# SSC CHSL Tier-1 2024: Official Paper (Held On: 02 Jul, 2024 Shift 3) (Previous Year Paper)

SSC Combined Higher Secondary Level (CHSL) • 2024 • 100 questions • 60 minutes • Answer key and solutions

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## ENGLISH LANGUAGE

**Q1.** The following sentence has been split into four segments. Identify the segment that contains a grammatical error.

It is difficult to live in (A) / the societal expectations (B) / when one has (C) / fewer resources. (D)

**(a)** A
**(b)** C
**(c)** D
**(d)** B

**Q2.** The following sentence has been split into four segments. Identify the segment that contains a grammatical error.

Since the little girl answers / a few simple questions, / her parents say that / she is too intelligent.

**(a)** Since the little girl answers
**(b)** her parents say that
**(c)** she is too intelligent
**(d)** a few simple questions

**Q3.** The following sentence has been divided into four segments. Identify the segment that contains an error in the usage of indefinite articles.

We took / an ice / and applied it on / the wound.

**(a)** We took
**(b)** and applied it on
**(c)** the wound.
**(d)** an ice

**Q4.** Select the option that corrects the following sentence.

What are you looking around?

**(a)** What are you looking across?
**(b)** What are you looking for?
**(c)** What are you looking through?
**(d)** What are you looking among?

**Directions**

In the following passage, some words have been deleted. Read the passage carefully and select the most appropriate option to fill in each blank.

Cities are the great havens for knowledge, culture, and social life. Vibrant cultures are found in cities because it takes a 1._____ population to support museums, concert halls, sports teams, and night-life districts. Cities also offer rich social opportunities. People in rural areas enjoy only limited social opportunities because 2.____ the small local population. City dwellers can choose their friends and mates from among a large number of people of 3.____ interests and inclinations. We are not likely to abandon the city as a 4.____ institution, but we need to make sure that our transport arrangements do not 5._____ the 'city's' other functions.

**Q5.** Select the most appropriate option to fill in blank No. 1.

**(a)** dumb
**(b)** lazy
**(c)** large
**(d)** small

**Q6.** Select the most appropriate option to fill in blank No. 2.

**(a)** for
**(b)** off
**(c)** with
**(d)** of

**Q7.** Select the most appropriate option to fill in blank No. 3.

**(a)** feigning
**(b)** similar
**(c)** wasteful
**(d)** declining

**Q8.** Select the most appropriate option to fill in blank No. 4.

**(a)** educational
**(b)** psychological
**(c)** cultural
**(d)** religious

**Q9.** Select the most appropriate option to fill in blank No. 5.

**(a)** support
**(b)** boost
**(c)** damage
**(d)** help

**Q10.** Select the most appropriate ANTONYM of the underlined word.
She was known for her refined manners.

**(a)** Elegant
**(b)** Brood
**(c)** Shrewd
**(d)** Crude

**Q11.** Select the most appropriate ANTONYM of the underlined word.
We should desecrate our national flag.

**(a)** Integrate
**(b)** Damage
**(c)** Sanctify
**(d)** Violate

**Q12.** Select the INCORRECTLY spelt word.

**(a)** Destroy
**(b)** Develop
**(c)** Demolish
**(d)** Betrey

**Q13.** Select the option that will improve the underlined part of the given sentence.
This book provides an unrestrained account of the natural resources in India.

**(a)** limited
**(b)** excessive
**(c)** exhaustive

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**(d)** exhausting

**Q14.** Select the most appropriate idiom to fill in the blank.

The two brothers _____ when their father died.

**(a)** fell down
**(b)** look down upon
**(c)** got the sack
**(d)** fell out

**Q15.** Select the most appropriate synonym of the word ‘Abandon’ from the given sentence.

Ramita has decided to forsake her participation in college activities until she improved her scores.

**(a)** forsake
**(b)** improved
**(c)** participation
**(d)** decided

**Q16.** Select the most appropriate ANTONYM of the underlined word in the given sentence.

The truth was revealed in the interrogation.

**(a)** Evident
**(b)** Found
**(c)** Concealed
**(d)** Declared

**Q17.** Select the most appropriate option that can substitute the underlined segment in the given sentence.

One of my best friends are here

**(a)** better friends is here
**(b)** best friend is here
**(c)** better friends are here
**(d)** best friends is here

**Q18.** Select the most appropriate synonym of the underlined word in the given sentence.

We should not discriminate against people who are different from us

**(a)** part
**(b)** differentiate
**(c)** sever
**(d)** divide

**Q19.** Identify the incorrectly spelt word and select its correct spelling.

This will sound weired, but bear with me.

**(a)** wired
**(b)** weird
**(c)** beer
**(d)** bier

**Q20.** Select the most appropriate idiom to fill in the blank.

After a day long trek, we were so tired that we were ready to _____.

**(a)** face the music
**(b)** hit the sack
**(c)** get into deep water
**(d)** go from rags to riches

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**Q21.** Select the most appropriate homonym to fill in the blank.

Ravi is _____.

**(a)** baled
**(b)** bald
**(c)** bawled
**(d)** balled

**Q22.** Select the most appropriate option to fill in the blank.

The teacher asked the students to _____ electricity by switching off lights when they left the room.

**(a)** save
**(b)** deposit
**(c)** rescue
**(d)** retain

**Q23.** Select the most appropriate synonym of the word 'intuitive' to fill in the blank. In a split second, her _____ reaction kicked in as she swiftly reached out to catch the falling glass.

**(a)** voluntary
**(b)** instinctive
**(c)** insightful
**(d)** shrewd

**Q24.** Select the most appropriate option that can substitute the underlined segment in the given sentence. If there is no need to substitute it, select 'No substitution required'. Then I unfurled the Indian tri-colour and keep it aloft at the roof of the world.

**(a)** held
**(b)** keeping
**(c)** hold
**(d)** No substitution required

**Q25.** Select the option that will improve the underlined part of the given sentence. In case no improvement is needed, select 'No improvement'.

The Privacy Shield establishes a process to allow companies to transfer consumer data from European Union countries to the United States in compliance in EU law.

**(a)** in compliance with
**(b)** in compliance under the
**(c)** in compliance for the
**(d)** No improvement

## GENERAL INTELLIGENCE

**Q26.** The position of how many letters will remain unchanged, if each of the letters in the word DICTIONARY is arranged in alphabetical order?

**(a)** 2
**(b)** 4
**(c)** 1
**(d)** 3

**Q27.** Three of the following letter-clusters are alike in some manner and hence form a group. Which letter-cluster does not belong to that group?

(Note: The odd one out is not based on the number of consonants/vowels or their position in the letter cluster.)

**(a)** CKP
**(b)** EMS
**(c)** TBG
**(d)** LTY

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**Q28.** In a certain code language,

'A + B' means 'A is the mother of B',

'A – B' means 'A is the brother of B',

'A × B' means 'A is the father of B',

'A ÷ B' means 'A is the daughter of B'

Based on the above, how is E related to A if 'A × B – C + D ÷ E'?

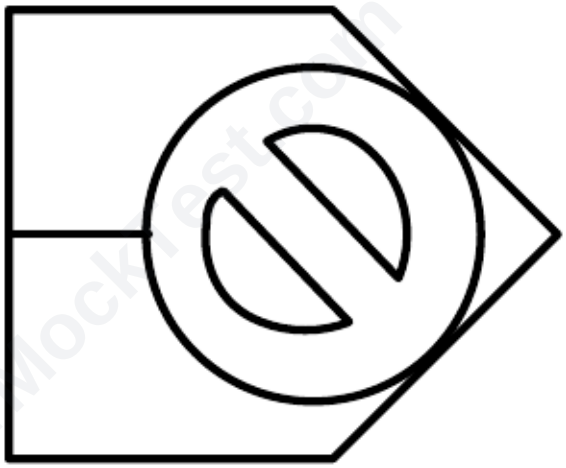
**(a)** Brother

**(b)** Son

**(c)** Daughter's husband

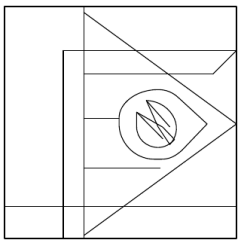
**(d)** Wife's brother

**Q29.** Select the option figure in which the given figure (X) is embedded as its part (rotation is NOT allowed).

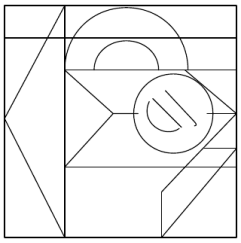


$(X)$

**(a)**

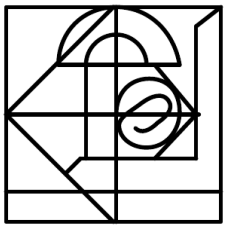


**(b)**

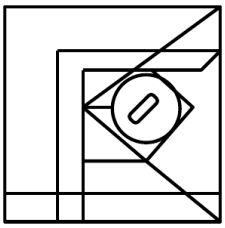


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**(c)**



**(d)**



**Q30.** Select the set in which the numbers are related in the same way as are the numbers of the following sets.

(26, 38, 128)

(42, 19, 122)

(NOTE : Operations should be performed on the whole numbers, without breaking down the numbers into its constituent digits. E.g. 13 – Operations on 13 such as adding /subtracting /multiplying etc., to 13 can be performed. Breaking down 13 into 1 and 3 and then performing mathematical operations on 1 and 3 is not allowed.)

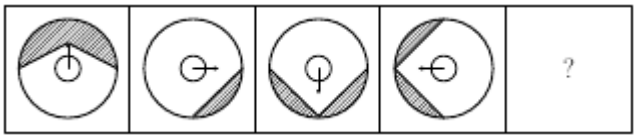
**(a)** (71, 9, 320)

**(b)** (33, 23, 112)

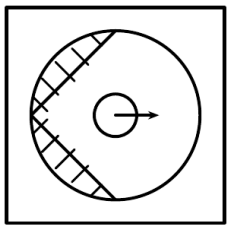
**(c)** (25, 36, 183)

**(d)** (18, 52, 70)

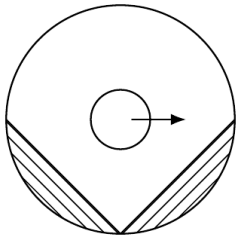
**Q31.** Identify the figure in the options that when put in place of the question mark (?) will logically complete the series?




**(a)**

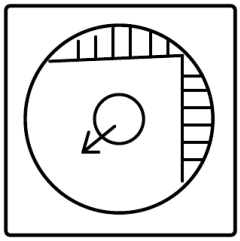


**(b)**

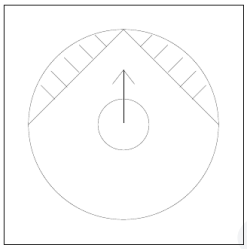


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**(c)**



**(d)**



**Q32.** Which letter-cluster will replace the question mark (?) to complete the given series?

NDGB, OFJF, ?, TMSQ, XRYX

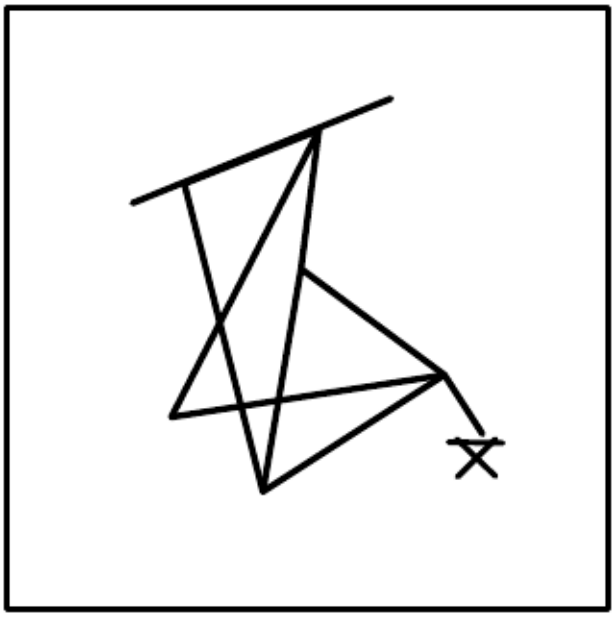
**(a)** RHNK
**(b)** RINJ
**(c)** QINK
**(d)** QJNK

**Q33.** What should come in place of the question mark (?) in the given series?

27, 32, 42, 47, 57, ?

