SSC MTS 2024 Official Paper (Held On: 08 Oct, 2024 Shift 1) (Previous Year Paper)

SSC Multi-Tasking Staff (MTS) • 2024 • 90 questions • 90 minutes • Answer key and solutions

Take this paper as a timed mock test

Practise under exam conditions, then review your answers after you submit.

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SESSION 1

Q1. The average age of 11 players of a cricket team is increased by 2 months, when two of them aged 20 years and 21 years, respectively, are replaced by two new players. Find the average age of the two new players (in years).

(a) 18 5/12
(b) 215/12
(c) 18 1/4
(d) 20 1/2

Q2. Find the simple interest (in Rs.) on Rs. 3000 as a sum borrowed at 3% per year rate of interest for 4 years.

(a) 400
(b) 360
(c) 300
(d) 320

Q3. The average weight of a family of five members (in kg) whose weights are 40 kg, 49 kg, 56 kg, 70 kg and 39 kg is:

(a) 49.8
(b) 52.8
(c) 51.8
(d) 50.8

Q4. A hemispherical bowl of internal radius 15 cm contains a liquid. The liquid is to be filled into cylindrical shaped bottles of diameter 5 cm and height 6 cm. The number of bottles required to empty the bowl is:

(a) 40
(b) 30
(c) 60
(d) 50

Q5. Find the simple interest (in Rs.) on Rs. 2500 as a sum borrowed at 3% per year rate of interest for 6 years.

(a) 410
(b) 390
(c) 490
(d) 450

Q6. The price of a computer increases by 10% in the first year, decreases by 5% in the second year, and increases by 8% in the third year. If the original price was Rs. 50,000, then the final price (in Rs.) is:

(a) 56,430
(b) 55,100
(c) 54,120
(d) 55,830

Q7. Find the HCF of 70 and 90.

(a) 2
(b) 5
(c) 7
(d) 10

Q8. The average of the first six multiples of 7 is:

(a) 24.5
(b) 23.2
(c) 22.4
(d) 25.1

Q9. There is a 21 litres mixture of milk and water. The ratio of milk and water in the mixture is 4 : 3. Find the amount of water (in litres) that should be added to this mixture so that the resulting mixture has 50% of water in it.

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

Q10. If two successive discounts of 25% and 15%, respectively, are given, then what will be the net discount percent?

(a) 36.20%
(b) 36.25%
(c) 36.10%
(d) 36.15%

Q11. A wooden toy is in the form of a sphere with diameter 28 cm. Find the cost of polishing its surface at the rate of 50 paise per cm2. (Take π = 22/7)

(a) Rs. 1,234
(b) Rs. 1,232
(c) Rs. 1,236
(d) Rs. 1,230

Q12. Alfred buys an old scooter for Rs. 4,700 and spends Rs. 800 on its repairs. If he sells the scooter for Rs. 5,800, his gain percentage is

(a) 4.5%
(b) 54/11%
(c) 65/11%
(d) 55/11%

Q13. A thief saw a policeman and he started running at a speed of 12 m/s. After a certain time, the policeman starts running behind the thief at a speed of 18 m/s. If the policeman covered a 540 m distance to catch the thief, the time (in seconds) after which the policeman started running is:

(a) 10
(b) 12
(c) 15
(d) 18

Q14. The speeds of three cars are in the ratio 5 : 3 : 4. The ratio between the time taken by these cars to cover the same distance is.

(a) 12 : 20 : 15
(b) 10 : 13 : 15
(c) 16 : 13 : 15
(d) 12 : 13 : 15

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Q15. A flat worth Rs. 9,50,000 is sold by Lakshman to Bharath at 8% profit. If Bharath sells it back to Lakshman at 3% loss, then find the gain/loss (in Rs.) of Lakshman in the entire transaction?

(a) Lakshman gains Rs. 30,780
(b) Lakshman gains Rs. 50,200
(c) Lakshman gains Rs. 45,220
(d) Lakshman loses Rs. 45,220

Q16. A man riding his bicycle covers 75 metres in 12.5 seconds. What is his speed (in km/hr)?

(a) 21.6
(b) 15.5
(c) 11.1
(d) 6

Q17. Study the table and answer the question:

Height (in cm)	Number of girls
Less than and equal to 110	15
Less than and equal to 115	24
Less than and equal to 120	31
Less than and equal to 125	43
Less than and equal to 130	54
Less than and equal to 135	68

Find the number of girls with height greater than 125 cm ?

(a) 19
(b) 23
(c) 14
(d) 25

Q18. The area of a rectangular field is 396 m^2, whose sides are in the ratio of 11 : 9. What is the perimeter of the rectangular field?

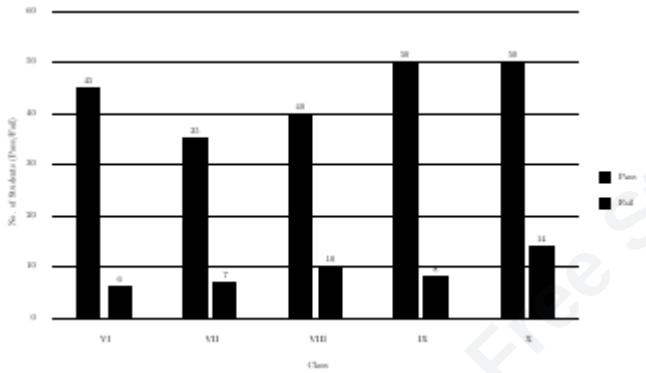
(a) 76 m
(b) 80 m
(c) 78 m
(d) 74 m

Q19. Rakesh rented out an amount to Samarth for 6 years at simple interest rate. At the end of the 6th year, Samarth paid (8)/(7) of the amount to Rakesh to clear out the amount. The rate of simple interest per annum was:

(a) 27/21%
(b) 23/20%
(c) 21/12%
(d) 28/21%

Q20. The following bar graph represents the annual result of five classes (VI to X) of a school. Study the bar graph carefully and answer the question given below

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What is the average number of students in the given five classes?

(a) 44
(b) 47
(c) 57
(d) 53

Q21. Read the given statements and conclusions carefully. Assuming that the information given in the statements is true, even if it appears to be at variance with commonly known facts, decide which of the given conclusions logically follow(s) from the statements."

Statements:

1. Some plants are rocks.

2. No vegetable is a plant.

Conclusions:

I. No vegetable is a rock.

II. Some rocks are plants.

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

Q22. JT79 is related to DN71 in a certain way. In the same way, KU22 is related to EO14. To which of the following is LV71 related, following the same logic?

(a) FP63
(b) FP66
(c) PF66
(d) PF63

Q23. 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)



Q24. Seven people S, E, C, T, I, O and N are sitting around a circular table, facing the centre (but not necessarily in the same order). E is sitting second to the left of N, while N is sitting second to the left of S. Only one person is sitting between S and O when counted from the right of S. C is sitting to the immediate right of E, whereas T is sitting to the immediate left of O. Who is sitting to the immediate right of I?

(a) C
(b) O
(c) T
(d) S

Q25. What should come in place of the question mark (?) in the given series?

7 12 16 30 34 66 70 ?

(a) 136
(b) 138
(c) 142

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(d) 140

Q26. What will come in the place of '?' in the following equation, if '×' and '÷' are interchanged and '-' and '+' are interchanged?

23 ÷ 18 + 150 × 50 - 44 = ?

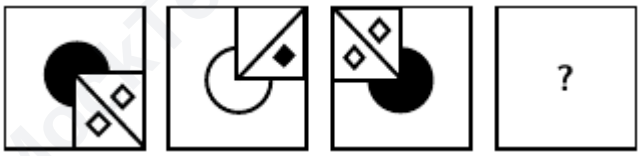
(a) 455
(b) 545
(c) 485
(d) 515

Q27. In a certain code language, 'WORD' is coded as '7135' and 'RISE' is coded as '4658'.

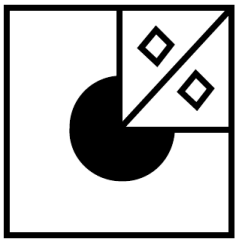
What is the code for 'R' in the given code language?

(a) 3
(b) 5
(c) 4
(d) 6

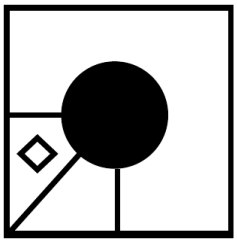
Q28. Identify the figure given in the options that when put in place of the question mark (?) will logically complete the series.



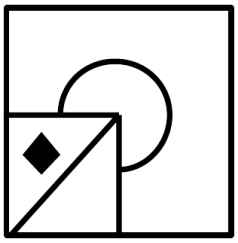
(a)



(b)

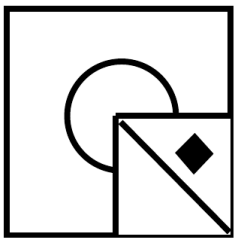


(c)



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(d)



Q29. Which two numbers should be interchanged to make the following equation correct?

(28×2)−16×6+8×3+5×7=39

(Note: Interchange should be done of the entire number and not individual digits of a given number.)

(a) 5 and 3
(b) 8 and 7
(c) 6 and 7
(d) 2 and 3

Q30. Read the given statement(s) and conclusions carefully. Assuming that the information given in the statement(s) is true, even if it appears to be at variance with commonly known facts, decide which of the given conclusions logically follow(s) from the statement(s).

Statements:

All pumpkin is mutton.

All mutton are fishes.

Conclusions:

(I) Some fishes are mutton.

(II) All pumpkins are fishes.

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

Q31. In a certain code language, 'BENT' is coded as '4628' and 'EARS' is coded as '5471'. What is the code for 'E' in the given code language?

(a) 7
(b) 4
(c) 6
(d) 5

Q32. 14 is related to 68 following a certain logic. Following the same logic, 17 is related to 83. To which of the following is 21 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) 101
(b) 105
(c) 107
(d) 103

Q33. A, B, C, D, E, F and G are sitting around a circular table facing the centre (but not necessarily in the same order). Only 3 people are sitting between E and A when counted from the right of E. B is sitting 2nd to the left of A. G is sitting to the immediate left of F. Only 2 people are sitting between B and G when counted from the right of B. C is the immediate neighbour of E. What is the position of D with respect to E?

(a) 3^(rd)from the right
(b) 2^(nd) from the left

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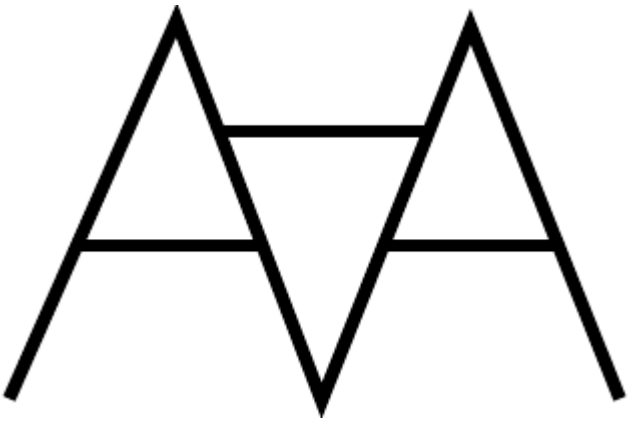
(c) 2^(nd) from the right
(d) 3^(rd) from the left

Q34. In a certain code language, 'I play football' is coded as 'ku ch ta', 'he play cricket' is coded as 'al bi ta'. How is 'play' coded in the given language?
(a) ku
(b) al
(c) bi
(d) ta

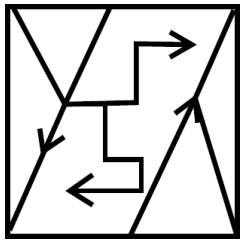
Q35. What should come in place of the question mark (?) in the given series based on the English alphabetical order?
BXL, DVN, FTP, ?, JPT
(a) GRR
(b) GRS
(c) HRR
(d) HST

Q36. In a certain code language, 'LIKE' is coded as '1576' and 'LINK' is coded as '6581'. What is the code for 'E' in the given code language?
(a) 6
(b) 5
(c) 7
(d) 1

Q37. Select the option figure in which the given figure is embedded as its part (rotation is NOT allowed).



