shopkeeper sells rice at a discount of 6% on the marked price but uses a weight that is 25% less than the actual weight. Find his overall profit percentage.

- A. 20.5%
- B. 22.5%
- C. 25.3%
- D. 26.5%

Answer: C

Sol: Given:

$$\text{Discount} = 6\%$$

$$\text{Weight used} = 25\% \text{ less}$$

Formula Used:

$$\text{Profit \%} = \frac{\text{Profit}}{\text{Cost Price}} \times 100$$

Solution:

$$\text{Let marked price of 1 kg rice} = 100$$

$$\text{Selling price after discount} = 100 - 6 = 94$$

$$\text{Actual weight given} = 75\% = 0.75$$

$$\text{Cost price of 0.75 kg} = 75$$

$$\text{Profit} = 94 - 75 = 19$$

$$\text{Profit \%} = \frac{19}{75} \times 100$$

$$= 25.33\%$$

Final Answer

$$25\frac{1}{3}\%$$

Q.52 The profit made on an article sold for ₹2400 is equal to the loss incurred when it is sold for ₹2000. What will be the profit or loss percentage if the article is sold for ₹2200?

- A. Profit of 2.5%
- B. Profit of 3.125%
- C. Loss of 3.125%
- D. No loss, No profit

Answer: D

Sol: Given:

$$\text{Selling price with profit} = 2400$$

$$\text{Selling price with loss} = 2000$$

Formula Used:

$$\text{Cost Price} = \frac{\text{SP}_1 + \text{SP}_2}{2}$$

Solution:

$$CP = \frac{2400 + 2000}{2}$$

$$= \frac{4400}{2}$$

$$= 2200$$



$$\text{Selling price} = 2200$$

$$\text{Profit or Loss} = 2200 - 2200 = 0$$

$$\text{Profit/Loss \%} = 0\%$$

Final Answer

$$0\%$$

Q.53 A right circular cone has a radius of 9 cm and a height of 40 cm. What is its slant height?

- A. 41 cm
- B. 42 cm
- C. 43 cm
- D. 45 cm

Answer: A

Sol: Given:

$$r = 9\text{cm}$$

$$h = 40\text{cm}$$

Formula Used:

$$l = \sqrt{r^2 + h^2}$$

Solution:

$$l = \sqrt{9^2 + 40^2}$$

$$= \sqrt{81 + 1600}$$

$$= \sqrt{1681}$$

$$= 41$$

Final Answer

$$41\text{cm}$$

Q.54 If 40% of P = 0.5 of Q = $\frac{1}{8}$ of R, find P : Q : R.

- A. 5 : 4 : 16
- B. 4 : 5 : 16
- C. 2 : 5 : 8
- D. 4 : 5 : 8

Answer: A

Sol: Given:

$$40\% \text{ of } P = 0.5 \text{ of } Q = \frac{1}{8} \text{ of } R$$

Formula Used:

$$40\% = \frac{2}{5}$$

Solution:

$$\text{Let common value} = k$$

-



$$\frac{2}{5}P = k$$

$$P = \frac{5k}{2}$$

$$0.5Q = k$$

$$\frac{1}{2}Q = k$$

$$Q = 2k$$

$$\frac{1}{8}R = k$$

$$R = 8k$$

$$P : Q : R = \frac{5k}{2} : 2k : 8k$$

$$= 5 : 4 : 16$$

Final Answer

$$5 : 4 : 16$$

Q.55 Evaluate: $15\frac{1}{3}\%$ of 480 km + $58\frac{1}{3}\%$ of 300 km

- A. 266.6 km
- B. 285.5 km
- C. 248.6 km
- D. 320 km

Answer: C

Sol: Given:

$$15\frac{1}{3}\% \text{ of } 480 \text{ km} + 58\frac{1}{3}\% \text{ of } 300 \text{ km}$$

Solution:

$$15\frac{1}{3}\% \text{ of } 480 + 58\frac{1}{3}\% \text{ of } 300$$

$$= \frac{46}{3}\% \text{ of } 480 + \frac{175}{3}\% \text{ of } 300$$

$$= \frac{46}{3} \times \frac{1}{100} \times 480 + \frac{175}{3} \times \frac{1}{100} \times 300$$

$$= \frac{46 \times 480}{300} + \frac{175 \times 300}{300}$$

$$= \frac{22080}{300} + 175$$

$$= \frac{736}{10} + 175$$

$$= 73.6 + 175$$

$$= 248.6 \text{ km}$$

Q.56 A sales agent earns 3% commission on laptops priced at ₹40,000 each and 8% commission on printers priced at ₹8,000 each. If in a week he sells 4 laptops and 10 printers, what is his total commission for 5 such weeks?