**(a)** 61
**(b)** 62
**(c)** 63
**(d)** 60

**Q34.** Select the option in which the given figure is embedded (rotation is not allowed).

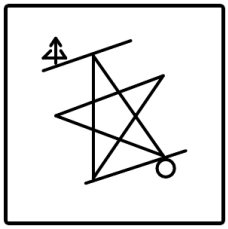


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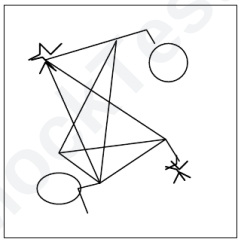
**(a)**



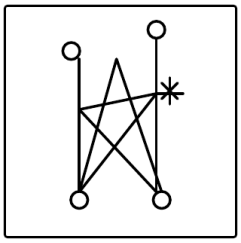
**(b)**



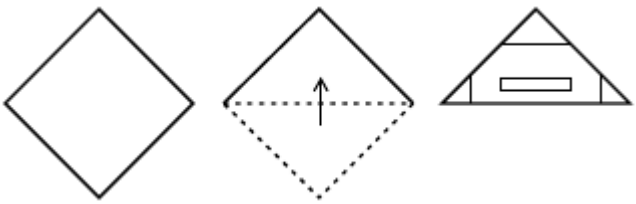
**(c)**



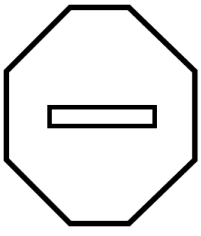
**(d)**



**Q35.** The sequence of folding a piece of paper and the manner in which the folded paper is punched is shown in the following figures. How would this paper look when unfolded?

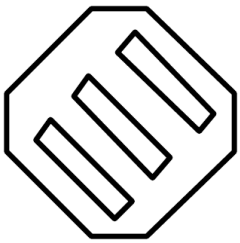


**(a)**

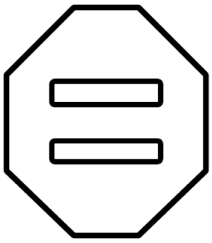


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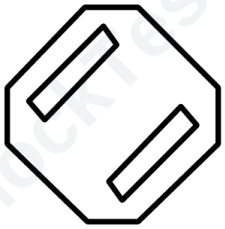
**(b)**



**(c)**



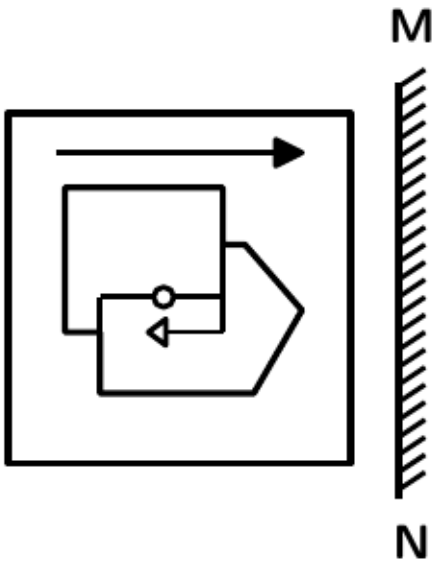
**(d)**



**Q36.** LH3 is related to RN21 in a certain way. In the same way, JF5 is related to PL35. To which of the following is ZV6 related following the same logic?

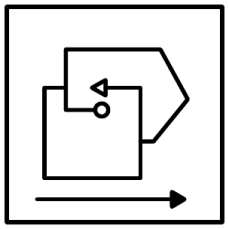
**(a)** FB45
**(b)** EA45
**(c)** FB42
**(d)** EA24

**Q37.** Select the correct mirror image of the given figure when the mirror is placed at MN as shown below.

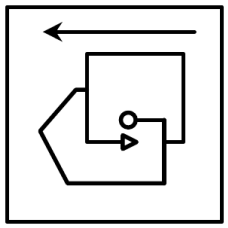



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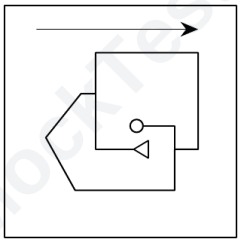
**(a)**



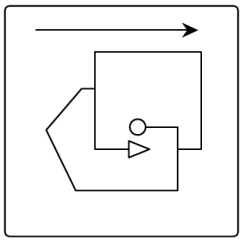
**(b)**



**(c)**



**(d)**



**Q38.** What will come in the place of '?' in the following equation, if '+' and '—' are interchanged and '×' and '÷' are interchanged?

90 × 2 - 43 + 7 ÷ 7 = ?

**(a)** 39
**(b)** 19
**(c)** 29
**(d)** 49

**Q39.** In a certain code language. 'tiffin is heavy' is written as 'ct qm lb' and 'heavy weight gain' is written as 'rx yb ct'. How is 'heavy' written in the given language?

**(a)** lb
**(b)** qm
**(c)** rx
**(d)** ct

**Q40.** Select the correct mirror image of the given figure when the mirror is placed at MN as shown below.




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**(a)**



**(b)**



**(c)**



**(d)**



**Q41.** Three statements are followed by conclusions numbered I, II. You have to consider these statements to be true, even if they seem to be at variance with commonly known facts. Decide which of the given conclusions logically follow/s from the given statement.

Statements:

Some bottles are pens.

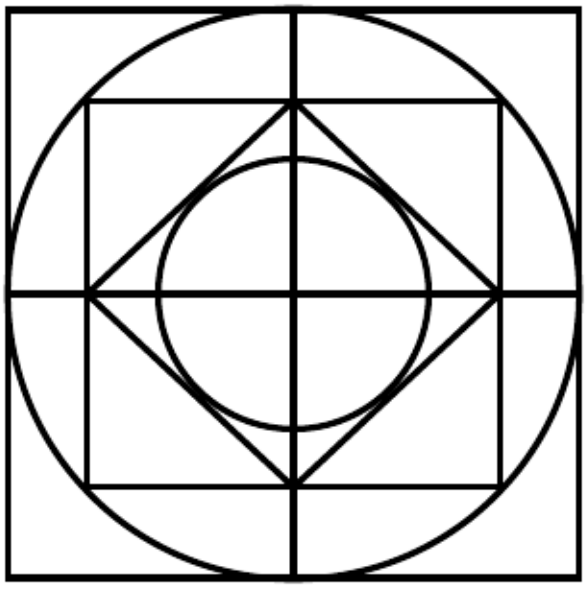
All pens are tables. All tables are glasses.

Conclusion (I): Some glasses are bottles.

Conclusion (II): Some pens are glasses.

**(a)** Only conclusion (I) follows.
**(b)** Both conclusions (I) and (II) follow.
**(c)** Only conclusion (II) follows.
**(d)** Neither conclusion (I) nor (II) follows.

**Q42.** How many semi circles are there in the given figure?



**(a)** 10

**(b)** 12
**(c)** 9
**(d)** 8

**Q43.** 45 is related to 100 following a certain logic. Following the same logic, 65 is related to 140. To which of the following is 105 related, following the same logic?

(NOTE: Operations should be performed on the whole numbers, without breaking down the numbers into their constituent digits. E.g. 13 – Operations on 13 such as adding /subtracting /multiplying to 13 can be performed. Breaking down 13 into 1 and 3 and then performing mathematical operations on 1 and 3 is not allowed.)

**(a)** 210
**(b)** 215
**(c)** 220
**(d)** 230

**Q44.** If 'A' stands for '÷', 'B' stands for '×', 'C' stands for '+' and 'D' stands for '–', then the resultant of which of the following will be 233?

**(a)** 21 B 11 D 33 A 11 C 5
**(b)** 21 C 11 D 33 A 11 B 5
**(c)** 21 B 11 A 33 D 11 C 5
**(d)** 21 A 11 D 33 B 11 C 5

**Q45.** What should come in place of ? in the given series based on the English alphabetical order?

YQI CZQ GIY KRG ?

**(a)** CNY
**(b)** EOZ
**(c)** DMX
**(d)** OAO

**Q46.** Which of the following numbers will replace the question mark (?) in the given series?

12, 26, 54, ?, 222, 446

**(a)** 88
**(b)** 110
**(c)** 98
**(d)** 94

**Q47.** If 24 August 1932 was a Wednesday, then what was the day of the week on 11 September 1943?

**(a)** Wednesday
**(b)** Saturday
**(c)** Monday
**(d)** Sunday

**Q48.** Which two numbers should be interchanged to make the given equation correct?

$8 \times (7 + 5 - 3) + (46 \div 23) \times 6 - 69 = 44$

(NOTE: Numbers must be interchanged and not the constituent digits e.g. if 2 and 3 are to be interchanged in the equation $43 \times 3 + 4 \div 2$, then interchanged equation is $43 \times 2 + 4 \div 3$)

**(a)** 6 and 7
**(b)** 3 and 5
**(c)** 8 and 6
**(d)** 46 and 69

**Q49.** 'ETHICS' is related to 'AVDKYU' in a certain way based on the English alphabetical order. In the same way. 'CUSTOM' is related to 'YWOVKO". To which of the following is 'PRINCIPLES' related, following the same logic?

**(a)** LSEPYKLNAU
**(b)** LTFPYKLNAU
**(c)** LTEPYKLNAU

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**(d)** LTEPYKLMAU

**Q50.** In a certain code language. 'INDULGE' is coded as '48' and 'PURGE' is coded as '24'. How will 'PUNY' be coded in that lanugage?

**(a)** 20
**(b)** 18
**(c)** 15
**(d)** 25

## QUANTITATIVE APTITUDE

**Q51.** A shopkeeper bought 288 oranges for Rs. 115.20. He sold 50 of them at 70 paise each and the remaining at Rs. 46.20. Find his profit or loss.

**(a)** Profit, Rs. 37
**(b)** Loss, Rs. 34
**(c)** Loss, Rs. 36
**(d)** Profit, Rs. 25

**Q52.** If Δ ABC ~ Δ QRP; area of Δ ABC : area of Δ PQR = 9 : 4; AB = 18 cm and BC = 15 cm, then find the length of PR.

**(a)** 15 cm
**(b)** 14 cm
**(c)** 10 cm
**(d)** 12 cm

**Q53.** Simplify the following expression.

[40 - 48 ÷ 4 of 3] ÷ {(6 + 4) - 4 of 4 + 4 + (6 - 4) + (4 × 4) ÷ 4} × 3.

**(a)** 30
**(b)** 26
**(c)** 27
**(d)** 25

**Q54.** Find the total amount of debt that will be discharged by 5 equal instalments of Rs. 200 each, if the debt is due in 5 years at 5% p.a. at simple interest.

**(a)** Rs. 1,255
**(b)** Rs. 1,400
**(c)** Rs. 1,200
**(d)** Rs. 1,100

**Q55.** A and B, working together, take 15 days to complete a piece of work. If A alone can do this work in 18 days, then how long would B take to complete the same work?

**(a)** 15 days
**(b)** 33 days
**(c)** 8 days
**(d)** 90 days

**Q56.** The shortest length of the intercept between the x-axis and y-axis of the equation 6x + 8y - 48 = 0 is:

**(a)** 14 units
**(b)** 12 units
**(c)** 6 units
**(d)** 10 units

**Q57.** A shopkeeper marks an article at Rs. 150 and sells it at a discount of 25%. He also gives a gift worth Rs. 2.5. If he still makes a 10% profit, then the cost price (in Rs.) of the article is:

**(a)** 112
**(b)** 100

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**(c)** 175
**(d)** 125

**Q58.** What is the number which when added to 20% of 460 makes the sum equal to 70% of 920?

**(a)** 762
**(b)** 926
**(c)** 335
**(d)** 552

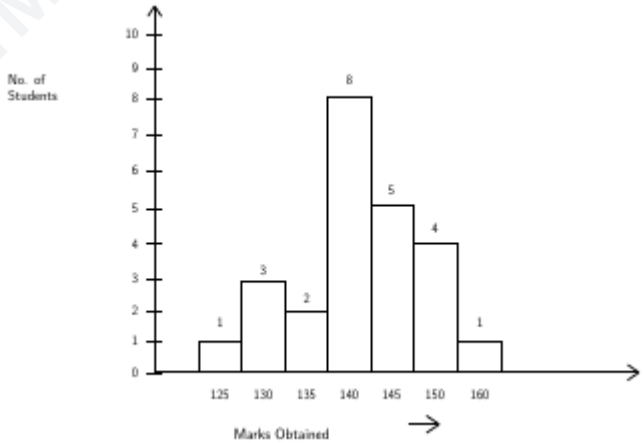
**Q59.** Let C be a circle with Centre O and P be an external point to C. Let PQ and PR be the tangents to C such that Q and R be the points of tangency, respectively. If angle ROQ = 110°, find angle RPQ.

**(a)** 80°
**(b)** 110°
**(c)** 70°
**(d)** 90°

**Q60.** An iron box with external dimensions 60 cm, 40 cm, and 20 cm is made of 1 cm thick sheet. If 1 $cm^3$ of iron weighs 50 gm, the weight of the empty box is:

**(a)** 416.40 kg
**(b)** 240 kg
**(c)** 214.05 kg
**(d)** 400 kg

**Q61.** Study the given bar-graph and answer the question that follows.




How many students obtained more than the average marks of the class?