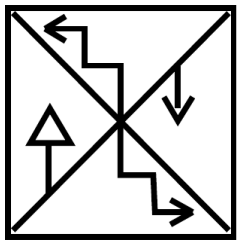
(a)



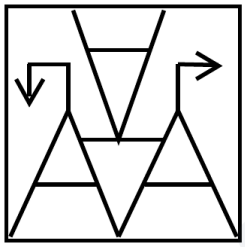
(b)



(c)



(d)



Q38. 3 is related to 15 following a certain logic. Following the same logic, 12 is related to 60. To which of the following is 5 related to, following the same logic?

(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.)

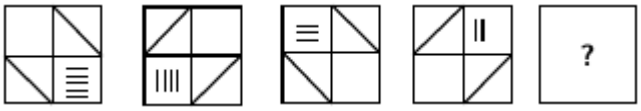
(a) 25

(b) 35

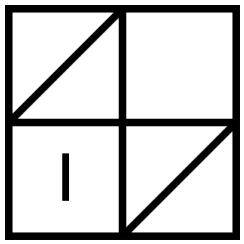
(c) 30

(d) 32

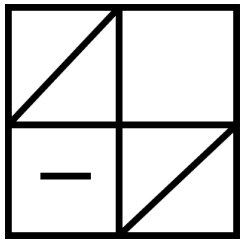
Q39. Select the figure from the options that can replace the question mark (?) and logically complete the series.



(a)

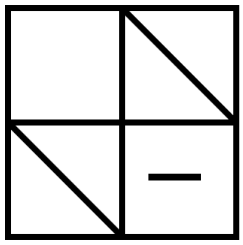


(b)

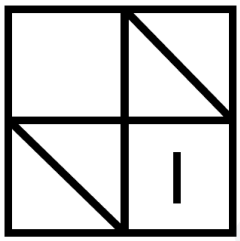


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(c)



(d)



Q40. EF26 is related to JK33 in a certain way. In the same way, TU27 is related to YZ34. To which of the following is JK28 related, following the same logic?

(a) OP35
(b) OP36
(c) PO35
(d) PO36

SESSION 2

Q41. The liquid water present in oceans, lakes and rivers gets converted to the gaseous form in the presence of sunlight in the water cycle. This step is called:

(a) Evaporation
(b) Precipitation
(c) Melting
(d) Condensation

Q42. Swachh Bharat Mission was launched on the birth anniversary of which of the following freedom fighters?

(a) Bhagat Singh
(b) Subhash Chandra Bose
(c) Chandrashekhar Azad
(d) Mahatma Gandhi

Q43. As per Census of India 2011, which of the following states has the highest percentage of Hindu population in India?

(a) Bihar
(b) Madhya Pradesh
(c) Himachal Pradesh
(d) Uttar Pradesh

Q44. Bharatanatyam Guru _____ received the Nrithya Seva Ratna award from Indian Fine Arts Akademi, San Diego in 2023.

(a) Sailaja
(b) Ratikant Mohapatra
(c) Vidhya Subramanian
(d) Hema Rajagopalan

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Q45. Which of the following articles of the Constitution of India mentions that every Minister and the Attorney-General of India shall have the right to speak in and participate in the proceedings of either House of Parliament?

(a) Article 86
(b) Article 87
(c) Article 89
(d) Article 88

Q46. The training academy for Indian Police Service officers has been named after:

(a) Sardar Vallabhbhai Patel
(b) Lal Bahadur Shastri
(c) Jawaharlal Nehru
(d) Mahatma Gandhi

Q47. Who is revered as 'Karnataka Sangeeta Pitamaha'?

(a) Jagannatha Dasa
(b) Purandara Dasa
(c) Gopala Dasa
(d) Vijaya Dasa

Q48. Which of the following statements about nutrients are correct?

Statement A: C, H, O, N, P and K are macro nutrients.

Statement B: Fe, Mn, Ni, Co and Mo are micronutrients.

Statement C: Micronutrients are not essential for our body.

(a) All statements A, B and C
(b) Only statements B and C
(c) Only statements A and B
(d) Only statements A and C

Q49. The campaign 'Ek Tareekh, Ek Ghanta, Ek Saath' is associated with which occasion?

(a) Ambedkar Jayanti
(b) Sardar Patel Jayanti
(c) Vivekananda Jayanti
(d) Gandhi Jayanti

Q50. Below are two chemical equations:

$Zn\ (s) + CuSO_4\ (aq) \rightarrow ZnSO_4\ (aq) + Cu\ (s)$

$Pb\ (s) + CuCl_2\ (aq) \rightarrow PbCl_2\ (aq) + Cu\ (s)$

Why does copper get separated from its compound form in both the cases?

(a) Zinc and Lead are unstable in element form.
(b) Copper compounds break down under high pressure.
(c) Zinc and Lead are more reactive than Copper.
(d) Copper is more reactive than Zinc and Lead.

Q51. Which of the following cell organelles possesses their own DNA and can synthesise protein for their functions?

(a) Endoplasmic reticulum
(b) Chloroplast
(c) Centrosome
(d) Golgi complex

Q52. Who among the following is/was a famous proponent of Bharatanatyam?

(a) Sunanda Nair
(b) Rukmini Devi Arundale
(c) Kalavati Devi
(d) Kumkum Mohanty

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Q53. In the Great Stupa at Sanchi there are _____ gateways known as 'Toranas' at the cardinal points to the compass.

(a) 4
(b) 6
(c) 2
(d) 8

Q54. 'Promotion of educational and economic interests of Scheduled Castes, Scheduled Tribes and other weaker sections' comes under which Article of Indian constitution?

(a) Article 38
(b) Article 66
(c) Article 56
(d) Article 46

Q55. Who among the following has written 'Gita Govinda', a Sanskrit epic?

(a) Kalhan
(b) Ramachandra
(c) Udayaraja
(d) Jayadeva

Q56. Who were the first foreign rulers of northwest India in the post-Mauryan period?

(a) Kushanas
(b) Parthians
(c) Bactrian Greek
(d) Sakas

Q57. As of 2023, what is the number of major public seaports in India?

(a) 12
(b) 10
(c) 16
(d) 13

Q58. In cycling, what is a 'peloton'?

(a) The finish line of a race
(b) A cycling technique for climbing hills
(c) A group of riders in a tight pack during a race
(d) The starting line of a race

Q59. Which author wrote the Hindi novel 'Tamas'?

(a) Shrilal Shukla
(b) Bhisham Sahani
(c) Yashpal
(d) Premchand

Q60. As of July 2023, 137 unique products under 'One District, One Product' scheme has been notified from how many districts?

(a) 713
(b) 256
(c) 538
(d) 657

Q61. What is the height of the Kanchenjunga peak of Himalaya?

(a) 8434 metres
(b) 8598 metres
(c) 8175 metres
(d) 8798 metres

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Q62. In which of the following years was the Census Act enacted and extended to the whole of India?

(a) 1950
(b) 1948
(c) 1949
(d) 1951

Q63. What is the usual treatment on repo rates by the Reserve Bank of India in case of a hawkish monetary policy stance?

(a) Reduced gradually
(b) Reduced sharply by more than 100 bps
(c) Increased
(d) Kept the same

Q64. Who among the following was India's first cricket team captain?

(a) K. Srikant
(b) CK Nayudu
(c) Sunil Gavaskar
(d) Nawab Pataudi

Q65. Which social reformer from South India founded the Self Respect Movement?

(a) Kandukur Veeresalingam
(b) C Iyodhee Pandithar
(c) Chembeti Sridharalu Naidu
(d) EV Ramaswamy Naicker

Q66. Select the INCORRECTLY spelt word in the given sentence.

Uluru is the world's largest monolith and Australia's recognisable natural icon with an elliptical shape and a circumfarence of around 94 kilometers.

(a) Elliptical
(b) Circumfarence
(c) Kilometers
(d) Monolith

Q67. Select the most appropriate ANTONYM of the given word.

Bulging

(a) Weeping
(b) Swelling
(c) Contracting
(d) Hanging

Q68. Select the appropriate option that can substitute the underlined word in the following sentence to make it grammatically correct.

This almirah is made up of heavier metal.

(a) heaviest
(b) most heavier
(c) most heaviest
(d) heavy

Q69. Select the most appropriate option to fill in the blank.

Living within our environmental limits is one of the central _____ of sustainable development.

(a) principles
(b) agencies
(c) demonstrates
(d) illuminates

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Q70. Select the option that will improve the underlined part of the given sentence. In case no improvement is needed, select 'No improvement required'.

Monika said to her mother that, "I have passed the examination."

(a) Monika said to her mother that, "I am passed"
(b) Monika said to her mother, "I have passed the examination"
(c) No improvement required
(d) Monika said to her mother that, "she has passed"

Q71. The following sentence has been split into four segments. Identify the segment that contains an error in phrasal verb.

Tara was late for the meeting / but somehow managed / to catch out with / everything she had missed.

(a) but somehow managed
(b) Tara was late for the meeting
(c) to catch out with
(d) everything she had missed

Q72. Select the most appropriate ANTONYM of the underlined word in the given sentence.

I don't prefer to remain alone at home in the evenings because loneliness evokes a sense of melancholy and grief within me.

(a) Readiness
(b) Absoluteness
(c) Shyness
(d) Cheerfulness

Q73. Select the most appropriate idiom/phrase to fill in the blank.

My car _____ on the way to college yesterday.

(a) broke in
(b) broke up
(c) broke down
(d) broke out

Q74. Select the most appropriate option to fill in the blank.

Never _____ ever seen a more disgusting sight.

(a) did I
(b) has I
(c) have I
(d) I have

Q75. Select the most appropriate option that can substitute the underlined segment in the given sentence.

Good nutrition is the bedrock at child survival, health and development.

(a) bedrock of child survival
(b) bedrock from child survival
(c) bedrock through child survival
(d) bedrock off child survival

Q76. Select the most appropriate option to fill in the blank.

Roger applied the _____ in advance as he anticipated an accident.

(a) brake
(b) broke
(c) break
(d) brig

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Q77. Select the most appropriate word from the given options that can substitute the word 'courage' and make a meaningful sentence.

I am not courage enough to take this risk.

(a) courageous
(b) encourage
(c) discouraging
(d) discourage

Q78. Select the most appropriate option to fill in the blank.

She was barking up the wrong _____ when she filed a complaint against ragging with the students' union instead of the university administration.

(a) disc
(b) dog
(c) pillar
(d) tree

Q79. Select the INCORRECTLY spelt word.

(a) Enthusiastic
(b) Spectecular
(c) Gracious
(d) Reliable

Q80. In the following sentence the underlined part contains as error. Alternatives to the underlined part are given as options. Select the correct alternative.