- A. ₹52,000
- B. ₹50,400
- C. ₹56,000
- D. ₹51,200

Answer: C

Sol: Given:

Commission on laptops = 3%

Price of one laptop = 40,000

Laptops sold per week = 4

Commission on printers = 8%

Price of one printer = 8,000

Printers sold per week = 10

Number of weeks = 5

Formula Used:

$$\text{Commission} = \frac{\text{Rate}}{100} \times \text{Selling Price}$$

Solution:

$$\text{Commission on one laptop} = \frac{3}{100} \times 40,000 = 1,200$$

$$\text{Commission on 4 laptops} = 4 \times 1,200 = 4,800$$

$$\text{Commission on one printer} = \frac{8}{100} \times 8,000 = 640$$

$$\text{Commission on 10 printers} = 10 \times 640 = 6,400$$

$$\text{Total commission per week} = 4,800 + 6,400 = 11,200$$

$$\text{Total commission for 5 weeks} = 5 \times 11,200$$

$$= 56,000$$

Final Answer

₹56,000

Q.57 The radius of a circular plate is increased by 8%. What will be the approximate percentage increase in its area?

- A. 8%
- B. 15%
- C. 16.64%
- D. 17.28%

Answer: C

Sol: Given:

Increase in radius = 8%

Formula Used:

$$\text{Net \% change} = x + y + \frac{xy}{100}$$

Solution:

$$\text{Area} \propto r^2$$

$$x = 8, y = 8$$



$$\text{Net \% increase} = 8 + 8 + \frac{8 \times 8}{100}$$

$$= 16 + 0.64$$

$$= 16.64\%$$

Final Answer

$$16.64\%$$

Q.58 A rectangular prism has a base area of 36 cm^2 . If its height is increased by 25% from the original height of 12 cm, what is the new volume?

- A. 432 cm^3
- B. 486 cm^3
- C. 504 cm^3
- D. 540 cm^3

Answer: D

Sol: Given:

$$\text{Base area} = 36 \text{ cm}^2$$

$$\text{Original height} = 12 \text{ cm}$$

$$\text{Increase in height} = 25\%$$

Formula Used:

$$\text{Volume} = \text{Base area} \times \text{Height}$$

Solution:

$$25\% \text{ of } 12 = \frac{25}{100} \times 12 = 3$$

$$\text{New height} = 12 + 3 = 15 \text{ cm}$$

$$\text{New volume} = 36 \times 15$$

$$= 540$$

Final Answer

$$540 \text{ cm}^3$$

Q.59 A solid metal sphere of radius 6 cm is completely immersed in a vertical cylindrical vessel containing water, causing the water level to rise by 4 cm. What is the radius of the cylinder?

- A. $4\sqrt{2} \text{ cm}$
- B. $5\sqrt{2} \text{ cm}$
- C. $6\sqrt{2} \text{ cm}$
- D. $8\sqrt{2} \text{ cm}$

Answer: C

Sol: Given:

$$\text{Radius of sphere} = 6 \text{ cm}$$

$$\text{Rise in water level} = 4 \text{ cm}$$

$$\text{Radius of cylinder} = r$$

Formula Used:



$$\text{Volume of sphere} = \frac{4}{3}\pi R^3$$

$$\text{Volume of cylinder} = \pi r^2 h$$

Solution:

$$\text{Volume of sphere} = \frac{4}{3}\pi(6)^3$$

$$= 288\pi$$

$$\text{Volume of displaced water} = \pi r^2 \times 4$$

$$288\pi = 4\pi r^2$$

$$r^2 = 72$$

$$r = \sqrt{72} = 6\sqrt{2}$$

Final Answer

$$6\sqrt{2}\text{cm}$$

Q.60 A train covers 1.2 km in 1 minute. How far will it travel in 2 hours 15 minutes?

- A. 162 km
- B. 156 km
- C. 171 km
- D. 168 km

Answer: A

Sol: Given:

$$\text{Distance covered in 1 minute} = 1.2\text{km}$$

$$\text{Total time} = 2\text{hours } 15\text{minutes}$$

Formula Used:

$$\text{Distance} = \text{Speed} \times \text{Time}$$

Solution:

$$2\text{hours } 15\text{minutes} = (2 \times 60) + 15 = 135\text{minutes}$$

$$\text{Distance travelled} = 1.2 \times 135$$

$$= 162$$

Final Answer

$$162\text{km}$$

Q.61 Two farmers, X and Y, hire a field. X keeps 18 oxen there for 5 months and 20 goats for 3 months. Y keeps 24 goats for 7 months and 30 sheep for 6 months. If 2 oxen eat as much as 5 goats, and 3 goats eat as much as 4 sheep, what fraction of the total rent should X pay?