**(a)** 10
**(b)** 8
**(c)** 6
**(d)** 11

**Q62.** The price of an article is first increased by 40% and then decreased by 45%, due to reduction in sales. Find the net percentage change in the final price of the article

**(a)** −13%
**(b)** −23%
**(c)** 13%
**(d)** 23%

**Q63.** The perimeter of a triangle is 36 units. Its area cannot be more than _____ square units.

**(a)** $36\sqrt{2}$
**(b)** $36\sqrt{3}$
**(c)** $18\sqrt{5}$
**(d)** $12\sqrt{7}$

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**Q64.** The given table shows the number of 5 types of cars (Swift, Sx4. Ertiga, Zen, Echo) manufactured (in thousand) by Maruti over the years.

| **Types of Car** | | | | | |
|---|---|---|---|---|---|
| Year | Swift | Sx4 | Ertiga | Zen | Echo |
| 2007 | 250 | 200 | 128 | 140 | 115 |
| 2008 | 200 | 230 | 150 | 155 | 120 |
| 2009 | 230 | 225 | 142 | 160 | 135 |
| 2010 | 245 | 210 | 170 | 175 | 125 |
| 2011 | 260 | 135 | 180 | 185 | 130 |
| 2012 | 275 | 155 | 230 | 220 | 120 |

Which type of cars manufactured by Maruti during 2007 to 2012 is the minimum?

**(a)** Swift
**(b)** Echo
**(c)** Zen
**(d)** Sx4

**Q65.** If price of an article increases successively by 15% and 10%, respectively, then what is the percentage equivalent to a single price increase of that article?

**(a)** 25%
**(b)** 12.5%
**(c)** 26.5%
**(d)** 23.5%

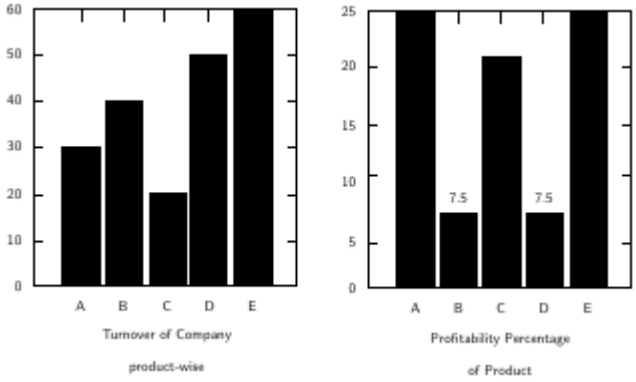
**Q66.** A policeman received information that a thief is at a distance of 1.5 km from him. The thief starts moving by car and the policeman chases him by car. The thief and the policeman are moving at the speeds of 90 km/h and 120 km/h respectively. At what distance (in km) will the police catch the thief?

**(a)** 4.5 km
**(b)** 6 km
**(c)** 45.0 km
**(d)** 5 km

**Q67.** Find the difference between the curved surface area and total surface area of a right circular cylinder having a length of 68 cm and base diameter of 28 cm.

**(a)** 1332 $cm^2$
**(b)** 1432 cm2
**(c)** 1132 cm2
**(d)** 1232 cm2

**Q68.** Study the given bar-graphs and answer the question that follows.



Turnover of Company X (Product-wise: A.B.C.D and E)

Approximately what is the share in the total profit enjoyed by A and E together?

**(a)** 50%
**(b)** 80%
**(c)** 60%
**(d)** 70%

**Q69.** If θ is an acute angle and $\tan\theta + \cot\theta = 2$, then find the value of $\tan^3\theta + \cot^3\theta + 6\tan^3\theta\cot^2\theta$.

**(a)** 12
**(b)** 6
**(c)** 8
**(d)** 10

**Q70.** Mithila covers 50 km by bus in 90 minutes. After deboarding the bus, she takes rest for 15 minutes and covers another 30 km by a taxi in 35 minutes. Find the average speed (in km/h) for the whole journey

**(a)** 312/7
**(b)** 342/7
**(c)** 322/7
**(d)** 332/7

**Q71.** Two quantities are in the ratio 3 : 5. If the first quantity is 155 kg. Find the other quantity (approximately).

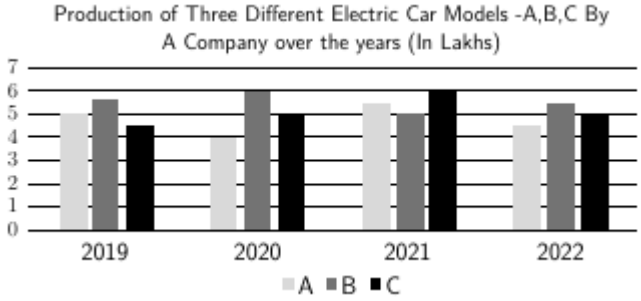
**(a)** 150.5 kg
**(b)** 240.6 kg
**(c)** 200.4 kg
**(d)** 258.3 kg

**Q72.** If the diameter of a hemisphere is 42 cm, then the volume of hemisphere (in $cm^3$) is: Take $\pi = 22/7$

**(a)** 19404
**(b)** 19444
**(c)** 19254
**(d)** 19154

**Q73.** Study the given bar-graph and answer the question that follows.

An electric vehicle company produces three different car models – A, B and C. The production of three different models over a period of four years (in lakhs) has been shown the bar-graph.




The total production of model C in 2021 and 2022 is what percentage of the total production of model A in 2019 and 2020?

**(a)** 102.26%
**(b)** 115.57%
**(c)** 105.22%
**(d)** 122.22%

**Q74.** Two circles of diameters 16 cm and 20 cm are such that the distance between their centers is 13 cm. What is the length (in cm) of a common tangent to these circles that does not intersect the line joining the centers?

**(a)** √165
**(b)** √167
**(c)** √173

**(d)** √163

**Q75.** Simplify:

$\{(3^3+2^3)\times 22/7\}\times \{(6^2+3^2-4^2)\div (141/2)\}$

**(a)** 198
**(b)** 145
**(c)** 110
**(d)** 220

## GENERAL AWARENESS

**Q76.** What takes place when you click the Save button or press Ctrl + S in Microsoft Word?

**(a)** The document is copied to the clipboard.
**(b)** The document is closed.
**(c)** The document is saved in a disk file.
**(d)** The document is printed.

**Q77.** Match the following renewable sources of energy with their producing regions in India correctly.

| Renewable source of energy | Regions in India | | |
|---|---|---|---|
| 1. | Tidal energy | a. | Gulf of Khambhat |
| 2. | Wind energy | b. | Nagercoil |
| 3. | Geo Thermal energy | c. | Puga valley |

**(a)** 1-a, 2-b, 3-c
**(b)** 1-b, 2-a, 3-c
**(c)** 1-b, 2-c, 3-a
**(d)** 1-c, 2-b, 3-a

**Q78.** Which of the following state is the best governed state in the large states category as per the Public Affairs Index, 2020, which was released by the Public Affairs Centre, a non-profit organisation?

**(a)** Uttar Pradesh
**(b)** Kerala
**(c)** Odisha
**(d)** Bihar

**Q79.** Which of the following is NOT one of the consequences of the Green Revolution?

**(a)** Rising prices and a shift in the mode of payment of agricultural workers from payment In cash to payment in kind (grain)
**(b)** Wages of agricultural workers increased
**(c)** Employment of agricultural workers increased
**(d)** The rich grew richer and many of the poor stagnated or grew poorer

**Q80.** Gugga is the famous ritualistic dance of _____, which is performed in the procession taken out in memory of Gugga Pir.

**(a)** Jammu & Kashmir
**(b)** Haryana
**(c)** Uttar Pradesh
**(d)** Puducherry

**Q81.** Which of the following methods measures poverty on the basis of income and consumption levels?

**(a)** Poverty limit
**(b)** Poverty bar
**(c)** Poverty band

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**(d)** Poverty line

**Q82.** Which of the following statements is INCORRECT regarding the Coriolis force?

**(a)** It deflects the wind to the right in the north and left in the south.
**(b)** It is absent at the equator.
**(c)** Deflection is less when the speed of wind is high.
**(d)** It is directly proportional to the angle of altitude

**Q83.** Khubakeshei is a kind of song accompanied by clapping, sung in the state of _____.

**(a)** Bihar
**(b)** Karnataka
**(c)** Manipur
**(d)** Odisha

**Q84.** In April 2023, Wing Commander Deepika Misra received which of the following awards?

**(a)** Uttam Yudh Seva Medal
**(b)** Vayu Sena Medal
**(c)** Shaurya Chakra
**(d)** Vir Chakra

**Q85.** Fighting in the upright position in judo is called _____.

**(a)** ashi-waza
**(b)** ne-waza
**(c)** koshi-waza
**(d)** tachi-waza

**Q86.** Where is Birsa Munda International Hockey Stadium located?

**(a)** Jamshedpur
**(b)** Bhubaneswar
**(c)** Rourkela
**(d)** Ranchi

**Q87.** At which place was the magnificent temple of Saiva constructed by the great Rashtrakuta King ‘Krishna I’?

**(a)** Kannauj
**(b)** Ellora
**(c)** Kanchi
**(d)** Badami

**Q88.** The Lushai Hills are also known as _____.

**(a)** Mizo Hills
**(b)** Patkai Hills
**(c)** Khasi Hills
**(d)** Naga Hills

**Q89.** The Citizenship Act, 1955 does NOT deal with _____.

**(a)** acquisition
**(b)** termination
**(c)** election
**(d)** determination

**Q90.** Maldives are located to the south of which island of India?

**(a)** Lakshadweep
**(b)** Andaman and Nicobar
**(c)** Sri Lanka
**(d)** Japan

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**Q91.** What is the colour of the sending off card in football?

**(a)** Red
**(b)** Yellow
**(c)** Blue
**(d)** Black

**Q92.** Which of the following is the correct formula for calculating NNP?

**(a)** NNP = GNP – DEPRECIATION
**(b)** NNP = GDP – INCOME
**(c)** NNP = GDP – DEPRECIATION
**(d)** NNP = GNP + DEPRECIATION

**Q93.** The famous folk music ‘Hekialeu’ has its origin in which state?

**(a)** Assam
**(b)** Goa
**(c)** Tami Nadu
**(d)** Nagaland

**Q94.** The British Government passed a law in the year 1856. It was meant for which among the following social reforms?

**(a)** Abolition of Practice of Child Marriage
**(b)** Widow Remarriage
**(c)** Law against Murdering of Female Child
**(d)** Abolition of the Practice of Sati

**Q95.** Which of the following Articles of the Constitution states that ‘It shall be the duty of every citizen of India to promote harmony and the spirit of common brotherhood amongst all the people of India transcending religious, linguistic and regional or sectional diversities; to renounce practices derogatory to the dignity of women.’?

**(a)** 51 A (e)
**(b)** 51 A (b)
**(c)** 51 A (d)
**(d)** 51 A (c)

**Q96.** Which of the following animals can change their gender during their life span?

**(a)** Humans
**(b)** Ascaris
**(c)** nereis
**(d)** Snail

**Q97.** To enhance the interoperability between the Indian and Russian Armies, a joint training exercise called _____ commenced at Prudboy Ranges, Volgograd in the year 2021.

**(a)** INDRA 2021
**(b)** VARUNA 2021
**(c)** SHAKTI 2021
**(d)** SURYA KIRAN 2021

**Q98.** A circular coil having ‘n’ turns produces a field _____ times large as that produced by a single turn

**(a)** n
**(b)** 4n
**(c)** 3n
**(d)** 2n

**Q99.** Muharram is the _____ month of the Islamic Calendar and is considered a holy month.

**(a)** third
**(b)** first
**(c)** second

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**(d)** fourth

**Q100.** Which of the following is the maximum file size that can be attached to an email message in Gmail?

**(a)** 25 MB
**(b)** 50 MB
**(c)** 100 MB
**(d)** 200 MB

## ANSWER KEY

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | a | 2 | c | 3 | d | 4 | b | 5 | c | 6 | d | 7 | b | 8 | c | 9 | c | 10 | d |
| 11 | c | 12 | d | 13 | c | 14 | d | 15 | a | 16 | c | 17 | d | 18 | b | 19 | b | 20 | b |
| 21 | b | 22 | a | 23 | b | 24 | a | 25 | a | 26 | a | 27 | b | 28 | c | 29 | a | 30 | b |
| 31 | d | 32 | c | 33 | b | 34 | c | 35 | c | 36 | c | 37 | b | 38 | a | 39 | d | 40 | b |
| 41 | b | 42 | d | 43 | c | 44 | a | 45 | d | 46 | b | 47 | b | 48 | d | 49 | c | 50 | c |
| 51 | b | 52 | c | 53 | c | 54 | d | 55 | d | 56 | d | 57 | b | 58 | d | 59 | c | 60 | a |
| 61 | a | 62 | b | 63 | b | 64 | b | 65 | c | 66 | b | 67 | d | 68 | d | 69 | c | 70 | b |
| 71 | d | 72 | a | 73 | d | 74 | a | 75 | d | 76 | c | 77 | a | 78 | b | 79 | a | 80 | b |
| 81 | d | 82 | c | 83 | c | 84 | b | 85 | d | 86 | c | 87 | b | 88 | a | 89 | c | 90 | a |
| 91 | a | 92 | a | 93 | d | 94 | b | 95 | a | 96 | d | 97 | a | 98 | a | 99 | b | 100 | a |

## SOLUTIONS

**Q1. Answer: (a) A**

The correct answer is: A.