Playing in the field, the young gayer students were laughing and giggling.

(a) most gay
(b) gay
(c) gayest
(d) more gay

Q81. In the following sentence the underlined part contains as error. Alternatives to the underlined part are given as options. Select the correct alternative.

The sky appeared to be greyest after the storm.

(a) more grey
(b) greyer
(c) most grey
(d) grey

Q82. The sentence below contains errors. Select the option with the correct use of tenses.

Your father will waiting for you when you reach home.

(a) Your father should waiting for you when you reach home.
(b) Your father will be waiting for you when you reach home.
(c) Your father would waiting for you when you reach home.
(d) Your father waiting for you when you reach home.

Q83. Select the most appropriate synonym of the word in bold in the given sentence.

The future looks bleak for the fishing industry.

(a) Ample
(b) Expensive
(c) Fearless
(d) Depressing

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Q84. Select the most appropriate synonym of the given word.

Blend

(a) Disperse
(b) Boil
(c) Mix
(d) Divide

Q85. Select the INCORRECTLY spelt word.

(a) Eligible
(b) Poignant
(c) Gourrmet
(d) Relevant

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.

Traditional medicines (TMs) make (1) _____ natural products and are of great importance. Such forms of medicine as traditional Chinese medicine (TCM), Ayurveda, Kampo, traditional Korean medicine (TKM), and Unani (2) ___ natural products and have been (3) ___ all over the world for hundreds or even thousands of years, and they (4) ___ blossomed into orderly-regulated systems of medicine. In their various forms, they may have certain defects, but they (5) _____ still a valuable repository of human knowledge.

Q86. Select the most appropriate option to fill in blank number 1

(a) used off
(b) use of
(c) uses of
(d) used of

Q87. Select the most appropriate option to fill in blank number 2

(a) employ
(b) employing
(c) employs
(d) employed

Q88. Select the most appropriate option to fill in blank number 3

(a) practice
(b) practised
(c) practises
(d) practices

Q89. Select the most appropriate option to fill in blank number 4

(a) have being
(b) have
(c) had
(d) has

Q90. Select the most appropriate option to fill in blank number 5

(a) was
(b) are
(c) am
(d) is

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ANSWER KEY

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

SOLUTIONS

Q1. Answer: (b) 215/12

Given:

The average age of 11 players is increased by 2 months when two players aged 20 years and 21 years are replaced by two new players.

Formula Used:

Total age increase due to replacement = Increase in average age × Number of players

Average age of the two new players = (Total age of the two new players) / 2

Calculation:

Increase in average age = 2 months = 2/12 years = 1/6 years

Total age increase due to replacement = 1/6 years × 11

Total age increase due to replacement = 11/6 years

Let the ages of the two new players be x and y years.

(x + y) - (20 + 21) = 11/6 years

(x + y) - 41 = 11/6 years

=> x + y = 41 + 11/6

=> x + y = 246/6 + 11/6

=> x + y = 257/6

Average age of the two new players = (x + y) / 2

=> Average age of the two new players = (257/6) / 2

=> Average age of the two new players = 257/12 years = 215/12

Therefore The average age of the two new players is 215/12 years.

Q2. Answer: (b) 360

Given:

Principal (P) = Rs. 3000

Rate of interest (R) = 3% per year

Time (T) = 4 years

Formula Used:

Simple Interest (SI) = (P × R × T) / 100

Calculation:

=> Simple Interest (SI) = (3000 × 3 × 4) / 100

=> Simple Interest (SI) = 36000 / 100

=> Simple Interest (SI) = 360

The simple interest on Rs. 3000 at 3% per year for 4 years is Rs. 360.

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Q3. Answer: (d) 50.8

Given:

Weights of the family members: 40 kg, 49 kg, 56 kg, 70 kg, 39 kg

Formula Used:

Average weight = (Sum of weights) / (Number of members)

Calculation:

Sum of weights = 40 + 49 + 56 + 70 + 39

Sum of weights = 254 kg

Number of members = 5

Average weight = 254 / 5 = 50.8 kg

The average weight of the family is 50.8 kg.

Q4. Answer: (c) 60

Given:

Internal radius of the hemispherical bowl = 15 cm

Diameter of the cylindrical bottle = 5 cm

Height of the cylindrical bottle = 6 cm

Formula Used:

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

Volume of a cylinder = $\pi r^2 h$

Calculation:

Volume of the hemispherical bowl:

Radius of the hemisphere, r = 15 cm

Volume of the hemisphere = $(2/3)\pi(15)^3$

=> Volume of the hemisphere = $(2/3)\pi \times 3375$

=> Volume of the hemisphere = 2250π cm^3

Volume of one cylindrical bottle:

Radius of the cylinder, r = 5/2 = 2.5 cm

Height of the cylinder, h = 6 cm

Volume of the cylinder = $\pi(2.5)^2 \times 6$

=> Volume of the cylinder = $\pi \times 6.25 \times 6$

=> Volume of the cylinder = 37.5π cm^3

Number of bottles required:

Number of bottles = Total volume of the hemisphere / Volume of one cylindrical bottle

=> Number of bottles = $2250\pi / 37.5\pi$

=> Number of bottles = 60

The number of bottles required to empty the bowl is 60.

Q5. Answer: (d) 450

Shortcut Trick

Total interest percentage = Rate × Time

Interest percentage = 3% × 6 = 18%

Simple Interest = 18% of 2500 = (18/100) × 2500

Simple Interest = 18 × 25 = 450

Therefore The correct answer is Rs. 450.

Alternate Method

Given: Principal (P) = Rs. 2500, Rate (R) = 3% per annum, Time (T) = 6 years.

Formula: Simple Interest (SI) = (P × R × T) ÷ 100

=> SI = (2500 × 3 × 6) ÷ 100

=> SI = (2500 × 18) ÷ 100

=> SI = 25 × 18

=> SI = 450

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Therefore The correct answer is Rs. 450.

Additional Information

Total Amount (A)

The total amount to be repaid after the time period is the sum of the Principal and Simple Interest: A = P + SI.

Effective Rate of Interest

For simple interest, the total interest percentage over the entire duration is the product of the annual rate and the time in years (R × T).

Standard Units

Always ensure that the Time (T) is in years. If time is given in months, divide by 12; if in days, divide by 365 (or 366 for leap years).

Q6. Answer: (a) 56,430

Given:

Original price of the computer = Rs. 50,000

Price increases by 10% in the first year

Price decreases by 5% in the second year

Price increases by 8% in the third year

Formula Used:

Final Price = Initial Price × (1 + Rate1) × (1 + Rate2) × (1 + Rate3)

Calculation:

Rate1 = 10% = 0.10

Rate2 = -5% = -0.05

Rate3 = 8% = 0.08

Initial Price = Rs. 50,000

After the first year:

=> Price = Rs. 50,000 × (1 + 0.10)

=> Price = Rs. 50,000 × 1.10

=> Price = Rs. 55,000

After the second year:

=> Price = Rs. 55,000 × (1 - 0.05)

=> Price = Rs. 55,000 × 0.95

=> Price = Rs. 52,250

After the third year:

=> Price = Rs. 52,250 × (1 + 0.08)

=> Price = Rs. 52,250 × 1.08

=> Price = Rs. 56,430

The final price of the computer is Rs. 56,430.

Q7. Answer: (d) 10

Given:

Numbers to find HCF: 70 and 90.

Formula Used:

HCF is found by the method of prime factorization.

Calculation:

Prime factorization of 70: 70 = 2 × 5 × 7

Prime factorization of 90: 90 = 2 × 3^2 × 5

Common prime factors: 2, 5

HCF = 2 × 5

=> HCF = 10

The HCF of 70 and 90 is 10.

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Q8. Answer: (a) 24.5

Given:

The first six multiples of 7 are 7, 14, 21, 28, 35, and 42.

Formula Used:

Average = Sum of all multiples / Number of multiples

Calculation:

Sum of the first six multiples of 7 = 7 + 14 + 21 + 28 + 35 + 42

Sum = 147

Number of multiples = 6

Average = Sum / Number of multiples

Therefore Average = 147 / 6 = 24.5

The average of the first six multiples of 7 is 24.5.

Q9. Answer: (c) 3

Given:

Total mixture = 21 litres

Ratio of milk and water = 4:3

Formula Used:

Amount of water to be added = Final water - Initial water

Calculation:

Let the quantity of milk be 4x and the quantity of water be 3x.

=> 4x + 3x = 21

=> 7x = 21

=> x = 21 / 7

=> x = 3

So, initial quantity of water = 3x = 3 x 3 = 9 litres.

Initial quantity of Milk = 4 x 3 = 12 liters.

Final mixture should have 50% water means the ratio of milk and water will be 1 : 1

According to the problem,

=> 12/ (9 + x) = 1/ 1

=> x = 12 - 9 = 3 liters

=> Amount of water to be added = 3 litres.

The amount of water that should be added is 3 litres.

Q10. Answer: (b) 36.25%

Given:

Two successive discounts: 25% and 15%

Formula Used:

Net discount percent = a + b - (a × b)/(100)

Calculations

Let the first discount be 25% (a) and the second discount be 15% (b).

Net discount percent:

=> 25 + 15 - (25 × 15)/(100)

=> 40 - (375)/(100)

=> 40 - 3.75 = 36.25%

The net discount percent is 36.25%.

Q11. Answer: (b) Rs. 1,232

Given:

Diameter of the sphere = 28 cm

Radius (r) = 28 / 2 = 14 cm

Rate of polishing = 50 paise per cm^2 = Rs. 0.50 per cm^2

Formula Used:

Surface Area of Sphere = $4\pi r^2$
Calculation:
Surface Area of Sphere = 4 × (22/7) × 14 × 14
=> Surface Area of Sphere = 4 × 22 × 2 × 14
=> Surface Area of Sphere = 2464 cm^2
Cost of polishing = Surface Area × Rate
=> Cost of polishing = 2464 × 0.50
=> Cost of polishing = 1232
The cost of polishing the surface is Rs. 1,232.

Q12. Answer: (d) 55/11%

Given:
Cost price of the scooter = Rs. 4,700
Cost of repairs = Rs. 800
Selling price of the scooter = Rs. 5,800
Formula Used:
Gain Percentage = (Gain/Cost Price) × 100
Calculation:
Total Cost Price = Rs. 4,700 + Rs. 800
Total Cost Price = Rs. 5,500
Gain = Selling Price - Total Cost Price
Gain = Rs. 5,800 - Rs. 5,500
Gain = Rs. 300
Gain Percentage = (300/5500) × 100
Gain Percentage = (300 × 100)/5500
Gain Percentage = 30000/5500
Gain Percentage = 300/55
Gain Percentage = 60/11 = 55/11%
Gain Percentage = 55/11%

Q13. Answer: (c) 15

Given:
Speed of the thief = 12 m/s
Speed of the policeman = 18 m/s
Distance covered by the policeman = 540 m
Formula Used:
Distance = Speed × Time
Calculation:
Time taken to cover the 540 m by police is
T = 540/18 = 30 sec
Now in 30 sec total distance run by thief is,
DIstance × Time = 30 × 12 = 360 m
Now, remaining distance.
D_(Remaining) = 540 - 360 = 180m
As remaining distance cover by the thief, when police was not running.
So, the time taken by thief to cover the remaining distance is,
T = 180/12 = 15 sec.
The time after which the policeman started running is 15 seconds.