- A. 90/196
- B. 95/196
- C. 10/196
- D. 111/196

Answer: B

Sol: Given:



$X : 18 \text{ oxen for 5 months, } 20 \text{ goats for 3 months}$

$Y : 24 \text{ goats for 7 months, } 30 \text{ sheep for 6 months}$

$2 \text{ oxen} = 5 \text{ goats}$

$3 \text{ goats} = 4 \text{ sheep}$

Formula Used:

Rent ratio = Equivalent animals $\times$ Time

Solution:

$$1 \text{ ox} = \frac{5}{2} \text{ goats}$$

$$1 \text{ sheep} = \frac{3}{4} \text{ goats}$$

For X:

$$18 \times \frac{5}{2} = 45$$

$$45 \times 5 = 225$$

$$20 \times 3 = 60$$

$$\text{Total for X} = 225 + 60 = 285$$

For Y:

$$24 \times 7 = 168$$

$$30 \times \frac{3}{4} = 22.5$$

$$22.5 \times 6 = 135$$

$$\text{Total for Y} = 168 + 135 = 303$$

$$X : Y = 285 : 303 = 95 : 101$$

$$\text{Total parts} = 95 + 101 = 196$$

Final Answer

$$\frac{95}{196}$$

Q.62 Three batches of students have average ages 17, 19, and 23 years respectively. If their numbers are in the ratio 3 : 4 : 6, what is the overall average age of all the students?

- A. 19.41
- B. 20.38
- C. 21.20
- D. 18.9

Answer: B

Sol: Given:

Average ages = 17, 19, 23

Ratio of students = 3 : 4 : 6

Formula Used:

$$\text{Overall average} = \frac{\sum (\text{Average} \times \text{Number})}{\sum \text{Number}}$$

Solution:



$$\text{Total ratio} = 3 + 4 + 6 = 13$$

$$\text{Weighted sum} = (17 \times 3) + (19 \times 4) + (23 \times 6)$$

$$= 51 + 76 + 138$$

$$= 265$$

$$\text{Overall average} = \frac{265}{13}$$

$$= 20.38$$

Final Answer

20.38years

Q.63 The average of 13 numbers is 75. If the average of the first six numbers is 69 and the average of the last six numbers is 80, what is the 7th number?

- A. 81
- B. 82
- C. 83
- D. 84

Answer: A

Sol: Given:

$$\text{Average of 13 numbers} = 75$$

$$\text{Average of first 6 numbers} = 69$$

$$\text{Average of last 6 numbers} = 80$$

Formula Used:

$$\text{Total sum} = \text{Average} \times \text{Number}$$

Solution:

$$\text{Total sum of 13 numbers} = 13 \times 75 = 975$$

$$\text{Sum of first 6 numbers} = 6 \times 69 = 414$$

$$\text{Sum of last 6 numbers} = 6 \times 80 = 480$$

$$\text{Sum of first 6 and last 6 numbers} = 414 + 480 = 894$$

$$7\text{th number} = 975 - 894$$

$$= 81$$

Final Answer

81

Q.64 What is the average of all integers between 200 and 350 that are exactly divisible by 11?

- A. 275
- B. 272
- C. 286
- D. 292

Answer: A



Sol: Given:

Integers between 200 and 350

Divisible by 11

Formula Used:

$$\text{Average} = \frac{\text{First term} + \text{Last term}}{2}$$

Solution:

First divisible number = $11 \times 19 = 209$

Last divisible number = $11 \times 31 = 341$

$$\text{Average} = \frac{209 + 341}{2}$$

$$= \frac{550}{2}$$

$$= 275$$

Final Answer

275

Q.65 How many kilograms of wheat costing ₹52 per kg must be mixed with 30 kg of wheat costing ₹40 per kg so that a 20% gain may be obtained by selling the mixture at ₹54 per kg?

- A. 18.2 kg
- B. 21.4 kg
- C. 24 kg
- D. 28.5 kg

Answer: B

Sol: Given:

Cost of wheat (type 1) = ₹52/kg

Cost of wheat (type 2) = ₹40/kg

Quantity at ₹40/kg = 30kg

Selling price of mixture = ₹54/kg

Gain = 20%

Formula Used:

$$\text{Cost Price} = \frac{\text{Selling Price}}{1 + \frac{\text{Gain}}{100}}$$

Solution:

$$CP = \frac{54}{1.2} = 45$$

Let quantity of wheat at ₹52/kg = x

$$\frac{52x + 40 \times 30}{x + 30} = 45$$

$$52x + 1200 = 45x + 1350$$

$$7x = 150$$

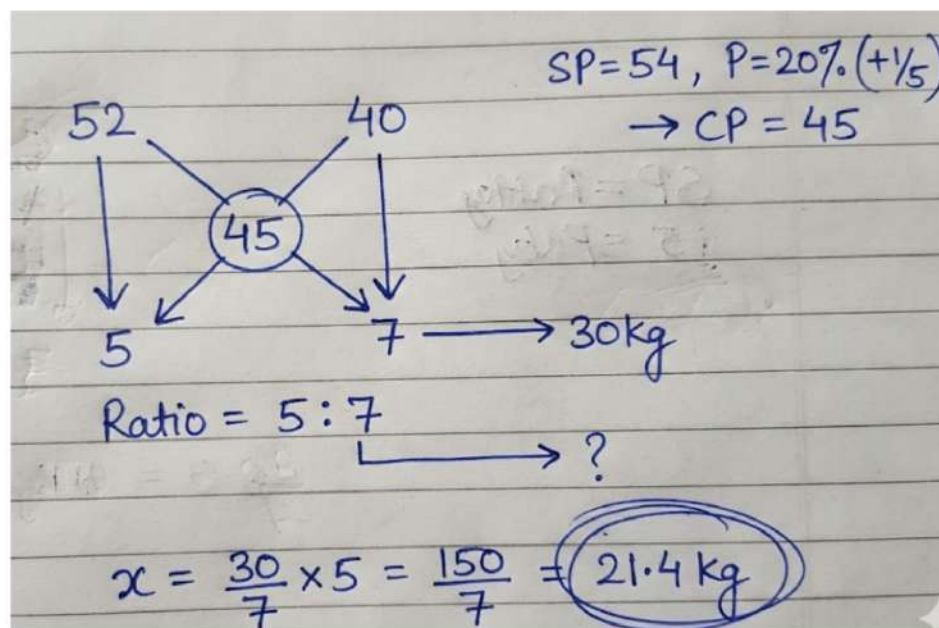
$$x = \frac{150}{7} = 21.4$$

Final Answer



21.4kg

Exam Hall Method:



Q.66 A gardener has 80 m of fencing wire. He can use this wire to enclose either a circular lawn or a square lawn. If he uses the entire wire in each case, what is the approximate ratio of the area of the circular lawn to the area of the square lawn?

- A. 1 : 1
- B. 1.21 : 1
- C. 1.27 : 1
- D. 1.57 : 1

Answer: C

Sol: Given:

Total fencing wire = 80m

Formula Used:

Circumference of circle = $2\pi r$

Area of circle = πr^2

Perimeter of square = $4a$

Area of square = a^2

Solution:

$$2\pi r = 80$$

$$r = \frac{40}{\pi}$$

$$\text{Area of circular lawn} = \pi \left(\frac{40}{\pi} \right)^2$$

$$= \frac{1600}{\pi}$$

$$4a = 80$$

$$a = 20$$

$$\text{Area of square lawn} = 20^2 = 400$$

$$\text{Ratio of areas} = \frac{1600}{\pi} : 400$$

$$= \frac{4}{\pi} : 1$$

$$\text{Using } \pi = 3.14$$

$$= 1.27 : 1$$

Final Answer

$$1.27 : 1$$

Q.67 Simplify: $\left(\frac{1}{5+\sqrt{3}}\right) + \left(\frac{1}{5-\sqrt{3}}\right) - \left(\frac{10}{25-3}\right)$

- A. 0
- B. 1
- C. 2
- D. $\sqrt{3}$

Answer: A

Sol: Given:

$$\left(\frac{1}{5+\sqrt{3}}\right) + \left(\frac{1}{5-\sqrt{3}}\right) - \left(\frac{10}{25-3}\right)$$

Solution:

$$\left(\frac{1}{5+\sqrt{3}}\right) + \left(\frac{1}{5-\sqrt{3}}\right) - \left(\frac{10}{25-3}\right)$$

$$= \frac{(5-\sqrt{3}) + (5+\sqrt{3})}{(5+\sqrt{3})(5-\sqrt{3})} - \frac{10}{22}$$

$$= \frac{10}{25-3} - \frac{10}{22}$$

$$= \frac{10}{22} - \frac{10}{22}$$

$$= 0$$

Q.68 A family spends on groceries, rent, and other expenses in the ratio 3 : 5 : 2. Next year, groceries are expected to rise by 8%, rent by 4%, and other expenses to fall by 10%. What will be the overall percentage change in total expenditure?

- A. 1% decrease
- B. 2.4% increase
- C. 1.2% increase
- D. 0.8% decrease

Answer: B

Sol: Given:

$$\text{Expenditure ratio (groceries : rent : others)} = 3 : 5 : 2$$

$$\text{Increase in groceries} = 8\%$$

$$\text{Increase in rent} = 4\%$$

$$\text{Decrease in other expenses} = 10\%$$