Key Points

• The primary issue in the sentence is the omission of the preposition "to" after the verb "live."

• The correct phrase should be "live up to" to indicate meeting expectations or standards.

• Thus, the error is located in part A of the sentence.

Therefore, the correct answer is A.

Correct Sentence: "It is difficult to live up to the societal expectations when one has fewer resources.

**Q2. Answer: (c) she is too intelligent**

The correct answer is Option 3.

Key Points

• The primary issue in the sentence is the use of "too intelligent" in part D.

• Using "too intelligent" implies more intelligence than is acceptable or needed, which is not the intended meaning. The correct wording should be "very intelligent."

• Thus, the error is located in part D of the sentence.

Therefore, the correct answer is Option 3)

Correct Sentence: "Since the little girl answers a few simple questions, her parents say that she is very intelligent."

Additional Information

• Since the little girl answers – This part of the sentence is grammatically correct and does not require any changes.

• her parents say that – This part of the sentence is grammatically correct and does not require any changes.

• she is too intelligent – The word "too" is incorrect here, and "very" should be used instead.

• a few simple questions – This part of the sentence is grammatically correct and does not require any changes.

**Q3. Answer: (d) an ice**

The correct answer is Option 4.

Key Points

• The primary issue in the sentence is the incorrect usage of the indefinite article "an" with "ice" in part D.

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• The word "ice" is an uncountable noun and does not require an indefinite article. The correct phrase should be "some ice" or simply "ice."

• Thus, the error is located in part D of the sentence.

Therefore, the correct answer is D.

Correct Sentence: "We took some ice and applied it on the wound."

Additional Information

• We took – This part of the sentence is grammatically correct and does not require any changes.

• and applied it on – This part of the sentence is grammatically correct and does not require any changes.

• the wound. – This part of the sentence is grammatically correct and does not require any changes.

• an ice – The indefinite article "an" is incorrectly used here. Replace it with "some ice" or simply "ice."

**Q4. Answer: (b) What are you looking for?**

The correct answer is Option 2.

Key Points

• The phrase "looking around" is incorrect in the context of the sentence. The correct preposition here is "for" to indicate searching.

• Therefore, the correct form of the sentence should be "What are you looking for?"

• Thus, the correct option is Option 2.

Therefore, the correct answer is Option 2.

Correct Sentence: "What are you looking for?"

Additional Information

• What are you looking across? – This is not the correct preposition for this context.

• What are you looking for? – This is the correct option as it indicates searching for something.

• What are you looking through? – This implies examining or searching something within a container or medium, which is not appropriate here.

• What are you looking among? – This implies searching within a group or collection, which is not suitable here.

**Q5. Answer: (c) large**

The solution is in Hindi. Read it online.

**Q6. Answer: (d) of**

The solution is in Hindi. Read it online.

**Q7. Answer: (b) similar**

The solution is in Hindi. Read it online.

**Q8. Answer: (c) cultural**

The solution is in Hindi. Read it online.

**Q9. Answer: (c) damage**

The solution is in Hindi. Read it online.

**Q10. Answer: (d) Crude**

The solution is in Hindi. Read it online.

**Q11. Answer: (c) Sanctify**

The solution is in Hindi. Read it online.

**Q12. Answer: (d) Betrey**

The solution is in Hindi. Read it online.

**Q13. Answer: (c) exhaustive**

The solution is in Hindi. Read it online.

**Q14. Answer: (d) fell out**

The solution is in Hindi. Read it online.

**Q15. Answer: (a) forsake**

The solution is in Hindi. Read it online.

**Q16. Answer: (c) Concealed**

The solution is in Hindi. Read it online.

**Q17. Answer: (d) best friends is here**

The correct answer is Option 4.

Key Points

• The subject of the sentence "One of my best friends" requires that the verb agrees with "one", which is singular.

• Therefore, the correct verb form should be "is" instead of "are".

• Option 4 correctly changes "friends are" to "friends is".

Therefore, the correct answer is Option 4.

Correct Sentence: One of my best friends is here.

Additional Information

• One of my better friends is here – Incorrect option, because "better" doesn't fit the context.

• One of my best friend is here – Incorrect option, singular "friend" doesn't fit since we're referring to one among many friends.

• One of my better friends are here – Incorrect option, "better" doesn't fit the context.

**Q18. Answer: (b) differentiate**

The solution is in Hindi. Read it online.

**Q19. Answer: (b) weird**

The solution is in Hindi. Read it online.

**Q20. Answer: (b) hit the sack**

The solution is in Hindi. Read it online.

**Q21. Answer: (b) bald**

The correct answer is Option 2.

Key Points

• The word "bald" means having no hair on the scalp, which likely fits the context of describing Ravi.

• The other options have different meanings:

• "baled" – to tie up or package material, such as hay.

• "bawled" – to cry or shout loudly.

• "balled" – to form into a ball, or slang for playing ball games.

Therefore, the correct answer is Option 2.

**Q22. Answer: (a) save**

The correct answer is Option 1.

Key Points

• The word "save" means to reduce the use or consumption of something, fitting the context of conserving electricity.

• The other options have different meanings:

• "deposit" – to put or set down (something) in a specific place, or to put money in a bank account.

• "rescue" – to save someone from a dangerous or distressing situation.

• "retain" – to keep possession of something.

Therefore, the correct answer is Option 1.

**Q23. Answer: (b) instinctive**

The solution is in Hindi. Read it online.

**Q24. Answer: (a) held**

The correct answer is Option 1.

Key Points

• The primary issue in the sentence is the verb tense used. "Keep" should be in the past tense to match the past action described in the sentence.

• The correct verb should be "held" to indicate that the action has been completed in the past.

• The sentence should read: "Then I unfurled the Indian tri-colour and held it aloft at the roof of the world."

Therefore, the correct answer is Option 1.

**Q25. Answer: (a) in compliance with**

The correct answer is Option 1.

Key Points

• The phrase "in compliance in EU law" is grammatically incorrect and unclear.

• The correct prepositional phrase should be "in compliance with EU law" to indicate that the process adheres to or follows the regulations set by EU law.

• This ensures that the sentence is grammatically correct and clearly communicated.

Therefore, the correct answer is Option 1.

Correct Sentence: "The Privacy Shield establishes a process to allow companies to transfer consumer data from European Union countries to the United States in compliance with EU law."

Additional Information

• Option 2: in compliance under the – This phrase is grammatically incorrect in this context.

• Option 3: in compliance for the – This phrase is also not appropriate for this context.

**Q26. Answer: (a) 2**

Given word: 'DICTIONARY'

After arranged in alphabetical order:

| **Alphabets** | **D** | **I** | **C** | **T** | **I** | **O** | **N** | **A** | **R** | **Y** |
|---|---|---|---|---|---|---|---|---|---|---|
| Alphabetical order | A | C | D | I | I | N | O | R | T | Y |

Now,

there is two alphabet "I and Y" that will remain unchanged if each of the letters in the word 'DICTIONARY' is arranged in English alphabetical order.

Hence, the correct answer is "Option 1".

**Q27. Answer: (b) EMS**

Let's check each option,

1) CKP

2) EMS

3) TBG

4) LTY

Here, all terms followed a pattern except EMS.

Hence, the correct answer is "EMS".

**Q28. Answer: (c) Daughter’s husband**

Preparing the family tree using the following symbols,

Given equation: A × B – C + D ÷ E

| **Code** | **•** | **–** | **×** | **÷** |
|---|---|---|---|---|
| Relation | Mother | Brother | Father | Daughter |

The family tree can be drawn as per the given information,

Here, we can see that E is the daughter’s husband of A.

Hence, the correct answer is "Daughter’s husband".

**Q29. Answer: (a) [figure]**

Let's check each option,

Hence, the correct answer is "Option 1".

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**Q30. Answer: (b) (33, 23, 112)**

The logic followed here is:

Logic: (1st number + 2nd number) × 2 = 3rd number.

Now,

For, (26, 38, 128):

=> (26 + 38) × 2 = 64 × 2 = 128.

For, (42, 19, 122):

=> (42 + 19) × 2 = 61 × 2 = 122.

Similarly, for (33, 23, 112):

=> (33 + 23) × 2 = 56 × 2 = 112.

Hence, the correct answer is "Option 2".

**Q31. Answer: (d) [figure]**

The logic followed here is:

Logic: The image is rotating 90° in clockwise direction.

Hence, the correct answer is "Option 4".

**Q32. Answer: (c) QINK**

The logic followed here is,

Hence, the correct answer is "QINK".

**Q33. Answer: (b) 62**

The logic followed here is,

Hence, the correct answer is "62".

**Q34. Answer: (c) [figure]**

Let's check each option

Hence, the correct answer is "Option 3".

**Q35. Answer: (c) [figure]**

When the paper is unfolded, we get:

Hence, the correct answer is "Option 3".

**Q36. Answer: (c) FB42**

The logic followed here is,

LH3 is related to RN21,

JF5 is related to PL35,

Similarly,

ZV6 is related to,

Hence, the correct answer is "FB42".

**Q37. Answer: (b) [figure]**

The correct mirror image of the given figure is:

Hence, the correct answer is "Option 2".

**Q38. Answer: (a) 39**

Given equation: 90 × 2 - 43 + 7 ÷ 7 = ?

| Sign | • | × |
|---|---|---|
| Interchange with | — | ÷ |

After replacing the sign, the equation we get:

→ 90 ÷ 2 + 43 - 7 × 7 = ?

→ 45 + 43 - 7 × 7 = ?

→ 45 + 43 - 49 = ?

→ 88 - 49 = ?

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→ 39 = ?

Hence, the correct answer is "39".

**Q39. Answer: (d) ct**

According to the given information,

Here, we can see that the code for 'heavy' is 'ct'.

Hence, the correct answer is "ct".

**Q40. Answer: (b) [figure]**

The correct mirror image of the given figure is:

Hence, the correct answer is "Option 2".

**Q41. Answer: (b) Both conclusions (I) and (II) follow.**

The least possible venn diagram is shown below,

Conclusion (I): Some glasses are bottles → True (Some bottles are pens, all pens are tables and all tables are glasses implies that some glasses are bottles).

Conclusion (II): Some pens are glasses → True (All pens are tables and all tables are glasses implies that some pens are definitely glasses).

Hence, the correct answer is "Both conclusions (I) and (II) follow".

**Q42. Answer: (d) 8**

Let's count the number of semi circles in the given figure,

Hence, the correct answer is "8".

**Q43. Answer: (c) 220**

The logic followed here is:

Logic: (1st number × 2) + 10 = 2nd number.

Now,

For, 45 : 100

=> (45 × 2) + 10 = 90 + 10 = 100.

For, 65 : 140

=> (65 × 2) + 10 = 130 + 10 = 140.

Similarly, for 105 : ?

=> (105 × 2) + 10 = 210 + 10 = 220.

Hence, the correct answer is "Option 3".

**Q44. Answer: (a) 21 B 11 D 33 A 11 C 5**

| Letter | A | B | C | D |
|---|---|---|---|---|
| Sign | ÷ | × | • | – |

Let's check each option,

1) 21 B 11 D 33 A 11 C 5

→ 21 × 11 – 33 ÷ 11 + 5

→ 21 × 11 – 3 + 5

→ 231 – 3 + 5

→ 236 – 3 = 233

2) 21 C 11 D 33 A 11 B 5

→ 21 + 11 – 33 ÷ 11 × 5

→ 21 + 11 – 3 × 5

→ 21 + 11 – 15

→ 32 – 15 = 17

3) 21 B 11 A 33 D 11 C 5

→ 21 × 11 ÷ 33 – 11 + 5

→ 21 × 1/3 – 11 + 5

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→ 7 – 11 + 5
→ 12 – 11 = 1
4) 21 A 11 D 33 B 11 C 5
→ 21 ÷ 11 – 33 × 11 + 5
→ 21/11 – 33 × 11 + 5
→ 21/11 – 363 + 5
→ 6.9 – 363 = –357.9
Here, we can see that only Option gives the resultant 233.
Hence, the correct answer is "21 B 11 D 33 A 11 C 5".

**Q45. Answer: (d) OAO**

The logic followed here is,
Hence, the correct answer is "OAO".

**Q46. Answer: (b) 110**

The logic followed here is,
Hence, the correct answer is "110".

**Q47. Answer: (b) Saturday**

Given: 24 August 1932 was Wednesday.
Now,
1932 to 1943 = 11 Years (9 Ordinary Years and 2 Leap Years).
And, In 11 Years = 2 Leap years(1936,1940) and 9 Ordinary Years.
So, 2 Leap Years have 4 odd days,
And, 9 Ordinary Years have 9 odd days.
Total odd days = 4 + 9 = 13.
13 odd days → 13/7 = 1 weeks and 6 odd days.
then, 24 August 1943 will be Wednesday + 6 = Tuesday.
Now, the number of days between 24 August 1943 to 11 September 1943
= 7 (August) + 11 (September) = 18 days.
= 18 days → 18/7 = 2 weeks and 4 odd days.
So, 11 September 1943 will be Tuesday + 4 = Saturday.
Hence, the correct answer is "Option 2".