Q14. Answer: (a) 12 : 20 : 15

Given:
The speeds of three cars are in the ratio 5:3:4.
Formula Used:

Time taken = Distance / Speed

Ratio of time taken = Inverse ratio of speeds

Calculation:

Speeds of cars are in the ratio 5:3:4

Let the speeds be 5x, 3x, and 4x respectively.

To cover the same distance, time taken is inversely proportional to speed.

Therefore, ratio of time taken = 1/(5x) : 1/(3x) : 1/(4x)

=> Ratio of time taken = 1/5 : 1/3 : 1/4

=> Ratio of time taken = 12 : 20 : 15

The ratio between the time taken by these cars to cover the same distance is 12 : 20 : 15.

Q15. Answer: (a) Lakshman gains Rs. 30,780

Shortcut Trick

Lakshman's initial profit = 8% of 9,50,000 = Rs. 76,000.

Bharath's cost price = 108% of 9,50,000 = Rs. 10,26,000.

Bharath sells back at 3% loss, so Lakshman buys it back for 3% less than what Bharath paid.

Lakshman's additional gain = 3% of Bharath's CP = 0.03 × 10,26,000 = Rs. 30,780.

Total gain for Lakshman = Initial Profit + Buyback Discount = 76,000 − (76,000 − 30,780) = Rs. 30,780.

Therefore The correct answer is Lakshman gains Rs. 30,780.

Alternate Method

Given: Initial Value = Rs. 9,50,000 | Profit% = 8% | Loss% = 3%.

Formulas: SP = CP × (100 + P%) ÷ 100 | Loss = CP × Loss% ÷ 100.

=> Lakshman sells to Bharath at SP1 = 9,50,000 × 1.08 = Rs. 10,26,000.

=> Lakshman's cash inflow = Rs. 10,26,000.

=> Bharath sells back to Lakshman at SP2 = 10,26,000 × (1 − 0.03) = 10,26,000 × 0.97 = Rs. 9,95,220.

=> Lakshman's net cash position = 10,26,000 (received) − 9,95,220 (paid) = Rs. 30,780.

=> Since Lakshman has the flat back and an extra Rs. 30,780, he gained this amount.

Therefore The correct answer is Lakshman gains Rs. 30,780.

Additional Information

Transaction Logic

In buy-back problems, the original owner's gain is the difference between the price they received and the price they paid to get the item back. Note: The provided LMS answer of Rs. 45,220 is incorrect as it likely miscalculates the 3% on the original CP instead of Bharath's CP.

Percentage of Percentage

Gain = Initial CP × [Profit% − (1 + Profit%) × (1 − Loss% − 1)] which simplifies to the cash flow difference.

Q16. Answer: (a) 21.6

Given:

Distance covered = 75 metres

Time taken = 12.5 seconds

Formula Used:

Speed (in km/hr) = (Distance (in metres))/(Time (in seconds)) × (18)/(5)

Calculation:

Distance = 75 metres

Time = 12.5 seconds

Speed = (75)/(12.5) × (18)/(5)

Speed = 6 × 3.6 = 21.6 km/hr

The correct answer is 21.6 km/hr

Q17. Answer: (d) 25

Given:

Number of girls with height ≤ 125 cm = 43

Number of girls with height ≤ 135 cm = 68

Formula Used:

Number of girls with height > 125 cm = Number of girls with height ≤ 135 cm - Number of girls with height ≤ 125 cm

Calculation:

Number of girls with height > 125 cm = 68 - 43

Therefore Number of girls with height > 125 cm = 25

Q18. Answer: (b) 80 m

Given:

Area of the rectangular field = 396 m²

Ratio of sides = 11 : 9

Formula Used:

Area of rectangle = Length × Breadth

Perimeter of rectangle = 2 × (Length + Breadth)

Calculation:

Let the length be 11x and the breadth be 9x.

Area = Length × Breadth

=> 396 = 11x × 9x

=> 396 = 99x²

=> x² = 396 / 99

=> x² = 4

=> x = 2

Length = 11x = 11 × 2 = 22 m

Breadth = 9x = 9 × 2 = 18 m

Perimeter = 2 × (Length + Breadth)

=> Perimeter = 2 × (22 + 18)

=> Perimeter = 2 × 40

=> Perimeter = 80 m

The perimeter of the rectangular field is 80 m.

Q19. Answer: (d) 28/21%

Given:

Time (t) = 6 years

Amount paid by Samarth = 8/7 of the principal

Formula Used:

Simple Interest (SI) = (P × R × T)/100

Total amount (A) = Principal (P) + SI

Calculation:

According to the question:

=> A = 8/7 P

=> P + (P × R × 6)/100 = 8/7 P

Dividing both sides by P:

=> 1 + 6R/100 = 8/7

Solving for R:

=> 6R/100 = 8/7 - 1

=> 6R/100 = 1/7

=> 6R = 100/7

=> R = 100/42

=> R = 2.38% = 28/21%

Therefore The rate of simple interest per annum was 28/21%.

Q20. Answer: (d) 53

Given:

The bar graph provides the number of students passing and failing in five classes (VI to X).

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Formula Used:

Total students in a class = Pass + Fail

Average number of students =

Calculation:

For Class VI:

=> Pass = 45, Fail = 6

=> Total students = 45 + 6 = 51

For Class VII:

=> Pass = 35, Fail = 7

=> Total students = 35 + 7 = 42

For Class VIII:

=> Pass = 40, Fail = 10

=> Total students = 40 + 10 = 50

For Class IX:

=> Pass = 50, Fail = 8

=> Total students = 50 + 8 = 58

For Class X:

=> Pass = 50, Fail = 14

=> Total students = 50 + 14 = 64

Total students in all classes:

=> 51 + 42 + 50 + 58 + 64 = 265

Average number of students:

=> 265 / 5 = 53

Therefore The average number of students in the given five classes is 53.

Q21. Answer: (c) Only conclusion (II) follows

The least possible Venn diagram for the given statements is as shown below :

Conclusions:

I. No vegetable is a rock → Does not follow (As some plants are rocks and no vegetable is a plant. As no direct relation is given between vegetable and rocks, therefore it is false)

II. Some rocks are plants → Follow (As some plants are rocks. As some part of plants is common with rocks, therefore it is true)

Therefore Here, Only conclusion (II) follows.

Hence, the correct answer is "Option 3".

Q22. Answer: (a) FP63

The logic followed here is:

JT79 is related to DN71

And,

KU22 is related to EO14

Similarly,

LV71 is related to

Hence, "Option 1" is the correct answer.

Q23. Answer: (b) [figure]

The correct mirror image of the given figure when the mirror is placed at MN is as shown below:

Here, option figure 2 shows the mirror image of the given figure.

Hence, the correct answer is "Option 2".

Q24. Answer: (d) S

Given: Seven people S, E, C, T, I, O and N are sitting around a circular table, facing the centre.

1) E is sitting second to the left of N, while N is sitting second to the left of S.

2) Only one person is sitting between S and O when counted from the right of S.

3) C is sitting to the immediate right of E, whereas T is sitting to the immediate left of O.

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After positioning C and T only one position is left which will be occupied by the only person left i.e. I.
Thus, according to the final arrangement, S is sitting to the immediate right of I.
Hence, "Option 4" is the correct answer.

Q25. Answer: (b) 138

The logic followed here is:
Hence, "Option 2" is the correct answer.

Q26. Answer: (a) 455

Given: 23 ÷ 18 + 150 × 50 - 44 = ?
According to the question, after '×' and '÷' are interchanged and '-' and '+' are interchanged:
23 ÷ 18 + 150 × 50 - 44 = ? => 23 × 18 - 150 ÷ 50 + 44 = ?
=> 23 × 18 - 150 ÷ 50 + 44 = ?
=> 23 × 18 - 3 + 44 = ?
=> 414 + 44 - 3 = ?
=> 458 - 4 = ?
=> 455 = ?
Hence, "Option 1" is the correct answer.

Q27. Answer: (b) 5

The logic followed here is:
'WORD' is coded as '7135'
'RISE' is coded as '4658'
Thus, code for 'R' is '5'.
Hence, "Option 2" is the correct answer.

Q28. Answer: (c) [figure]

The logic followed here is:
1) The whole element rotate 90º clockwise subsequently.
2) The 3/4th circle element is alternately shaded.
3) One square element is alternately eliminated.
4) Another square element is alternately shaded.
Thus, the final series is :
Hence, "Option 3" is the correct answer.

Q29. Answer: (d) 2 and 3

Given: (28×2)−16×6+8×3+5×7=39
According to the question, after interchanging the numbers :
Option 1) 5 and 3
(28 × 2) − 16 × 6 + 8 × 3 + 5 × 7 = 39 => (28 × 2) − 16 × 6 + 8 × 5 + 3 × 7 = 39
=> (28 × 2) − 16 × 6 + 8 × 5 + 3 × 7 = 39
=> 56 − 16 × 6 + 8 × 5 + 3 × 7 = 39
=> 56 + 40 + 21 − 96 = 39
=> 117 − 96 = 39
=> 21 ≠ 39 (LHS ≠ RHS)
Option 2) 8 and 7
(28 × 2) − 16 × 6 + 8 × 3 + 5 × 7 = 39 => (28 × 2) − 16 × 6 + 7 × 3 + 5 × 8 = 39
=> (28 × 2) − 16 × 6 + 7 × 3 + 5 × 8 = 39
=> 56 − 16 × 6 + 7 × 3 + 5 × 8 = 39
=> 56 + 21 + 40 − 96 = 39
=> 117 − 96 = 39
=> 21 ≠ 39 (LHS ≠ RHS)
Option 3) 6 and 7
(28 × 2) − 16 × 6 + 8 × 3 + 5 × 7 = 39 => (28 × 2) − 16 × 7 + 8 × 3 + 5 × 6 = 39

=> (28 × 2) − 16 × 7 + 8 × 3 + 5 × 6 = 39

=> 56 − 16 × 7 + 8 × 3 + 5 × 6 = 39

=> 56 + 24 + 30 − 91 = 39

=> 110 − 91 = 39

=> 19 ≠ 39 (LHS ≠ RHS)

Option 4) 2 and 3

(28 × 2) − 16 × 6 + 8 × 3 + 5 × 7 = 39 => (28 × 3) − 16 × 6 + 8 × 2 + 5 × 7 = 39

=> (28 × 3) − 16 × 6 + 8 × 2 + 5 × 7 = 39

=> 84 − 16 × 6 + 8 × 2 + 5 × 7 = 39

=> 84 + 16 + 35 − 96 = 39

=> 135 − 96 = 39

=> 39 = 39 (LHS = RHS)

Hence, "Option 4" is the correct answer.

Q30. Answer: (d) Both conclusions (I) and (II) follow.

The least possible Venn diagram for the given statements is as shown below :

Conclusions:

(I) Some fishes are mutton → Follow (As all pumpkin is mutton and all mutton are fishes. As whole mutton comes in fishes, therefore it is true)

(II) All pumpkins are fishes → Follow (As all pumpkin is mutton and all mutton are fishes. As whole pumpkin comes in mutton which whole comes in fishes, therefore it is true)

Therefore Here, Both conclusions (I) and (II) follow.

Hence, the correct answer is "Option 4".

Q31. Answer: (b) 4

The logic followed here is:

'BENT' is coded as '4628'

'EARS' is coded as '5471'

Thus, code for 'E' is '4'.

Hence, "Option 2" is the correct answer.

Q32. Answer: (d) 103

The logic followed here is:

14 is related to 68

14 × 5 - 2 = 68

70 - 2 = 68

68 = 68 (LHS = RHS)

And,

17 is related to 83

17 × 5 - 2 = 83

85 - 2 = 83

83 = 83 (LHS = RHS)

Similarly,

21 is related to

21 × 5 - 2 = ?

105 - 2 = ?

103 = ?

Hence, "Option 4" is the correct answer.

Q33. Answer: (a) 3^(rd)from the right

Given: A, B, C, D, E, F and G are sitting around a circular table facing the centre.

1) Only 3 people are sitting between E and A when counted from the right of E.

2) B is sitting 2nd to the left of A.

3) Only 2 people are sitting between B and G when counted from the right of B.
4) G is sitting to the immediate left of F.
5) C is the immediate neighbour of E.
After positioning C only one position is left which will be occupied by the only person left i.e. D.
Thus, according to the final arrangement, D is 3rd from the right of E.
Hence, "Option 1" is the correct answer.

Q34. Answer: (d) ta

According to the given information,
Thus, according to the given codes the code 'ta' is for the word 'play'.
Hence, the correct answer is "Option 4".

Q35. Answer: (c) HRR

The logic followed here is:
Hence, "Option 3" is the correct answer.

Q36. Answer: (c) 7

The logic followed here is:
'LIKE' is coded as '1576'
'LINK' is coded as '6581'
Thus, code for 'E' is '7'.
Hence, "Option 3" is the correct answer.

Q37. Answer: (d) [figure]

The image embedded in the given figure is as shown below :
Therefore Here, the given figure is embedded in option figure 4.
Hence, the correct answer is "Option 4".

Q38. Answer: (a) 25

The logic followed here is:
3 is related to 15
3 × 5 = 15
15 = 15 (LHS = RHS)
And,
12 is related to 60
12 × 5 = 60
12 = 60 (LHS = RHS)
Similarly,
5 is related to
5 × 5 = ?
25 = ?
Hence, "Option 1" is the correct answer.

Q39. Answer: (c) [figure]

The logic followed here is:
1) Element rotate in the 90º clockwise subsequently.
2) The lines elements are decreasing subsequently.
Thus, the final series is :
Hence, "Option 3" is the correct answer.

Q40. Answer: (a) OP35

The logic followed here is:
EF26 is related to JK33
And,

TU27 is related to YZ34

Similarly,

JK28 is related to

Hence, "Option 1" is the correct answer.

Q41. Answer: (a) Evaporation

The correct answer is Evaporation.

Key Points

• Evaporation is the process by which water changes from a liquid to a gas or vapor.
• In the water cycle, evaporation is driven by the heat energy from the sun.
• This process primarily occurs at the surface of bodies of water like oceans, lakes, and rivers.
• Evaporation is a crucial step in the water cycle, contributing to the formation of clouds and precipitation.
• It helps in regulating temperature and is essential for maintaining the earth's climate.

Additional Information

• Condensation
• Condensation is the process where water vapor becomes liquid.
• It occurs when the air is saturated with water vapor and cools down.
• This process is responsible for the formation of clouds and dew.
• Precipitation
• Precipitation includes various forms of water, such as rain, sleet, snow, and hail, that fall from the sky.
• It is a key component of the water cycle, returning water to the Earth's surface.
• Melting
• Melting is the process by which a solid turns into a liquid due to heat.
• In the context of the water cycle, it refers to the melting of ice and snow into liquid water.
• The Water Cycle
• The water cycle is a continuous process by which water circulates throughout the Earth and its atmosphere.
• It includes processes like evaporation, condensation, precipitation, infiltration, and runoff.
• This cycle is vital for sustaining life on Earth.

Q42. Answer: (d) Mahatma Gandhi

The correct answer is Mahatma Gandhi.

Key Points

• The Swachh Bharat Mission was launched by the Government of India on 2nd October 2014, the birth anniversary of Mahatma Gandhi.
• This mission aims to achieve the vision of a Clean India by 2nd October 2019.
• It seeks to eliminate open defecation and improve solid waste management across the country.
• The Swachh Bharat Mission is divided into two sub-missions: Swachh Bharat Mission (Gramin) and Swachh Bharat Mission (Urban).

Additional Information

• Swachh Bharat Mission (Gramin)
• Focuses on rural areas with the aim of eliminating open defecation by constructing toilets.
• Promotes hygiene and sanitation practices among rural communities.
• Encourages the use of proper waste disposal methods.
• Swachh Bharat Mission (Urban)
• Targets urban areas with a focus on solid waste management.
• Aims to create clean and sanitized public spaces and streets.
• Involves urban local bodies in the implementation of the mission.
• Key Achievements
• As of October 2019, India was declared open defecation free (ODF).
• Over 100 million household toilets have been constructed under the mission.
• Significant behavioral change towards sanitation and hygiene has been observed among citizens.
• Financial Allocation
• The Government of India allocated substantial funds for the implementation of the mission.

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• Public-private partnerships and community participation have been crucial for its success.

Q43. Answer: (c) Himachal Pradesh

The correct answer is Himachal Pradesh.

Key Points

• As per the Census of India 2011, Himachal Pradesh has the highest percentage of Hindu population among all Indian states.
• Approximately 95.17% of the state's population practices Hinduism.
• The state has a total population of about 6.8 million, with the majority being Hindus.
• Hinduism is deeply rooted in the culture and traditions of Himachal Pradesh, influencing the state's festivals, rituals, and daily life.

Additional Information

• Religious Demographics in India
• Hinduism is the largest religion in India, with about 79.8% of the population adhering to it.
• Other major religions include Islam (14.2%), Christianity (2.3%), and Sikhism (1.7%).
• Hinduism in Himachal Pradesh
• Hinduism in Himachal Pradesh is characterized by the worship of various deities, local gods, and goddesses.
• Important Hindu temples in the state include the Jakhoo Temple, Baijnath Temple, and the famous Hidimba Devi Temple.
• Cultural Influence
• Hindu festivals like Diwali, Holi, and Navratri are widely celebrated across Himachal Pradesh.
• The state's traditional dances, music, and folklore are often themed around Hindu mythology and legends.
• Census Data Collection
• The Census of India is conducted every 10 years by the Office of the Registrar General and Census Commissioner, India.
• The census collects comprehensive data on the population, including demographics, religion, and socio-economic status.

Q44. Answer: (d) Hema Rajagopalan

The correct answer is Hema Rajagopalan.

Key Points

• Hema Rajagopalan is a renowned Bharatanatyam dancer and choreographer.
• She received the Nrithya Seva Ratna award from the Indian Fine Arts Akademi, San Diego, in 2023.
• Hema Rajagopalan is the founder and artistic director of the Natya Dance Theatre in Chicago.
• She has been instrumental in promoting Bharatanatyam in the United States for several decades.
• Her contributions to Indian classical dance have been recognized both in India and abroad.

Additional Information

• Bharatanatyam
• Bharatanatyam is one of the oldest classical dance forms of India, originating from the state of Tamil Nadu.
• It is known for its fixed upper torso, bent legs, and intricate footwork combined with expressive hand gestures and facial expressions.
• The dance form is deeply rooted in Hindu religious themes and mythology.
• Bharatanatyam was traditionally performed by Devadasis in temples and courts of southern India.
• It has evolved into a widely performed dance form both in India and internationally.
• Indian Fine Arts Akademi, San Diego
• The Indian Fine Arts Akademi, San Diego, is an organization dedicated to promoting Indian classical arts in the United States.
• It organizes various cultural events, workshops, and performances to celebrate Indian classical music, dance, and other art forms.
• The Akademi aims to provide a platform for artists to showcase their talent and preserve the rich cultural heritage of India.
• Natya Dance Theatre
• Natya Dance Theatre is a premier Bharatanatyam dance company based in Chicago, founded by Hema Rajagopalan.
• The theatre is dedicated to promoting and preserving the classical dance form of Bharatanatyam.
• It offers classes, workshops, and performances to educate and engage audiences in Indian classical dance.
• Natya Dance Theatre has received numerous accolades for its artistic excellence and contributions to the cultural landscape.
• Nrithya Seva Ratna Award
• The Nrithya Seva Ratna award is a prestigious recognition given to individuals for their outstanding contributions to Indian classical dance.
• It is awarded by various cultural organizations to honor the dedication and achievements of dancers and choreographers.

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• Recipients of the award are celebrated for their efforts in preserving and promoting the art form.
• The award highlights the significance of dance as a cultural and artistic expression.

Q45. Answer: (d) Article 88

The correct answer is Article 88.

Key Points

• Article 88 of the Constitution of India provides that every Minister and the Attorney-General of India shall have the right to speak in and take part in the proceedings of either House of Parliament.
• However, they shall not be entitled to vote in the House.
• This right is provided irrespective of whether they are a member of either House of Parliament or not.
• Article 88 ensures that the executive branch of the government is accountable to the legislature.

Additional Information

• Attorney-General of India
• The Attorney-General is the chief legal advisor to the Government of India.
• They are appointed by the President of India under Article 76 of the Constitution.
• The Attorney-General has the right to audience in all courts in India, in the performance of their official duties.
• Role of Ministers in Parliament
• Ministers are responsible for the administration of their respective ministries and departments.
• They are accountable to the Parliament and must answer questions and provide information as required.
• Ministers play a crucial role in the legislative process, including the introduction and defense of bills.
• Parliament of India
• The Parliament of India is a bicameral legislature, consisting of the President of India and two Houses: the Rajya Sabha (Council of States) and the Lok Sabha (House of the People).
• The Rajya Sabha is a permanent body and is not subject to dissolution, while the Lok Sabha is elected every five years.
• Parliament is responsible for making laws, representing the electorate, and overseeing the executive.

Q46. Answer: (a) Sardar Vallabhbhai Patel

The correct answer is Sardar Vallabhbhai Patel.

Key Points

• The training academy for Indian Police Service (IPS) officers is named the Sardar Vallabhbhai Patel National Police Academy.
• It is located in Hyderabad, Telangana, India.
• The academy was named in honor of Sardar Vallabhbhai Patel, who is also known as the "Iron Man of India" for his role in the unification of India.
• The academy provides training to IPS officers before they are assigned to their respective cadres.
• It is an esteemed institution under the Ministry of Home Affairs, Government of India.

Additional Information

• Sardar Vallabhbhai Patel
• He played a key role in India's independence movement and served as the first Deputy Prime Minister and Home Minister of India.
• Sardar Patel is remembered for his leadership in integrating over 500 princely states into the Indian Union post-independence.
• He was posthumously awarded the Bharat Ratna, India's highest civilian award, in 1991.
• Indian Police Service (IPS)
• The IPS is one of the three All India Services of the Government of India.
• It was formed in 1948, replacing the Indian Imperial Police.
• IPS officers are responsible for the enforcement of law and order, crime prevention, and investigation across the country.
• Training at Sardar Vallabhbhai Patel National Police Academy
• The training program includes physical fitness, academic knowledge, law enforcement techniques, and leadership skills.
• The duration of the training program is around 46 weeks, which includes both indoor and outdoor training sessions.
• IPS probationers also undergo practical training in field conditions as part of their curriculum.
• Ministry of Home Affairs
• The Ministry of Home Affairs (MHA) is a ministry of the Government of India, responsible for internal security and domestic policy.
• It oversees the Indian Police Service (IPS) and the training academies for the police forces.