**Q48. Answer: (d) 46 and 69**

Given equation: 8 × (7 + 5 − 3) + (46 ÷ 23) × 6 − 69 = 44
Let's check each option,
1) 6 and 7
→ 8 × (6 + 5 − 3) + (46 ÷ 23) × 7 − 69 = 44
→ 8 × 8 + 2 × 7 − 69 = 44
→ 64 + 14 − 69 = 44
→ 78 − 69 = 44
→ 9 ≠ 44
→ LHS ≠ RHS
2) 3 and 5
→ 8 × (7 + 3 − 5) + (46 ÷ 23) × 6 − 69 = 44
→ 8 × 5 + 2 × 6 − 69 = 44
→ 40 + 12 − 69 = 44
→ 52 − 69 = 44
→ -17 ≠ 44
→ LHS ≠ RHS
3) 8 and 6
→ 6 × (7 + 5 − 3) + (46 ÷ 23) × 8 − 69 = 44

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→ 6 × 8 + 2 × 8 − 69 = 44
→ 14 + 16 − 69 = 44
→ 30 − 69 = 44
→ -39 ≠ 44
→ LHS ≠ RHS
4) 46 and 69
→ 8 × (7 + 5 − 3) + (69 ÷ 23) × 6 − 46 = 44
→ 8 × 9 + 3 × 6 − 46 = 44
→ 72 + 18 − 46 = 44
→ 90 − 46 = 44
→ 44 = 44
→ LHS = RHS => Satisfies the equation.
Hence, the correct answer is "46 and 69".

**Q49. Answer: (c) LTEPYKLNAU**

The logic followed here is,
'ETHICS' is related to 'AVDKYU',
'CUSTOM' is related to 'YWOVKO",
Similarly,
'PRINCIPLES' is related to,
Hence, the correct answer is "LTEPYKLNAU".

**Q50. Answer: (c) 15**

The logic followed here is:
Logic: (Number of letters in the word)² - 1 = Code.
Now,
'INDULGE' is coded as '48'
→ (7)² - 1
→ 49 - 1 = 48.
'PURGE' is coded as '24'
→ (5)2 - 1
→ 25 - 1 = 24.
Similarly, for 'PUNY':
→ (4)2 - 1
→ 16 - 1 = 15.
So, 'PUNY' will be coded as '15'.
Hence, the correct answer is "Option 3".

**Q51. Answer: (b) Loss, Rs. 34**

Shortcut Trick
Total Cost Price (CP) = Rs. 115.20.
Selling Price (SP) of 50 oranges = 50 × 0.70 = Rs. 35.
SP of remaining oranges = Rs. 46.20.
Total SP = 35 + 46.20 = Rs. 81.20.
Since CP > SP, it is a Loss.
Loss = 115.20 − 81.20 = Rs. 34.
Therefore The correct answer is Loss, Rs. 34.
Alternate Method
Given → Total Oranges = 288, Total CP = Rs. 115.20, Rate of 50 oranges = 70 paise (Rs. 0.70), SP of rest = Rs. 46.20.
Formulas: Loss = CP − SP | Loss% = (Loss ÷ CP) × 100
=> Calculate SP of first part: 50 × 0.70 = Rs. 35.
=> Total SP = SP1 + SP2 = 35 + 46.20 = Rs. 81.20.
=> Loss = CP − SP = 115.20 − 81.20 = Rs. 34.

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Therefore The correct answer is Loss, Rs. 34.

Additional Information

Profit and Loss Basics

When Selling Price is greater than Cost Price, the merchant makes a Profit. Conversely, if Cost Price is greater, it results in a Loss.

Unit Conversion

Always ensure all values are in the same unit. Here, 70 paise was converted to Rs. 0.70 (100 paise = Rs. 1).

**Q52. Answer: (c) 10 cm**

Given:

Δ ABC ~ Δ QRP

Area of Δ ABC : Area of Δ PQR = 9 : 4

AB = 18 cm

BC = 15 cm

Formula Used:

Ratio of the areas of two similar triangles = (Ratio of the corresponding sides)²

Calculation:

Let the ratio of the corresponding sides of Δ ABC and Δ QRP be k.

Then, $k^2 = 9/4$

=> $k = \sqrt{(9/4)}$

=> $k = 3/2$

Since Δ ABC ~ Δ QRP, the corresponding sides are proportional.

We need to find the length of PR which corresponds to BC.

Let PR = x cm.

Then, BC/PR = 3/2

=> 15/x = 3/2

=> 15 × 2 = 3 × x

=> 30 = 3x

=> x = 30/3

=> x = 10 cm

The length of PR is 10 cm.

**Q53. Answer: (c) 27**

Given:

Simplify the following expression:

[40 - 48 ÷ 4 of 3] ÷ {(6 + 4) - 4 of 4 + 4 + (6 - 4) + (4 × 4) ÷ 4} × 3.

Formula Used:

Order of operations (BODMAS/BIDMAS):

Brackets, Orders (i.e., powers and square roots, etc.), Division and Multiplication (left-to-right), Addition and Subtraction (left-to-right).

Calculation:

First, simplify the expression inside the brackets:

=> 40 - 48 ÷ 4 of 3

Order of operations dictates we handle division and multiplication first:

=> 40 - 48 ÷ (4 × 3)

=> 40 - 48 ÷ 12

=> 40 - 4

=> 36

Next, simplify the expression inside the curly braces:

=> (6 + 4) - 4 of 4 + 4 + (6 - 4) + (4 × 4) ÷ 4

Handle multiplication and division first:

=> (6 + 4) - 4 × 4 + 4 + (6 - 4) + (16) ÷ 4

=> 10 - 16 + 4 + 2 + 4

Perform addition and subtraction from left to right:
=> 10 - 16 + 4 + 2 + 4
=> -6 + 4 + 2 + 4
=> -2 + 2 + 4
=> 0 + 4
=> 4
Now, substitute these simplified values back into the main expression:
=> 36 ÷ 4 × 3
Perform division and multiplication from left to right:
=> 9 × 3
=> 27
The correct answer is option 3.

**Q54. Answer: (d) Rs. 1,100**

Shortcut Trick
Let the annual instalment be 100%.
Total Debt is the sum of future values of all instalments at simple interest.
Total Debt = 100% + 105% + 110% + 115% + 120% = 550% of the instalment.
Given, 100% = Rs. 200.
Total Debt = 550% of Rs. 200 = 5.5 × 200 = Rs. 1100.
Therefore The correct answer is Rs. 1100.
Alternate Method
Given:
Instalment (I) = Rs. 200
Rate of Interest (R) = 5% p.a.
Time (T) = 5 years
Year 1
Rs. 200
• 4 yrs @ 5%
Rs. 240
Year 2
Rs. 200
• 3 yrs @ 5%
Rs. 230
Year 3
Rs. 200
• 2 yrs @ 5%
Rs. 220
Year 4
Rs. 200
• 1 yr @ 5%
Rs. 210
Year 5
Rs. 200
Final Payment
Rs. 200
Total Debt Discharged =
Rs. 1100
Calculations:
=> 1st instalment future value = 200 + (200 × 5 × 4) ÷ 100 = Rs. 240
=> 2nd instalment future value = 200 + (200 × 5 × 3) ÷ 100 = Rs. 230
=> 3rd instalment future value = 200 + (200 × 5 × 2) ÷ 100 = Rs. 220

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=> 4th instalment future value = 200 + (200 × 5 × 1) ÷ 100 = Rs. 210

=> 5th instalment future value = Rs. 200 (Paid at maturity, no interest)

=> Total Debt = 240 + 230 + 220 + 210 + 200 = Rs. 1100

Therefore The correct answer is Rs. 1100.

Additional Information

Simple Interest Instalment Formula

Total Debt = I × T + [I × R × T(T − 1)] ÷ 200, where I is the instalment amount, R is rate %, and T is time in years.

Understanding Debt vs Principal

The "Debt" mentioned in simple interest instalment questions represents the total future amount due at maturity (Principal + total accrued Interest), not the initially borrowed sum.

Compound Interest Instalments

For Compound Interest, the relationship calculates the present value of instalments: Principal = I ÷ (1 + R/100) + I ÷ (1 + R/100)² + ... + I ÷ (1 + R/100)^T.

**Q55. Answer: (d) 90 days**

Given:

A and B together complete the work in 15 days.

A alone completes the work in 18 days.

Formula Used:

Work rate of A = 1/Time taken by A

Work rate of B = 1/Time taken by B

Combined work rate of A and B = Work rate of A + Work rate of B

Calculation:

Work rate of A = 1/18

Work rate of A and B together = 1/15

Let the time taken by B alone to complete the work be B days.

Work rate of B = 1/B

Combined work rate of A and B:

1/18 + 1/B = 1/15

Solving for B:

=> 1/18 + 1/B = 1/15

=> 1/B = 1/15 - 1/18

=> 1/B = (18 - 15) / (15 × 18)

=> 1/B = 3 / 270

=> 1/B = 1 / 90

=> B = 90

B alone would take 90 days to complete the same work.

**Q56. Answer: (d) 10 units**

Shortcut Trick

Put y = 0 to find the x-intercept: 6x = 48 => x = 8.

Put x = 0 to find the y-intercept: 8y = 48 => y = 6.

The shortest length of the intercept between the axes is the hypotenuse of the right triangle formed.

Length = √(8² + 6²) = √(64 + 36) = √100 = 10 units.

Therefore The correct answer is 10 units.

Alternate Method

Given:

Equation of the line: 6x + 8y − 48 = 0

Formula Used:

Intercept form of a line: x/a + y/b = 1

Length of intercept between axes = √(a² + b²)

O(0,0)

A(8,0)

B(0,6)
8 units
6 units
10 units
Calculations:
=> 6x + 8y = 48
Divide the entire equation by 48 to convert it into the intercept form:
=> 6x/48 + 8y/48 = 48/48
=> x/8 + y/6 = 1
Comparing with the intercept form x/a + y/b = 1, we get:
=> x-intercept (a) = 8 units
=> y-intercept (b) = 6 units
The coordinates of the intercepts on the axes are A(8, 0) and B(0, 6).
The shortest distance between these axes intercepts is the straight line segment AB.
=> Length AB = $\sqrt{(a^2 + b^2)}$
=> Length AB = $\sqrt{(8^2 + 6^2)}$
=> Length AB = $\sqrt{(64 + 36)}$
=> Length AB = $\sqrt{100}$ = 10 units.
Therefore The correct answer is 10 units.
Additional Information
Intercept Form of a Line
The equation of a straight line making intercepts a and b on the x and y axes respectively is x/a + y/b = 1.
Distance Formula
The distance between two points (x1, y1) and (x2, y2) is given by D = $\sqrt{((x2 - x1)^2 + (y2 - y1)^2)}$.
Area of Triangle Formed by Line and Axes
The area of the right-angled triangle formed by the straight line x/a + y/b = 1 and the coordinate axes is 1/2 × |a| × |b|.

**Q57. Answer: (b) 100**

Given:
Marked Price (MP) = Rs. 150
Discount = 25% of Rs. 150 = Rs. 37.50
Gift worth = Rs. 2.50
Profit = 10%
Formula used:
Selling Price (SP) = MP - Discount - Gift worth
Profit = SP - Cost Price (CP)
Profit% = (SP - CP)/CP × 100
SP = CP + Profit
Calculation:
=> SP = Rs. 150 - Rs. 37.50 - Rs. 2.50
=> SP = Rs. 110
=> Profit% = (SP - CP)/CP × 100
=> 10% = (110 - CP)/CP × 100
=> 1/10 = (110 - CP)/CP
=> CP = 1100 - 10 CP
=> 11CP = 1100
=> CP = Rs. 100
Therefore The cost price of the article is Rs. 100.

**Q58. Answer: (d) 552**

Given:
We need to find the number which, when added to 20% of 460, equals 70% of 920.

Formula Used:
Let the number be x.
20% of 460 + x = 70% of 920
Calculation:
20% of 460 = 460 × 0.20 = 92
70% of 920 = 920 × 0.70 = 644
92 + x = 644
=> = 644 - 92
=> x = 552
The correct answer is option 4.

**Q59. Answer: (c) 70°**

Given:
Centre of the circle, O
External point, P
PQ and PR are tangents to the circle at Q and R respectively
angle ROQ = 110°
Formula Used:
angle PQR = 90° and angle PRQ = 90° (radius of a circle and a tangent line are always perpendicular to each other)
Sum of all angles of Quadrilateral = 360°
Calculation:
angle ROQ = 110°
Using the formula:
angle ROQ + angle PQR + angle PRQ + angle RPQ = 360°
=> 110° + 90° + 90° +angle RPQ = 360°
=> angle RPQ = 360° - 290°
=> angle RPQ = 70°
The correct answer is option 3: 70°

**Q60. Answer: (a) 416.40 kg**

Shortcut Trick
External Volume = 60 × 40 × 20 = 48,000 $cm^3$
Internal dimensions (subtracting 2 cm from each): 58, 38, 18
Internal Volume = 58 × 38 × 18 = 39,672 $cm^3$
Volume of Iron = 48,000 − 39,672 = 8,328 $cm^3$
Weight = 8,328 × 50 gm = 416,400 gm = 416.40 kg
Therefore The correct answer is 416.40 kg.
Alternate Method
Given: External Length (L) = 60 cm, Breadth (B) = 40 cm, Height (H) = 20 cm. Thickness (t) = 1 cm. Density = 50 gm/$cm^3$.
Formula: Volume of material = External Volume − Internal Volume
=> External Volume = 60 × 40 × 20 = 48,000 $cm^3$
=> Internal Length (l) = 60 − (2 × 1) = 58 cm
=> Internal Breadth (b) = 40 − (2 × 1) = 38 cm
=> Internal Height (h) = 20 − (2 × 1) = 18 cm
=> Internal Volume = 58 × 38 × 18 = 39,672 $cm^3$
=> Volume of Iron = 48,000 − 39,672 = 8,328 $cm^3$
=> Weight in gm = 8,328 × 50 = 416,400 gm
=> Weight in kg = 416,400 ÷ 1,000 = 416.40 kg
Therefore The correct answer is 416.40 kg.
Additional Information
Volume of Cuboid
The volume of a cuboid is calculated as Length × Breadth × Height.

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Hollow Cuboid Dimensions

For a hollow box with thickness 't', the internal dimension is (External Dimension − 2t).

Weight and Density

Weight = Volume × Density. Always ensure units are consistent (1 kg = 1000 gm).

**Q61. Answer: (a) 10**

Given:

The bar graph shows the distribution of marks obtained by students.

Formula Used:

1. Average marks = Total marks / Total number of students

2. Number of students who obtained more than the average marks.

Calculation:

Step 1: Calculate total marks and total number of students

Total students = 1 + 3 + 2 + 8 + 5 + 4 + 1 = 24

Total marks = (1 × 125) + (3 × 130) + (2 × 135) + (8 × 140) + (5 × 145) + (4 × 150) + (1 × 160) = 125 + 390 + 270 + 1120 + 725 + 600 + 160 = 3390

Step 2: Calculate the average marks

Average marks => 3390 / 24 ≈ 141.25

Step 3: Find the number of students who obtained more than the average marks

Students who scored above 141.25 are those who scored 145, 150, and 160 marks.

Number of students in these categories: 5 (145 marks) + 4 (150 marks) + 1 (160 marks) = 10

Therefore, 10 students obtained more than the average marks of the class.

**Q62. Answer: (b) −23%**

Given:

Initial increase = 40%

Subsequent decrease = 45%

Formula used:

Net Percentage Change = (Initial Increase % + Subsequent Decrease % + (Initial Increase % × Subsequent Decrease %)/100)

Calculation:

=> Net Percentage Change = 40 - 45 + (40 × (-45))/100

=> Net Percentage Change = -5 - 18

=> Net Percentage Change = -23%

Therefore The net percentage change in the final price of the article is a 23% decrease.

**Q63. Answer: (b) 36√3**

Given:

Perimeter of the triangle = 36 units

Formula used:

Area of a triangle with maximum possible area is of equilateral triangle.

Maximum area of an equilateral triangle = (side²) × √3/4

For an equilateral triangle, side = Perimeter/3

Calculation:

=> Side = 36 / 3 = 12 units

=> Area = $(12)^2 \times \sqrt{3}/4$

=> Area = 144 × √3/4

=> Area = 36√3 square units

Therefore The maximum area is 36√3 square units, so the correct answer is Option 2.

**Q64. Answer: (b) Echo**

Given:

The table shows the number of 5 types of cars (Swift, Sx4, Ertiga, Zen, Echo) manufactured (in thousand) by Maruti over the years 2007 to 2012.

Formula Used:
Total number of cars manufactured (for each type) = Sum of cars manufactured each year from 2007 to 2012
Calculation:
Total number of Swift cars manufactured (2007 to 2012) = 250 + 200 + 230 + 245 + 260 + 275
Total number of Swift cars manufactured = 250 + 200 + 230 + 245 + 260 + 275
Total number of Swift cars manufactured = 1460
Total number of Sx4 cars manufactured (2007 to 2012) = 200 + 230 + 225 + 210 + 135 + 155
Total number of Sx4 cars manufactured = 200 + 230 + 225 + 210 + 135 + 155
Total number of Sx4 cars manufactured = 1155
Total number of Ertiga cars manufactured (2007 to 2012) = 128 + 150 + 142 + 170 + 180 + 230
Total number of Ertiga cars manufactured = 128 + 150 + 142 + 170 + 180 + 230
Total number of Ertiga cars manufactured = 1000
Total number of Zen cars manufactured (2007 to 2012) = 140 + 155 + 160 + 175 + 185 + 220
Total number of Zen cars manufactured = 140 + 155 + 160 + 175 + 185 + 220
Total number of Zen cars manufactured = 1035
Total number of Echo cars manufactured (2007 to 2012) = 115 + 120 + 135 + 125 + 130 + 120
Total number of Echo cars manufactured = 115 + 120 + 135 + 125 + 130 + 120
Total number of Echo cars manufactured = 745
Minimum number of cars manufactured by Maruti during 2007 to 2012 is Echo with 745 thousand units.

**Q65. Answer: (c) 26.5%**

Given:
First increase = 15%
Second increase = 10%
Formula used:
Net Percentage Change = (Initial Increase % + Other increase % + (Initial Increase % × other increase %)/100)
Calculation:
=> Equivalent Percentage Increase = 15 + 10 + (15 × 10)/100
=> Equivalent Percentage Increase = 25 + 1.5
=> Equivalent Percentage Increase = 26.5%
Therefore The equivalent single percentage increase is 26.5%.

**Q66. Answer: (b) 6 km**

Given:
Distance between policeman and thief = 1.5 km
Speed of the thief = 90 km/h
Speed of the policeman = 120 km/h
Formula Used:
Relative speed = Speed of policeman - Speed of thief
Distance = Relative speed × Time
Calculation:
Relative speed = 120 km/h - 90 km/h
Relative speed = 30 km/h
Let the time taken to catch the thief be t hours.
Distance covered by the policeman in time t = Distance covered by the thief in time t + Initial distance
120t = 90t + 1.5
=> 120t - 90t = 1.5
=> 30t = 1.5
=> t = 1.5 / 30
=> t = 0.05 hours
Distance at which the policeman catches the thief = Speed of policeman × Time
Distance = 120 km/h × 0.05 hours

Distance = 6 km

The police will catch the thief at a distance of 6 km.

**Q67. Answer: (d) 1232 cm2**

Given:

Length (height) of the cylinder, h = 68 cm

Base diameter of the cylinder, d = 28 cm

Radius of the cylinder, r = d/2 = 14 cm

Formula used:

Curved Surface Area (CSA) of a cylinder = 2 * π * r * h

Total Surface Area (TSA) of a cylinder = 2 * π * r * (h + r)

Calculation:

=> CSA = 2 * π * 14 * 68

=> CSA = 2 * 22/7 * 14 * 68

=> CSA = 5984 $cm^2$

=> TSA = 2 * π * 14 * (68 + 14)

=> TSA = 2 * 22/7 * 14 * 82

=> TSA = 7216 $cm^2$

Difference between TSA and CSA:

=> Difference = 7216 - 5984

=> Difference = 1232 $cm^2$

Therefore The difference between the curved surface area and total surface area of the cylinder is 1232 $cm^2$.

**Q68. Answer: (d) 70%**

Given:

Turnover of A = Rs. 30 lakh

Turnover of E = Rs. 60 lakh

Profitability percentage of A = 25%

Profitability percentage of E = 25%

Turnover of B = Rs. 40 lakh

Turnover of C = Rs. 20 lakh

Turnover of D = Rs. 50 lakh

Profitability percentage of B = 7.5%

Profitability percentage of C = 20%

Profitability percentage of D = 7.5%

Formula used:

Profit = Turnover × Profitability Percentage

Share of A and E = (Profit of A + Profit of E) / Total Profit × 100%

Calculation:

Profit of A = 30 × (25/100)

=> Profit of A = Rs. 7.5 lakh

Profit of E = 60 × (25/100)

=> Profit of E = Rs. 15 lakh

Profit of B = 40 × (7.5/100)

=> Profit of B = Rs. 3 lakh

Profit of C = 20 × (20/100)

=> Profit of C = Rs. 4 lakh

Profit of D = 50 × (7.5/100)

=> Profit of D = Rs. 3.75 lakh

Total Profit of Company X = 7.5 + 3 + 4 + 3.75 + 15

=> Total Profit of Company X = Rs. 33.25 lakh

Share of A and E = (7.5 + 15) / 33.25 × 100%

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=> Share of A and E ≈ 67.67%

Therefore The correct answer is approximately 70%.

**Q69. Answer: (c) 8**

Shortcut Trick

If tan θ + cot θ = 2, this condition is only satisfied when tan θ = 1 and cot θ = 1 (since θ = 45°).

Substitute tan θ = 1 and cot θ = 1 in the required expression:

Expression = $1^3 + 1^3 + 6 \times 1^3 \times 1^2$

Expression = 1 + 1 + 6 = 8

Therefore The correct answer is 8.

Alternate Method

Given: tan θ + cot θ = 2

Formula Used: cot θ = 1/tan θ and $(a + b)^3 = a^3 + b^3 + 3ab(a + b)$

=> tan θ + 1/tan θ = 2

=> $\tan^2 \theta + 1 = 2 \tan \theta$

=> $\tan^2 \theta - 2 \tan \theta + 1 = 0$

=> $(\tan \theta - 1)^2 = 0$

=> tan θ = 1

=> cot θ = 1/1 = 1

Now, calculate: $\tan^3 \theta + \cot^3 \theta + 6\tan^3 \theta \cot^2 \theta$

=> $(1)^3 + (1)^3 + 6(1)^3(1)^2$

=> 1 + 1 + 6 = 8

Therefore The correct answer is 8.

Additional Information

Reciprocal Trig Identities

tan θ × cot θ = 1. Similarly, sin θ × cosec θ = 1 and cos θ × sec θ = 1.

Special Case for x + 1/x

If $x + 1/x = 2$, then $x^n + 1/x^n$ is always 2 for any positive integer n.

Standard Trig Values

For θ = 45°, tan 45° = 1 and cot 45° = 1. This is the only acute angle satisfying tan θ + cot θ = 2.

**Q70. Answer: (b) 342/7**

Shortcut Trick

Total Distance = 50 + 30 = 80 km

Total Time (including rest) = 90 + 15 + 35 = 140 minutes

Total Time in hours = 140 ÷ 60 = 7/3 hours

Average Speed = 80 ÷ (7/3) = 240/7 = 34(2/7) km/h

Therefore The correct answer is 34(2/7) km/h.

Alternate Method

Given:

Distance1 = 50 km, Time1 = 90 min

Rest Time = 15 min

Distance2 = 30 km, Time2 = 35 min

Formula Used:

Average Speed = Total Distance ÷ Total Time

Calculations:

=> Total Distance = 50 km + 30 km = 80 km

=> Total Time = 90 + 15 + 35 = 140 minutes

=> Conversion to hours: 140/60 hours = 7/3 hours

=> Average Speed = 80 ÷ (7/3)

=> Average Speed = (80 × 3) ÷ 7 = 240/7

=> Average Speed = 34(2/7) km/h

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Therefore The correct answer is 34(2/7) km/h.

Additional Information

Average Speed with Rest

When rest time is included in the journey, it must be added to the total time taken to find the overall average speed for the whole journey.

Unit Conversion

To convert speed from km/h to m/s, multiply by 5/18. To convert time from minutes to hours, divide by 60.

Special Case: Equal Distances

If a person covers two equal distances at speeds V1 and V2, the average speed = (2 × V1 × V2) ÷ (V1 + V2).

**Q71. Answer: (d) 258.3 kg**

Given:

Ratio of quantities = 3 : 5

First quantity = 155 kg

Formula used:

Let the second quantity be x.

Ratio = First quantity / Second quantity

Calculation:

=> 3/5 = 155/x

=> x = 155 × 5/3

=> x ≈ 258.3 kg

Therefore The other quantity is approximately 258.3 kg.

**Q72. Answer: (a) 19404**

Given:

Diameter of the hemisphere = 42 cm

Radius (r) = Diameter / 2 = 42 / 2 = 21 cm

Formula Used:

Volume of a hemisphere = $(2/3)\pi r^3$

Calculation:

Volume of the hemisphere = $(2/3) \times (22/7) \times 21^3$

=> Volume = $(2/3) \times (22/7) \times 21 \times 21 \times 21$

=> Volume = $(2/3) \times (22/7) \times 9261$

=> Volume = $(2 \times 22 \times 9261) / (3 \times 7)$

=> Volume = $(44 \times 9261) / 21$

=> Volume = 407484 / 21

=> Volume = 19404 $cm^3$

The volume of the hemisphere is 19404 $cm^3$.