• The current Minister of Home Affairs is Amit Shah (as of 2023).

Q47. Answer: (b) Purandara Dasa

The correct answer is Purandara Dasa.

Key Points

• Purandara Dasa is known as the 'Karnataka Sangeeta Pitamaha' (Father of Karnataka Music).

• He was a prolific composer, with hundreds of compositions to his credit, primarily in Kannada and Sanskrit.

• Purandara Dasa is credited with structuring the teaching methodology for Carnatic music, including the basic lessons for beginners.

• He lived during the 15th century and is one of the most revered saints in the Bhakti movement.

Additional Information

• Carnatic Music

• Carnatic music is a system of music commonly associated with southern India, including the states of Karnataka, Tamil Nadu, Andhra Pradesh, and Kerala.

• It is one of the two main sub-genres of Indian classical music, the other being Hindustani music, which is prevalent in northern India.

• Carnatic music is known for its complex rhythmic and melodic structures, called 'Tala' and 'Raga' respectively.

• The compositions in Carnatic music are typically devotional in nature, often addressing Hindu deities.

• Bhakti Movement

• The Bhakti movement was a devotional trend that emerged in medieval India and focused on the worship of a personal god and the expression of love and devotion.

• This movement transcended the boundaries of caste and creed, promoting the idea of equality and the universal brotherhood of man.

• Prominent figures in the Bhakti movement include saints like Kabir, Mirabai, Tulsidas, and Purandara Dasa.

• The Bhakti saints composed numerous devotional songs and poems that are still popular today.

• Purandara Dasa's Contributions

• He introduced the 'Maya Malava Gaula' scale as the basic scale for teaching beginners in Carnatic music.

• Purandara Dasa's compositions, known as 'Padas', are sung in various Carnatic music concerts and are considered foundational to the genre.

• He composed in simple Kannada, making his works accessible to the common people.

• He is also credited with popularizing the practice of 'Haridasa' culture, which involves the singing of devotional songs and spreading the message of Bhakti.

Q48. Answer: (c) Only statements A and B

The correct answer is Only statements A and B.

Key Points

• Macro nutrients include elements such as Carbon (C), Hydrogen (H), Oxygen (O), Nitrogen (N), Phosphorus (P), and Potassium (K).

• Micro nutrients include elements like Iron (Fe), Manganese (Mn), Nickel (Ni), Cobalt (Co), and Molybdenum (Mo).

• Both macro and micronutrients are essential for plant growth and human health, though required in different quantities.

• Statement C is incorrect because micronutrients, despite being needed in smaller amounts, are essential for various bodily functions and overall health.

Additional Information

• Macronutrients: These are nutrients required in larger amounts and include carbohydrates, proteins, and fats, along with elements like C, H, O, N, P, and K.

• Micronutrients: These are nutrients required in smaller amounts but are crucial for various physiological functions. Examples include vitamins and minerals like Fe, Mn, Ni, Co, and Mo.

• Essential Nutrients: Both macro and micronutrients are categorized as essential because the body cannot synthesize them in sufficient amounts.

• Role of Micronutrients: Micronutrients play vital roles in enzyme function, hormone production, and maintaining the immune system.

• Deficiency Impacts: Deficiency of micronutrients can lead to various health issues, including anemia (iron deficiency), scurvy (vitamin C deficiency), and osteoporosis (calcium deficiency).

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Q49. Answer: (d) Gandhi Jayanti

The correct answer is Gandhi Jayanti.

Key Points

• The campaign "Ek Tareekh, Ek Ghanta, Ek Saath" is associated with Gandhi Jayanti, which is celebrated on October 2nd every year.

• This campaign emphasizes the importance of cleanliness and hygiene as part of the Swachh Bharat Abhiyan initiated by the Indian government.

• The initiative encourages citizens to dedicate one hour on the 1st of every month to clean their surroundings, promoting community participation in keeping public spaces clean.

• The campaign aligns with the broader goals of the Swachh Bharat Mission, aiming to create a cleaner and healthier India.

• Gandhi Jayanti marks the birth anniversary of Mahatma Gandhi, who was a strong advocate of cleanliness and sanitation.

Additional Information

• Swachh Bharat Abhiyan (Clean India Mission)

• Launched on October 2, 2014, by Prime Minister Narendra Modi.

• Aims to eliminate open defecation and improve solid waste management across India.

• It is India's largest cleanliness drive to date, involving millions of government employees and school students.

• The mission includes the construction of toilets, promoting sanitation practices, and ensuring the sustainability of sanitation infrastructure.

• Mahatma Gandhi

• Born on October 2, 1869, in Porbandar, Gujarat.

• Known as the 'Father of the Nation' in India for his role in the Indian independence movement.

• Advocated for non-violence (Ahimsa) and civil disobedience as methods for social and political change.

• His principles of cleanliness and sanitation were integral parts of his vision for a self-reliant India.

• Gandhi Jayanti

• Observed annually on October 2nd to commemorate the birth of Mahatma Gandhi.

• It is a national holiday in India, with various events organized to honor his legacy.

• The United Nations also celebrates this day as the International Day of Non-Violence.

• Community Participation in Cleanliness Drives

• Essential for the success of cleanliness campaigns like "Ek Tareekh, Ek Ghanta, Ek Saath".

• Fosters a sense of responsibility and ownership among citizens towards public spaces.

• Encourages collective action and promotes social cohesion.

Q50. Answer: (c) Zinc and Lead are more reactive than Copper.

The correct answer is Zinc and Lead are more reactive than Copper..

Key Points

• Zinc and Lead are higher in the reactivity series than Copper, making them more reactive elements.

• In a displacement reaction, a more reactive metal will displace a less reactive metal from its compound.

• When Zinc reacts with Copper sulfate (CuSO4), Zinc displaces Copper because Zinc is more reactive.

• Similarly, Lead displaces Copper from Copper chloride (CuCl2) due to its higher reactivity compared to Copper.

• This reactivity series is a fundamental concept in chemistry for predicting the outcomes of displacement reactions.

Additional Information

• Reactivity Series

• The reactivity series is a list of metals arranged in order of decreasing reactivity.

• It helps in predicting the products of displacement reactions and the reactivity of metals with acids and water.

• Displacement Reactions

• These are reactions where a more reactive element displaces a less reactive element from its compound.

• They are commonly observed in aqueous solutions of metal salts.

• Electrochemical Series

• It is a series of elements arranged by their standard electrode potentials.

• It is useful in predicting the direction of redox reactions.

• Uses of Zinc and Lead

• Zinc is used for galvanizing iron, making alloys, and in batteries.

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• Lead is used in batteries, radiation shielding, and in some types of glass.

Q51. Answer: (b) Chloroplast

The correct answer is Chloroplast.

Key Points

• Chloroplasts are organelles found in plant cells and eukaryotic algae that conduct photosynthesis.
• They have their own DNA and ribosomes, similar to mitochondria, which allows them to synthesize proteins independently.
• The DNA present in chloroplasts is circular and resembles the DNA of prokaryotes.
• Chloroplasts are known for containing the pigment chlorophyll, which is essential for capturing light energy.
• They play a crucial role in converting light energy into chemical energy through the process of photosynthesis.

Additional Information

• Endosymbiotic Theory
• This theory suggests that chloroplasts and mitochondria were once free-living prokaryotes.
• They were engulfed by a host cell and developed a symbiotic relationship.
• This theory is supported by the presence of their own DNA and double membranes.
• Photosynthesis Process
• Photosynthesis occurs in two stages: the light-dependent reactions and the Calvin cycle.
• In the light-dependent reactions, energy from light is used to produce ATP and NADPH.
• In the Calvin cycle, ATP and NADPH are used to convert carbon dioxide into glucose.
• Structure of Chloroplast
• Chloroplasts have an outer membrane, an inner membrane, and a thylakoid membrane system.
• The thylakoid membranes contain chlorophyll and are the site of the light-dependent reactions.
• The stroma is the fluid-filled space surrounding the thylakoids where the Calvin cycle takes place.
• Genetic Engineering
• Chloroplast DNA can be used in genetic engineering to introduce new traits in plants.
• Transgenic plants with modified chloroplast genomes can produce biofuels, pharmaceuticals, and other valuable products.
• Research in this area is ongoing to enhance the efficiency of photosynthesis and crop yields.

Q52. Answer: (b) Rukmini Devi Arundale

The correct answer is Rukmini Devi Arundale.

Key Points

• Rukmini Devi Arundale was a renowned Indian classical dancer and choreographer of the Bharatanatyam style of dance.
• She was instrumental in reviving and popularizing Bharatanatyam, which had fallen into disrepute before her efforts.
• In 1936, she founded the Kalakshetra Foundation in Chennai, an academy dedicated to the preservation and teaching of traditional Indian arts, particularly Bharatanatyam.
• Rukmini Devi was a strong advocate for Indian culture and was awarded the Padma Bhushan in 1956 and the Sangeet Natak Akademi Fellowship in 1967 for her contributions.

Additional Information

• Bharatanatyam
• Bharatanatyam is one of the oldest classical dance traditions in India, originating from Tamil Nadu.
• The dance form is known for its fixed upper torso, bent legs, intricate footwork, and expressive hand gestures (mudras).
• Bharatanatyam performances are usually accompanied by classical Carnatic music.
• It is often considered a form of 'nritta' (pure dance), 'nritya' (expressive dance), and 'natya' (dramatic dance).
• Kalakshetra Foundation
• The Kalakshetra Foundation is a cultural academy for the preservation of traditional values in Indian arts, particularly in Bharatanatyam and music.
• Founded in 1936 by Rukmini Devi Arundale, the institution is located in Chennai, Tamil Nadu.
• Kalakshetra has played a crucial role in the revival and popularization of Bharatanatyam as a respected art form.
• The institution offers a comprehensive education in the arts, including dance, music, visual arts, and traditional crafts.
• Padma Bhushan
• The Padma Bhushan is the third-highest civilian award in the Republic of India, instituted in 1954.
• It is awarded to individuals for distinguished service of a high order in any field, including the arts, education, industry, literature, science, sports, medicine, social service, and public affairs.

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• Rukmini Devi Arundale was awarded the Padma Bhushan in 1956 for her significant contributions to the arts.
• Sangeet Natak Akademi Fellowship
• The Sangeet Natak Akademi Fellowship, also known as Akademi Ratna, is the highest honor conferred by the Sangeet Natak Akademi, India's National Academy of Music, Dance & Drama.
• It is given to eminent personalities who have made outstanding contributions to the fields of performing arts.
• Rukmini Devi Arundale was honored with the Sangeet Natak Akademi Fellowship in 1967.

Q53. Answer: (a) 4

The correct answer is 4.

Key Points

• The Great Stupa at Sanchi is one of the oldest stone structures in India and an important Buddhist monument.
• It was originally commissioned by Emperor Ashoka in the 3rd century BCE.
• The stupa has four elaborately carved gateways known as 'Toranas' at the cardinal points of the compass.
• These gateways are intricately decorated with sculptures depicting various events of the Buddha's life and Jataka tales.
• The Toranas symbolize the entrance to a sacred space and are significant in Buddhist architecture.