**Q73. Answer: (d) 122.22%**

Given:

Total production of model C in 2021 = 6 lakhs

Total production of model C in 2022 = 5 lakhs

Total production of model A in 2019 = 5 lakhs

Total production of model A in 2020 = 4 lakhs

Formula used:

Percentage = × 100

Calculations:

=> Total production of C in 2021 and 2022 = 6 + 5 = 11 lakhs

=> Total production of A in 2019 and 2020 = 5 + 4 = 9 lakhs

=> Percentage = 11/9 × 100

=> Percentage = 122.22%

Therefore The total production of model C in 2021 and 2022 is approximately 122.22% of the total production of model A in 2019

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and 2020.

**Q74. Answer: (a) √165**

Given:

Diameter of the first circle (D1) = 16 cm

Diameter of the second circle (D2) = 20 cm

Distance between the centers of the circles (d) = 13 cm

Formula used:

Length of the common tangent (L) = $\sqrt{(d^2 - (r1 - r2)^2)}$

Where:

r1 = Radius of the first circle = D1/2

r2 = Radius of the second circle = D2/2

Calculations:

r1 = 16/2 = 8 cm

r2 = 20/2 = 10 cm

=> $L = \sqrt{(13^2 - (10 - 8)^2)}$

=> $L = \sqrt{(169 - 4)}$

=> $L = \sqrt{165}$

Therefore, the length of the common tangent is √165 cm.

**Q75. Answer: (d) 220**

Given:

Expression: $(3^3 + 2^3) \times 22/7 \times (6^2 + 3^2 - 4^2) \div (14\ 1/2)$

Formula Used:

1. Cube of a number: $n^3$

2. Square of a number: $n^2$

3. Mixed fraction: Convert mixed fraction to improper fraction

Calculation:

Step 1: Simplify inside the brackets

Calculate $3^3$: => $3^3 = 27$

Calculate $2^3$: => $2^3 = 8$

Add them together: => 27 + 8 = 35

Step 2: Multiply by 22/7

Calculate: => $35 \times 22/7 = 5 \times 22 = 110$

Step 3: Simplify the second part

Calculate $6^2$: => $6^2 = 36$

Calculate $3^2$: => $3^2 = 9$

Calculate $4^2$: => $4^2 = 16$

Subtract and add: => 36 + 9 - 16 = 29

Convert mixed fraction 141/2 to improper fraction: => 141/2 = 29/2

Divide: => $29 \div 29/2 = 29 \times 2/29 = 2$

Step 4: Multiply the results from Step 2 and Step 3

Final calculation: => $110 \times 2 = 220$

Therefore, the simplified value of the given expression is 220.

**Q76. Answer: (c) The document is saved in a disk file.**

The correct answer is The document is saved in a disk file.

Key Points

• The document is saved in a disk file. This action ensures that all the changes made to the document are stored on the disk.

• When you click the Save button or press Ctrl + S, Microsoft Word writes the current state of the document to the storage medium, preventing data loss.

• This operation can be performed multiple times during a session to ensure that the most recent changes are preserved.

• Saving a document frequently is a good practice to avoid losing data in case of unexpected software or hardware failures.

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Additional Information

• Microsoft Word provides different save options, such as Save As, which allows you to save the document with a different name or in a different location.

• Using Ctrl + S is a quick way to save the document without interrupting the workflow.

• It is advisable to regularly save your work, especially when working on lengthy documents, to ensure that all modifications are not lost.

• Microsoft Word also offers an AutoSave feature in Office 365, which automatically saves the document at regular intervals.

**Q77. Answer: (a) 1-a, 2-b, 3-c**

The correct answer is 1-a, 2-b, 3-c

Key Points

• Tidal energy is primarily produced in the Gulf of Khambhat, which is known for its high tidal range.

• Wind energy is significantly harnessed in Nagercoil, Tamil Nadu, due to the region's consistent and strong wind patterns.

• Geo Thermal energy is found in the Puga valley in Ladakh, which has geothermal springs indicating the presence of geothermal energy.

• The correct matching of the renewable sources of energy with their producing regions is:

• 1. Tidal energy - a. Gulf of Khambhat

• 2. Wind energy - b. Nagercoil

• 3. Geo Thermal energy - c. Puga valley

• Therefore, the correct answer is option 1.

Additional Information

• India is actively investing in renewable energy sources to reduce its carbon footprint and ensure sustainable development.

• The country has set ambitious targets for increasing the share of renewable energy in its energy mix, with significant investments in solar, wind, and other renewable sources.

• Government policies and incentives play a crucial role in promoting the adoption and expansion of renewable energy projects across various states.

**Q78. Answer: (b) Kerala**

The correct answer is Kerala

Key Points

• Kerala was ranked as the best-governed state in the large states category according to the Public Affairs Index, 2020.

• The index was released by the Public Affairs Centre, which is a non-profit organization.

• The ranking is based on various parameters of governance and public administration.

• Kerala has consistently performed well in areas such as health, education, and social welfare.

• The Public Affairs Index is a comprehensive framework that assesses the quality of governance in Indian states.

Additional Information

• The Public Affairs Centre was established in 1994 by Dr. Samuel Paul.

• The organization aims to improve governance in India through research, public policy, and advocacy.

• Other states that performed well in the large states category include Tamil Nadu and Andhra Pradesh.

• The index helps in identifying best practices and encourages healthy competition among states to improve governance.

• In the small states category, Goa was ranked as the best-governed state.

**Q79. Answer: (a) Rising prices and a shift in the mode of payment of agricultural workers from payment In cash to payment in...**

The correct answer is Rising prices and a shift in the mode of payment of agricultural workers from payment In cash to payment in kind (grain)

Key Points

• Option 1 states that "Rising prices and a shift in the mode of payment of agricultural workers from payment in cash to payment in kind (grain)" is a consequence of the Green Revolution, which is not correct.

• The Green Revolution primarily focused on increasing agricultural productivity through the use of high-yield variety seeds, fertilizers, and irrigation.

• Wages of agricultural workers increased (Option 2) and Employment of agricultural workers increased (Option 3) are true outcomes of the Green Revolution.

• Option 4, The rich grew richer and many of the poor stagnated or grew poorer, is also a recognized consequence of the Green Revolution, as it often benefited wealthier farmers more than the poorer ones.

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Additional Information

• The Green Revolution was introduced in the 1960s and 1970s to combat food shortages in developing countries like India.

• It led to a significant increase in food grain production, particularly wheat and rice, through the adoption of new agricultural techniques and technologies.

• While it improved food security and reduced famine, it also resulted in socioeconomic disparities and environmental issues such as soil degradation and increased use of chemical fertilizers.

**Q80. Answer: (b) Haryana**

The correct answer is Haryana

Key Points

• Gugga is a famous ritualistic dance performed in the state of Haryana.

• This dance is specifically performed during the procession taken out in memory of Gugga Pir.

• Gugga Pir is a revered figure, and the dance is an integral part of the cultural and religious practices in certain regions of Haryana.

• The procession and dance reflect the local traditions and the community's devotion to Gugga Pir.

Additional Information

• Gugga Pir is also known as Gugga Jaharpir in some regions, and he is considered a warrior saint.

• The dance is typically performed during the Gugga Naumi festival, which falls in the monsoon season.

• The festival and dance serve as a means to seek blessings and protection from Gugga Pir against snake bites and other misfortunes.

• Haryana's cultural landscape is rich with such traditional dances and rituals that are deeply rooted in the local folklore and religious beliefs.

**Q81. Answer: (d) Poverty line**

The correct answer is Poverty line

Key Points

• Poverty line is the method that measures poverty on the basis of income and consumption levels.

• The poverty line is a threshold level of income or consumption, below which individuals or households are considered to be living in poverty.

• This method helps in identifying the population that requires financial assistance and social welfare programs.

• The poverty line varies from country to country, reflecting the cost of living and economic conditions in each region.

Additional Information

• Poverty measurement is crucial for policy-making and implementing targeted poverty alleviation programs.

• Different countries and organizations may use varying criteria to define and measure the poverty line.

• In India, the poverty line is determined by the Planning Commission based on consumption expenditure surveys conducted by the National Sample Survey Office (NSSO).

• Internationally, the World Bank defines the global poverty line at $1.90 per day (as of 2015), adjusted for purchasing power parity.

• Accurate measurement of poverty helps in assessing the impact of economic policies and development initiatives.

**Q82. Answer: (c) Deflection is less when the speed of wind is high.**

The correct answer is Deflection is less when the wind is high.

Key Points

• The Coriolis force is an apparent force caused by the Earth's rotation.

• It deflects the wind to the right in the Northern Hemisphere and to the left in the Southern Hemisphere.

• It is absent at the equator because the Coriolis effect is zero there.

• The Coriolis force is proportional to the speed of the moving object and the sine of the latitude.

• Deflection is actually more when the wind speed is high, not less.

Additional Information

• The Coriolis force affects the direction of ocean currents and wind patterns, playing a crucial role in weather systems and climate.

• It is named after Gaspard-Gustave de Coriolis, a French scientist who described the effect in the 19th century.

• The Coriolis force is taken into account in meteorology, aviation, and oceanography for accurate predictions and navigation.

• In the absence of the Coriolis force, atmospheric and oceanic circulations would be significantly different, impacting the global

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climate system.

**Q83. Answer: (c) Manipur**

The correct answer is Manipur

Key Points

• Khubakeshei is a traditional song genre from the state of Manipur.

• This type of song is unique in that it is accompanied by rhythmic clapping, adding a distinctive auditory element to the performance.

• Manipur has a rich cultural heritage, and Khubakeshei is an integral part of its musical traditions.

• The songs are typically performed during festivals and other cultural events, reflecting the vibrant cultural life of the region.

Additional Information

• Manipur is one of the northeastern states of India, known for its diverse cultural expressions and artistic traditions.

• The state is home to various classical dance forms, including the famous Manipuri dance, which is one of the major classical dance forms of India.

• Manipur's music and dance forms are deeply rooted in its cultural and religious practices, often reflecting themes from Hindu mythology and local folklore.

• The state also celebrates numerous festivals such as Yaoshang, Lai Haraoba, and Ningol Chakouba, where traditional music and dance play a central role.

**Q84. Answer: (b) Vayu Sena Medal**

The correct answer is Vayu Sena Medal

Key Points

• Wing Commander Deepika Misra was awarded the Vayu Sena Medal in April 2023.

• The Vayu Sena Medal is awarded for individual acts of exceptional devotion to duty or courage.

• It is one of the prestigious awards given by the Indian Air Force to recognize the bravery and dedication of its personnel.

• Deepika Misra's recognition highlights her exemplary service and contributions to the Indian Air Force.

Additional Information

• The Vayu Sena Medal was established on 17 June 1960 by the President of India.

• This award can be given in both peacetime and wartime for acts of gallantry or distinguished service.

• Recipients of the Vayu Sena Medal are entitled to use the post-nominal letters "VM".

• Such recognitions serve to motivate and inspire other members of the armed forces to exhibit extraordinary courage and commitment.

**Q85. Answer: (d) tachi-waza**

The correct answer is tachi-waza

Key Points

• Tachi-waza refers to fighting in the upright position in judo.

• In judo, techniques are classified into different categories based on the position and method of execution.

• Ashi-waza involves foot techniques, ne-waza involves groundwork techniques, and koshi-waza involves hip techniques.

• Tachi-waza techniques are crucial as they form the basis for throwing an opponent while standing.

• Practitioners train extensively in tachi-waza to improve their balance, timing, and the ability to execute throws effectively.

Additional Information

• Judo was developed in Japan in 1882 by Jigoro Kano, emphasizing the principles of maximum efficiency and mutual welfare and benefit.

• The sport is governed by the International Judo Federation (IJF), which organizes competitions and sets the rules for international judo.

• Judo has been an Olympic sport since 1964, showcasing a variety of throwing and grappling techniques.

• Training in judo not only improves physical fitness but also promotes discipline, respect, and mental fortitude.

• Judo practitioners, known as judokas, wear a uniform called a judogi and train on a mat called a tatami.

**Q86. Answer: (c) Rourkela**

The correct answer is Rourkela

Key Points

• Birsa Munda International Hockey Stadium is located in Rourkela.

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• This stadium is named after the tribal freedom fighter, Birsa Munda.

• It is one of the largest hockey stadiums in India and has hosted several national and international hockey tournaments.

• The stadium is equipped with state-of-the-art facilities to support both players and spectators, making it a significant venue for the sport of hockey in India.

Additional Information

• Rourkela is a city located in the northern part of Odisha, India.

• It is known for its industrial significance, particularly the Rourkela Steel Plant, which is one of the largest steel plants in India.

• The city is well-connected by road, rail, and air, making it accessible for visitors and sports enthusiasts.

• Rourkela also boasts other sports facilities and has a vibrant sports culture, contributing to the development of athletes in various disciplines.

**Q87. Answer: (b) Ellora**

The correct answer is Ellora

Key Points

• The magnificent temple of Saiva was constructed by the great Rashtrakuta King 'Krishna I' at Ellora.

• Ellora is renowned for its monumental caves, which are a mix of Hindu, Buddhist, and Jain monuments, and it is a UNESCO World Heritage site.