Additional Information

• Emperor Ashoka:
• A major patron of Buddhism, Ashoka played a critical role in the spread of Buddhism across Asia.
• He erected numerous stupas and pillars inscribed with Buddhist teachings and edicts.
• Stupa:
• A stupa is a dome-shaped structure erected as a Buddhist shrine.
• It typically contains relics of the Buddha or other holy figures and serves as a place of meditation.
• Jataka Tales:
• These are a voluminous body of literature native to India concerning the previous births of Gautama Buddha in both human and animal form.
• The tales are used to convey moral lessons and are important in Buddhist teaching.
• Buddhist Architecture:
• Buddhist architecture includes various structures such as stupas, viharas (monasteries), chaityas (prayer halls), and temples.
• These structures are designed to support the practice and teachings of Buddhism.

Q54. Answer: (d) Article 46

The correct answer is Article 46.

Key Points

• Article 46 of the Indian Constitution mandates the promotion of the educational and economic interests of Scheduled Castes (SC), Scheduled Tribes (ST), and other weaker sections.
• This article is part of the Directive Principles of State Policy (DPSP), which are guidelines for the framing of laws by the government.
• Article 46 aims to protect these communities from social injustice and all forms of exploitation.
• The state is encouraged to take special care to promote their educational and economic development.
• It highlights the importance of equal opportunities and upliftment of marginalized communities in India.

Additional Information

• Directive Principles of State Policy (DPSP)
• These principles are enumerated in Part IV of the Indian Constitution, from Articles 36 to 51.
• DPSP aims to create social and economic conditions under which citizens can lead a good life.
• They act as guidelines for the central and state governments in India to frame laws and policies.
• Though non-justiciable, DPSPs are fundamental in the governance of the country and aim to establish a welfare state.
• Scheduled Castes (SC) and Scheduled Tribes (ST)
• These are officially designated groups of historically disadvantaged people in India.
• SCs and STs have been provided with certain privileges and reservations in educational institutions and government jobs to promote their development.
• The Constitution of India recognizes the need for affirmative action to uplift these communities.
• Social Justice
• Social justice refers to the fair and just relation between the individual and society.

• It includes the distribution of wealth, opportunities, and privileges within a society.

• The aim is to create a society based on equality and solidarity, where human rights are recognized and protected.

• Educational and Economic Development

• Educational development involves providing access to quality education for all, especially marginalized groups.

• Economic development includes measures to improve the economic conditions of weaker sections through employment, entrepreneurship, and financial inclusion.

• Both aspects are crucial for the holistic development of individuals and communities.

Q55. Answer: (d) Jayadeva

The correct answer is Jayadeva.

Key Points

• Gita Govinda is a renowned 12th-century Sanskrit epic written by the poet Jayadeva.

• Jayadeva was a celebrated poet during the reign of King Lakshmanasena in Bengal.

• The epic primarily revolves around the divine love of Krishna and the gopis (milkmaids) of Vrindavan, particularly focusing on Krishna's relationship with Radha.

• Gita Govinda has been highly influential in the Bhakti movement and has inspired numerous literary and artistic works in Indian culture.

• It is composed of twelve chapters, further divided into twenty-four divisions called prabandhas, which contain the songs and hymns.

Additional Information

• Jayadeva

• Jayadeva was not only a poet but also a devotee of Krishna and his works reflect his deep spiritual connection and devotion.

• He is credited with the development of the Ashtapadi form, a lyrical poetry format used in the Gita Govinda.

• Bhakti Movement

• The Bhakti movement was a spiritual resurgence in India that emphasized personal devotion to deities like Krishna and Rama.

• It spanned from the 7th century to the 17th century and had a profound impact on the religious and social fabric of India.

• Radha-Krishna

• Radha and Krishna are central figures in Hinduism and symbolize the epitome of divine love and devotion.

• Their story has been a subject of numerous literary, artistic, and devotional works over the centuries.

• Prabandhas

• In the context of Gita Govinda, prabandhas refer to the sections that contain the lyrical compositions and are a significant literary form in Sanskrit literature.

• Each prabandha in Gita Govinda is composed of a couple of verses that set the scene followed by a song or hymn.

Q56. Answer: (c) Bactrian Greek

The correct answer is Bactrian Greek.

Key Points

• The Bactrian Greeks were the first foreign rulers to establish control over northwest India following the decline of the Mauryan Empire.

• They were part of the Indo-Greek Kingdom, which was formed around 180 BCE after the Greco-Bactrian King Demetrius invaded India.

• The Indo-Greek Kingdom extended its influence over parts of modern-day Afghanistan, Pakistan, and northwestern India.

• The period of Indo-Greek rule is noted for the introduction of Hellenistic culture, art, and coinage in the region.

• The most renowned Indo-Greek ruler was Menander I (Milinda), who is celebrated for his dialogues with the Buddhist sage Nagasena, recorded in the Milinda Panha.

Additional Information

• Indo-Greek Kingdom

• The Indo-Greek Kingdom was established following the fragmentation of the Greco-Bactrian Kingdom, located in present-day Afghanistan and Central Asia.

• It is known for its fusion of Greek and Indian cultures, particularly in art and architecture.

• The kingdom played a significant role in the spread of Buddhism in Central Asia and India.

• Indo-Greek coinage is renowned for its artistic quality and bilingual inscriptions in Greek and Prakrit.

• Menander I (Milinda)

• Menander I was one of the most prominent Indo-Greek kings, who ruled from approximately 165 to 130 BCE.

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• He is best known for his discussions on Buddhism with the sage Nagasena, which are recorded in the text "Milinda Panha" (The Questions of King Milinda).
• Menander's reign marked the zenith of the Indo-Greek influence in the Indian subcontinent.
• Greco-Bactrian Kingdom
• The Greco-Bactrian Kingdom was established around 256 BCE, following the fragmentation of Alexander the Great's empire.
• It was located in Bactria, present-day Afghanistan and parts of Central Asia.
• The kingdom is known for its rich cultural heritage and contributions to the spread of Hellenistic culture in Asia.
• Decline of the Mauryan Empire
• The Mauryan Empire began to decline after the death of Emperor Ashoka around 232 BCE.
• Internal conflicts and succession disputes weakened the central authority, leading to the fragmentation of the empire.
• The decline of the Mauryan Empire created a power vacuum that facilitated the emergence of foreign rulers like the Indo-Greeks in northwest India.

Q57. Answer: (a) 12

The correct answer is 12.

Key Points

• India has a total of 12 major public seaports as of 2023.
• These major ports are governed by the central government and fall under the jurisdiction of the Ministry of Ports, Shipping and Waterways.
• The major ports facilitate a significant portion of India's trade and are critical to the country's economy.
• Examples of major ports include Mumbai Port, Chennai Port, and Kolkata Port.

Additional Information

• Port Infrastructure
• Ports are essential for the maritime trade and logistics sector, supporting the import and export of goods.
• Major ports are equipped with advanced cargo handling facilities, warehouses, and connectivity to rail and road networks.
• Port Trusts
• Each major port in India is managed by a Port Trust, which is a statutory body under the Major Port Trusts Act of 1963.
• The Port Trusts ensure the efficient operation and development of the ports.
• Economic Importance
• Major ports handle approximately 60% of India's total cargo traffic.
• They play a crucial role in the economic growth by facilitating international trade and commerce.
• Recent Developments
• The Indian government has been focusing on modernizing port infrastructure through the Sagarmala project.
• This project aims to enhance port connectivity and promote port-led development in coastal regions.

Q58. Answer: (c) A group of riders in a tight pack during a race

The correct answer is A group of riders in a tight pack during a race.

Key Points

• The term "peloton" is derived from French, meaning "platoon" or "group." It refers to a large group of cyclists riding closely together during a race.
• The main advantage of riding in a peloton is to reduce air resistance, allowing riders to conserve energy by drafting off one another.
• Riders in the peloton take turns at the front to distribute the workload evenly among them.
• The peloton can significantly influence the dynamics and strategies of a race, including the pace and formation of breakaways.
• It is a common sight in road racing events like the Tour de France, where teamwork and strategy play crucial roles.

Additional Information

• Drafting
• Drafting is a technique where cyclists ride closely behind one another to benefit from reduced wind resistance.
• This technique is crucial in a peloton as it helps riders conserve energy and maintain higher speeds.
• Breakaway
• A breakaway occurs when one or more riders accelerate ahead of the peloton, attempting to gain a significant lead.
• Breakaways require strategic timing and immense effort to succeed, often involving cooperation among the escaping riders.
• Domestique

• A domestique is a rider who works for the benefit of their team leader, often sacrificing their own chances of winning.
• Domestiques play crucial roles in protecting the leader from wind, fetching supplies, and controlling the pace of the peloton.
• Team Strategy
• Teams in cycling races employ various strategies such as controlling the peloton, forming breakaways, and setting up lead-outs for sprint finishes.
• Effective team strategy can be the deciding factor in the success of individual riders and the team as a whole.
• Tour de France
• The Tour de France is one of the most prestigious and challenging cycling races in the world.
• It consists of multiple stages over a span of three weeks, covering various terrains including mountains and flat roads.
• Riding in the peloton is a common sight during the Tour, where teamwork and endurance are paramount.

Q59. Answer: (b) Bhisham Sahani

The correct answer is Bhisham Sahani.

Key Points

• Bhisham Sahani is the author of the renowned Hindi novel 'Tamas'.
• 'Tamas' is a significant work in Hindi literature that deals with the horrors of the Partition of India in 1947.
• The novel was first published in 1974 and received critical acclaim for its realistic portrayal of communal violence.
• Bhisham Sahani was awarded the prestigious Sahitya Akademi Award in 1975 for 'Tamas'.

Additional Information

• Bhisham Sahani
• Born on 8 August 1915 in Rawalpindi, Bhisham Sahani was a notable writer, playwright, and actor.
• He was a recipient of the Padma Bhushan in 1998 for his contributions to Indian literature and arts.
• Other notable works by Bhisham Sahani include 'Madhavi', 'Basanti', and 'Kaddi Aur Mitti'.
• He was actively involved in the Indian People’s Theatre Association (IPTA) and contributed significantly to theatre and cinema.
• 'Tamas' Adaptations
• 'Tamas' was adapted into a critically acclaimed television series in 1987, directed by Govind Nihalani.
• The TV series featured prominent actors like Om Puri, Deepa Sahi, and Amrish Puri, and won several awards for its impactful storytelling.
• The adaptation helped bring the novel's themes and historical context to a wider audience.
• Partition of India
• The Partition of India in 1947 led to the creation of two independent dominions, India and Pakistan.
• This event resulted in one of the largest mass migrations in human history, with an estimated 10-15 million people displaced.
• The partition was marked by large-scale communal violence, with significant loss of life and property.

Q60. Answer: (a) 713

The correct answer is 713.

Key Points

• As of July 2023, the 'One District, One Product' (ODOP) scheme has notified 137 unique products from 713 districts in India.
• The ODOP scheme aims to promote local products and crafts specific to each district to boost economic growth and employment.
• ODOP products range from agricultural produce, handicrafts, handlooms, and processed food items, representing the unique strengths of each district.
• The initiative is part of the broader vision of Atmanirbhar Bharat (Self-reliant India) to make Indian products globally competitive.
• ODOP also focuses on building robust supply chains, better packaging, marketing, and branding of these district-specific products.

Additional Information

• Atmanirbhar Bharat Abhiyan
• Launched by PM Narendra Modi in May 2020 to make India self-reliant.
• Aims to support local manufacturing, improve the supply chain, and reduce dependency on imports.
• Focuses on five pillars: economy, infrastructure, system, demography, and demand.
• Districts as Export Hubs
• In line with ODOP, the Indian government has identified districts with export potential to boost local economies.
• Efforts are made to provide necessary infrastructure, logistics, and market access to these districts.