• The temple constructed by Krishna I is known as the Kailasa temple, which is one of the largest rock-cut ancient Hindu temples.

• The Kailasa temple is notable for its vertical excavation—carvers started at the top of the rock and excavated downward, which is a unique architectural feat.

Additional Information

• The Rashtrakuta dynasty ruled large parts of the Indian subcontinent between the 6th and 10th centuries.

• The Rashtrakutas are credited with some of the most significant contributions to art and architecture in India, including the Ellora Caves and the rock-cut temples at Badami.

• King Krishna I, who reigned from 756 to 774 CE, was a patron of art and architecture, and his reign saw the construction of the Kailasa temple at Ellora.

• The Ellora caves, including the Kailasa temple, are a testament to the religious tolerance during the Rashtrakuta period, as they encompass Hindu, Buddhist, and Jain monuments.

• The temple's construction reflects advanced knowledge of engineering and artistry, highlighting the Rashtrakutas' contributions to India's cultural heritage.

**Q88. Answer: (a) Mizo Hills**

The correct answer is Mizo Hills

Key Points

• The Lushai Hills are also known as the Mizo Hills.

• They are located in the Indian state of Mizoram in the northeastern part of the country.

• The region is characterized by its hilly terrain and dense forests.

• The name "Mizo" is derived from the native Mizo people who inhabit the area.

• The Mizo Hills play a significant role in the cultural and social life of the Mizo people.

Additional Information

• The Mizo Hills were historically known as the Lushai Hills during the British colonial period.

• Mizoram became a state of India on 20th February 1987.

• The state is known for its rich cultural heritage, including traditional dances, music, and festivals.

• Mizoram shares international borders with Myanmar and Bangladesh, adding to its strategic importance.

• Despite its hilly terrain, Mizoram has a well-developed road network that connects it with neighboring states and countries.

**Q89. Answer: (c) election**

The correct answer is election

Key Points

• The Citizenship Act, 1955 primarily deals with the acquisition, termination, and determination of Indian citizenship.

• It does not deal with election processes, which are governed by separate laws and regulations in India.

• The Citizenship Act has been amended multiple times to address various issues related to citizenship.

• Provisions for acquiring citizenship include birth, descent, registration, and naturalization.

• Termination of citizenship can occur through renunciation, termination, or deprivation.

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Additional Information

• The Citizenship Act, 1955 was enacted by the Parliament of India and has been amended by various subsequent Acts.

• It provides a comprehensive framework for the acquisition and determination of Indian citizenship.

• The Act ensures that individuals who meet specific criteria can acquire Indian citizenship and outlines the procedures for doing so.

• It also establishes the grounds on which Indian citizenship can be terminated or deprived.

• The Act does not cover electoral processes, which fall under the purview of the Representation of the People Act, 1950 and 1951.

**Q90. Answer: (a) Lakshadweep**

The correct answer is Lakshadweep

Key Points

• The Maldives are located to the south of the Indian island of Lakshadweep.

• The Maldives is an island nation in the Indian Ocean, situated southwest of Sri Lanka and India.

• Lakshadweep is a group of islands in the Laccadive Sea, off the southwestern coast of India, and is the closest Indian territory to the Maldives.

• The geographical proximity of the Maldives to Lakshadweep makes it an important point of reference for understanding regional maritime boundaries and relationships.

Additional Information

• Lakshadweep, meaning "one hundred thousand islands" in Malayalam, is an Indian Union Territory comprising 36 islands.

• The islands are known for their exotic and sun-kissed beaches and lush green landscape.

• The capital of Lakshadweep is Kavaratti.

• The islands are renowned for their diverse marine life and are a popular destination for water sports like snorkeling and scuba diving.

• Lakshadweep plays a critical role in India's strategic maritime security and economic zones in the Indian Ocean.

**Q91. Answer: (a) Red**

The correct answer is Red

Key Points

• The sending off card in football is red.

• A red card is shown by the referee to signify that a player must be sent off the field and cannot be replaced.

• Receiving a red card means the player is expelled from the game and their team must play with one fewer player.

• Red cards are issued for serious offenses like violent conduct, serious foul play, or receiving a second yellow card in the same match.

Additional Information

• Football, also known as soccer in some countries, is governed by the Laws of the Game, which are maintained by the International Football Association Board (IFAB).

• Yellow cards are used to caution players for less serious offenses, while red cards are for more severe infractions.

• A player who receives a red card in a match is typically suspended from participating in the next game.

• The rules regarding red and yellow cards are applied universally in all levels of football, from amateur to professional leagues.

**Q92. Answer: (a) NNP = GNP – DEPRECIATION**

The correct answer is NNP = GNP – DEPRECIATION

Key Points

• NNP = GNP – DEPRECIATION is the correct formula for calculating Net National Product (NNP).

• Net National Product (NNP) is derived by subtracting depreciation from the Gross National Product (GNP).

• Depreciation accounts for the wear and tear, decay, or obsolescence of capital assets over time.

• GNP includes the total value of goods and services produced by the residents of a country, including income from abroad.

Additional Information

• Gross National Product (GNP) measures the economic performance of a country by including the value of all final goods and services produced by its residents, regardless of the location of production.

• Depreciation represents the reduction in the value of capital assets over time due to factors like wear and tear, decay, or obsolescence.

• Net National Product (NNP) gives a more accurate picture of the economic well-being of a country by accounting for

depreciation.

• Economists and policymakers use NNP to assess the sustainability of economic growth and the long-term economic health of a country.

**Q93. Answer: (d) Nagaland**

The correct answer is Nagaland

Key Points

• The famous folk music 'Hekialeu' has its origin in the state of Nagaland.

• Nagaland is known for its rich cultural heritage and diverse tribal traditions, which are reflected in its folk music and dance forms.

• The state celebrates various festivals where traditional music and dances play a pivotal role, showcasing the vibrant culture of the Naga people.

Additional Information

• Nagaland, located in the northeastern part of India, is home to several tribes, each with its own unique customs and traditions.

• The Hornbill Festival, held annually in Nagaland, is a significant event where various tribes come together to celebrate their culture through music, dance, and other traditional performances.

• Folk music in Nagaland often includes the use of indigenous instruments such as the bamboo flute, log drum, and various string instruments.

• The state's scenic beauty and cultural richness make it a unique destination for those interested in exploring the diverse traditions of India's northeastern region.

**Q94. Answer: (b) Widow Remarriage**

The correct answer is Widow Remarriage

Key Points

• The British Government passed the Widow Remarriage Act in 1856.

• This act was a significant social reform aimed at improving the condition of widows in India.

• It allowed Hindu widows to remarry, which was previously prohibited by societal norms and religious practices.

• The act was championed by social reformers like Ishwar Chandra Vidyasagar, who worked tirelessly to advocate for the rights of widows.

• The enactment of this law marked a progressive step towards gender equality and social justice in India.

Additional Information

• The Widow Remarriage Act of 1856 is also known as Act XV of 1856.

• This law was enacted during the tenure of Lord Dalhousie, the then Governor-General of India.

• The act was a result of the growing influence of the British colonial administration and reformist movements within Indian society.

• It played a crucial role in challenging the orthodox Hindu customs and paved the way for further social reforms in the country.

• Despite its enactment, widow remarriage faced significant resistance and took time to become widely accepted in society.

**Q95. Answer: (a) 51 A (e)**

The correct answer is 51 A (e)

Key Points

• Article 51 A (e) of the Constitution of India states that 'It shall be the duty of every citizen of India to promote harmony and the spirit of common brotherhood amongst all the people of India transcending religious, linguistic and regional or sectional diversities; to renounce practices derogatory to the dignity of women.'

• This article is part of the Fundamental Duties enshrined in Part IVA of the Constitution of India.

• The Fundamental Duties were added to the Constitution by the 42nd Amendment Act, 1976.

• These duties serve as a constant reminder to citizens that while enjoying their rights, they must also be conscious of the duties they owe to their country and fellow citizens.

Additional Information

• The Constitution of India was adopted by the Constituent Assembly on 26th November 1949 and came into effect on 26th January 1950.

• It lays down the framework defining fundamental political principles, establishes the structure, procedures, powers, and duties of government institutions, and sets out fundamental rights, directive principles, and the duties of citizens.

• The Constitution of India is the longest written constitution of any country in the world.

• It declares India a sovereign, socialist, secular, and democratic republic, assuring its citizens justice, equality, and liberty, and endeavors to promote fraternity.

• The Fundamental Duties were inspired by the Constitution of the erstwhile USSR and have been included to emphasize the

obligations of citizens towards their nation.

• There are currently eleven Fundamental Duties listed in Article 51A of the Constitution.

**Q96. Answer: (d) Snail**

The correct answer is Snail

Key Points

• Snails are one of the few animals capable of changing their gender during their lifespan.

• This phenomenon is known as sequential hermaphroditism, where an organism changes its sex at some point in its life.

• Snails, particularly those in the class Gastropoda, exhibit this trait to maximize their reproductive success.

• The ability to change gender allows snails to adapt to their environment and increase the chances of finding a mate.

Additional Information

• Sequential hermaphroditism is also observed in other species such as certain fish and plants.

• There are two main types: protandry (male to female) and protogyny (female to male).

• In snails, this adaptation can help balance the population and improve genetic diversity.

• Understanding these mechanisms can provide insights into the evolutionary strategies of different species.

**Q97. Answer: (a) INDRA 2021**

The correct answer is INDRA 2021

Key Points

• A joint training exercise named INDRA 2021 was initiated to enhance interoperability between the Indian and Russian Armies.

• This exercise commenced at Prudboy Ranges, Volgograd in the year 2021.

• INDRA series of exercises are conducted annually and focus on counter-terrorism operations and strengthening military cooperation between India and Russia.

• It provides a platform for both armies to share best practices and experiences in various combat situations.

Additional Information

• The INDRA exercises were first held in the year 2003.

• These exercises are part of the ongoing defense cooperation between India and Russia, which includes joint military programs, defense procurement, and other forms of military engagement.

• India and Russia share a long-standing defense relationship, with Russia being one of the largest suppliers of defense equipment to India.

• The exercises typically involve complex drills and operations, including live-fire exercises, tactical maneuvers, and counter-terrorism operations.

**Q98. Answer: (a) n**

The correct answer is n

Key Points

• A circular coil having 'n' turns produces a field n times larger than that produced by a single turn.

• This is because the magnetic field produced by each turn of the coil adds up linearly when the turns are in series.

• Therefore, if a single turn produces a magnetic field of strength B, then n turns will produce a magnetic field of strength nB.

• This relationship is crucial in applications where stronger magnetic fields are required, such as in electromagnets and inductors.

Additional Information

• The strength of the magnetic field in a coil is also influenced by factors such as the current flowing through the coil and the core material used.

• Using a ferromagnetic core can significantly increase the magnetic field strength compared to an air core.

• The formula for the magnetic field strength at the center of a circular coil is given by $B = (\mu_0 * n * I) / (2 * R)$, where $\mu_0$ is the permeability of free space, n is the number of turns, I is the current, and R is the radius of the coil.

**Q99. Answer: (b) first**

The correct answer is first

Key Points

• Muharram is the first month of the Islamic Calendar.

• It is considered a holy month, second only to Ramadan in its significance in Islam.

• Muharram marks the beginning of the Islamic New Year.

• It is a period of mourning for many Muslims, particularly for Shia Muslims who commemorate the martyrdom of Imam Hussein,

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the grandson of Prophet Muhammad, during this month.

• The 10th day of Muharram, known as Ashura, is especially significant and is observed with various rituals and practices.

Additional Information

• The Islamic Calendar is a lunar calendar consisting of 12 months in a year of 354 or 355 days.

• It is used to determine the proper days of Islamic holidays and rituals, such as the annual period of fasting and the proper time for the pilgrimage to Mecca.

• Unlike the Gregorian calendar, the Islamic calendar does not align with the seasons, as it is purely based on the moon's cycles.

• The Islamic New Year, also known as Hijri New Year, is observed on the first day of Muharram.

• The name "Muharram" means "forbidden," and it is considered one of the four sacred months in Islam during which warfare is forbidden.

**Q100. Answer: (a) 25 MB**

The correct answer is 25 MB

Key Points

• 25 MB is the maximum file size that can be attached to an email message in Gmail.

• If your file is larger than 25 MB, Gmail automatically uploads it to Google Drive and includes a download link in the email.

• This limit applies to both incoming and outgoing email messages.

• Attachments larger than this limit can be shared using Google Drive or other cloud storage services.

• Ensuring that attachments do not exceed this limit can help in avoiding email delivery failures.

Additional Information

• Gmail was launched by Google on April 1, 2004, and has since become one of the most popular email services globally.

• Gmail offers users a free storage quota that is shared across Gmail, Google Drive, and Google Photos.

• It supports various features like spam filtering, conversation view, and integration with other Google services.

• Gmail also provides powerful search capabilities, allowing users to quickly find specific emails or attachments.

• For larger files, Google Drive can be used to store and share files up to 15 GB for free, with options to purchase additional storage.

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