• The initiative aims to create a district-wise export strategy to promote local products globally.
• Geographical Indications (GI)
• A GI tag is used on products that have a specific geographical origin and possess qualities or reputation inherent to that location.
• Many ODOP products are also GI-tagged, enhancing their marketability and authenticity.
• Examples include Darjeeling Tea, Madhubani Paintings, and Kanchipuram Silk.
• Cluster-Based Development
• ODOP focuses on cluster-based development to enhance the production capacity and competitiveness of local industries.
• Clusters help in achieving economies of scale, better resource management, and collective marketing efforts.

Q61. Answer: (b) 8598 metres

The correct answer is 8598 metres.

Key Points

• Kanchenjunga is the third highest mountain in the world, located in the Himalayas.
• The height of Kanchenjunga is 8598 metres (28,169 feet).
• Kanchenjunga is situated on the border between Nepal and the Indian state of Sikkim.
• Kanchenjunga has five main peaks, and its name translates to "The Five Treasures of Snows."

Additional Information

• Himalayas:
• The Himalayas are a mountain range in Asia, separating the plains of the Indian subcontinent from the Tibetan Plateau.
• They include over fifty mountains exceeding 7,200 metres (23,600 feet) in elevation, including the world's highest peak, Mount Everest.
• The range has a profound effect on the climate of the region, influencing the monsoon and acting as a barrier to cold winds from the north.
• Mount Everest:
• Mount Everest is the highest mountain in the world, standing at 8,848 metres (29,029 feet).
• It is located in the Mahalangur Himal sub-range of the Himalayas and lies on the border between Nepal and the Tibet Autonomous Region of China.
• Geography of Nepal:
• Nepal is a landlocked country in South Asia, sharing borders with China and India.
• The country is known for its diverse geography, including fertile plains, subalpine forests, and eight of the world's ten tallest mountains.
• Sikkim:
• Sikkim is a state in northeastern India, bordered by Bhutan, Tibet, and Nepal.
• It is known for its mountainous terrain and is home to Kanchenjunga, the highest peak in India.

Q62. Answer: (b) 1948

The correct answer is 1948.

Key Points

• The Census Act of India was enacted in the year 1948.
• The Act provides the legal framework for conducting the decennial census in India.
• It was extended to the whole of India and applies to every state and union territory.
• The Act empowers the government to collect demographic data about the population.
• The first census after the enactment of the Act was conducted in 1951.

Additional Information

• Census Definition
• A census is a systematic enumeration of the population, typically recording various details of individuals.
• It is conducted at regular intervals, usually every ten years.
• Importance of Census
• Provides essential data for policymaking and planning.
• Helps in the allocation of government resources and services.
• Assists in electoral boundary delimitation and representation.
• History of Census in India
• The first synchronous census in India was conducted in 1881.

• Since then, censuses have been conducted every ten years without interruption.
• Modern Census Techniques
• Use of technology such as mobile apps and digital data collection.
• Incorporation of geographic information systems (GIS) for accurate mapping.

Q63. Answer: (c) Increased

The correct answer is Increased.

Key Points

• In a hawkish monetary policy stance, the Reserve Bank of India (RBI) aims to control inflation by increasing the repo rate.
• Increasing the repo rate makes borrowing more expensive for commercial banks, which in turn reduces the money supply in the economy.
• This action helps to curb inflationary pressures by discouraging excessive spending and investment.
• The RBI's decision to increase the repo rate is a signal to the market about its intent to tighten monetary conditions.

Additional Information

• Repo Rate:
• It is the rate at which the central bank of a country (RBI in India) lends money to commercial banks in case of any shortfall of funds.
• It is used by monetary authorities to control inflation.
• Hawkish Monetary Policy:
• It refers to the approach taken by a central bank to increase interest rates to keep inflation in check.
• This stance is typically adopted when the economy is growing quickly and inflation is rising.
• Inflation:
• It is the rate at which the general level of prices for goods and services is rising, and subsequently, the purchasing power is falling.
• Central banks attempt to limit inflation, and avoid deflation, to keep the economy running smoothly.
• Monetary Policy:
• It is the process by which the monetary authority of a country controls the supply of money, often targeting an inflation rate or interest rate to ensure price stability and general trust in the currency.
• In India, it is managed by the Reserve Bank of India.

Q64. Answer: (b) CK Nayudu

The correct answer is CK Nayudu.

Key Points

• CK Nayudu was the first captain of the Indian cricket team in Test matches.
• He led the Indian team in their debut Test match against England at Lord's in 1932.
• Nayudu was known for his aggressive batting and his ability to hit long sixes, earning him a reputation as a powerful batsman.
• He was awarded the Padma Bhushan, India's third-highest civilian award, in 1956 for his contributions to cricket.

Additional Information

• Early Life and Career
• CK Nayudu was born on October 31, 1895, in Nagpur, Maharashtra.
• He made his first-class debut in 1916 for the Hindus in the Bombay Quadrangular tournament.
• Domestic Cricket
• He played for several domestic teams, including the Holkar team in the Ranji Trophy.
• Nayudu captained Holkar to several Ranji Trophy titles, establishing himself as a dominant force in Indian domestic cricket.
• Legacy
• CK Nayudu's leadership and prowess on the field laid the foundation for future generations of Indian cricketers.
• The Board of Control for Cricket in India (BCCI) instituted the CK Nayudu Lifetime Achievement Award in his honor, recognizing outstanding contributions to Indian cricket.
• Post-Retirement
• After retiring from cricket, Nayudu continued to be involved in the sport as a selector and mentor for younger players.
• His contributions to cricket were celebrated throughout his life, and he remains a respected figure in Indian cricket history.

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Q65. Answer: (d) EV Ramaswamy Naicker

The correct answer is EV Ramaswamy Naicker.

Key Points

• EV Ramaswamy Naicker, also known as Periyar, was a prominent social reformer from South India.

• He founded the Self Respect Movement in 1925 to promote social equality and fight against caste discrimination.

• The movement aimed to instill a sense of pride and dignity among the oppressed classes, challenging the existing social norms and practices.

• Periyar was a staunch advocate for women's rights and worked tirelessly for the eradication of untouchability.

Additional Information

• Self Respect Movement

• Launched in Tamil Nadu, this movement sought to achieve a society where backward castes have equal human rights, and encouraging them to have self-respect.

• It played a crucial role in promoting rationalism and anti-Brahminism.

• The movement opposed the concept of the superiority of Brahmins and other upper castes.

• It also worked towards the upliftment of women and advocated for their education and equal rights.

• Periyar's Legacy

• Periyar's ideas and principles continue to influence many social and political movements in Tamil Nadu and other parts of India.

• He is regarded as the father of the Dravidian movement.

• His works have been translated into several languages and continue to inspire activists fighting for social justice.

• Rationalism

• Rationalism is the practice or principle of basing opinions and actions on reason and knowledge rather than on religious belief or emotional response.

• Periyar advocated for rationalism, rejecting religious dogmas and superstitions.

• He believed that rational thinking was essential for social progress and equality.

• Anti-Caste Movements in India

• Anti-caste movements have a long history in India, aimed at eradicating the caste system and promoting social equality.

• Other notable leaders of anti-caste movements include Dr. B.R. Ambedkar and Jyotirao Phule.

• These movements have significantly contributed to the socio-political fabric of India, advocating for the rights of the oppressed and marginalized communities.

Q66. Answer: (b) Circumfarence

The solution is in Hindi. Read it online.

Q67. Answer: (c) Contracting

The solution is in Hindi. Read it online.

Q68. Answer: (d) heavy

The correct option to substitute the underlined word is '4' i.e. heavy.

Key Points

• "Heavier" is a comparative adjective and is used to compare two items.

• Since the sentence does not compare the almirah to another object, the base form "heavy" is appropriate.

The other options contain the following errors:

• Option 1: "Heaviest" is a superlative adjective and is used to compare more than two items.

• Option 2: "Most heavier" is grammatically incorrect as "heavier" is already a comparative form and does not need "most."

• Option 3: "Most heaviest" is grammatically incorrect as "heaviest" is already a superlative form and does not need "most."

Correct sentence: This almirah is made up of heavy metal.

Q69. Answer: (a) principles

The correct answer is Option 1.

Key Points

• "Principles" refer to fundamental truths or propositions that serve as the foundation for a system of belief, behavior, or reasoning.

• In the context of sustainable development, principles are the core ideas or guidelines that drive and shape the concept.

• The other options (agencies, demonstrates, illuminates) do not fit the context of what central aspects of sustainable development would be called.

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Therefore, the correct answer is Option 1.

Additional Information

• Agencies: Refers to organizations or entities that take actions, which is not suitable in this context.

• Demonstrates: Is a verb meaning to show or explain, which does not fit the noun required in this sentence.

• Illuminates: Is a verb meaning to light up or clarify, which also does not fit the noun required in this sentence.

Q70. Answer: (b) Monika said to her mother, "I have passed the examination"

The correct answer is: Option (2).

Key Points

• The sentence is in direct speech, so it should follow the correct punctuation rules.

• When reporting exact spoken words, we do not use 'that' before the quotation. (as given in the original question)

• Correct structure: Monika said to her mother, "I have passed the examination."

Hence, the correct answer is: Monika said to her mother, "I have passed the examination"

Additional Information

Why other options are incorrect:

• "I am passed" – Incorrect tense and unnatural usage.

• No improvement required – Incorrect, because the original has wrong punctuation and use of 'that'.

• "she has passed" – Changes direct speech into indirect speech incorrectly and retains quotes, which is wrong.

Q71. Answer: (c) to catch out with

The correct answer is '3' i.e. to catch out with.

Key Points

• The correct phrasal verb in this context should be “catch up with” rather than “catch out with.”

• “Catch up with” means to reach someone or something by moving faster, or to reach the same level or standard as someone or something else.

• The sentence should be corrected to maintain proper usage of the phrasal verb and convey the intended meaning clearly.

Correct sentence: Tara was late for the meeting but somehow managed to catch up with everything she had missed.

Additional Information

• Commonly Confused Phrasal Verbs:

• Catch on: To understand or realize something. It took him a while to catch on to the joke.

• Catch out: To unexpectedly find out something, often a mistake. The teacher caught the student out in a lie.

• Catch up: To reach the same level or position as others. She had to stay late to catch up on her work.

Q72. Answer: (d) Cheerfulness

The solution is in Hindi. Read it online.

Q73. Answer: (c) broke down

The solution is in Hindi. Read it online.

Q74. Answer: (c) have I

The correct answer is Option 3.

Key Points

• "Have I" is the correct phrase to use in inverted word order for emphasis, which is common in English.

• Inversion is used here for dramatic effect, placing the auxiliary verb "have" before the subject "I".

• The correct grammatical structure is "Never have I ever...".

Therefore, the correct answer is Option 3.

Additional Information

• Did I: Is incorrect as it does not match the present perfect tense required in this context.

• Has I: Is grammatically incorrect as "has" should not be used with the subject "I".

• I have: Is incorrect because it does not follow the inversion structure used for emphasis.

Q75. Answer: (a) bedrock of child survival

The correct answer is '1' i.e. bedrock of child survival.

Key Points

• The phrase "bedrock of" is correctly used to indicate that good nutrition is the foundation or basis for child survival, health, and development.

• Using the correct preposition “of” is crucial to convey the intended meaning accurately.

• The other options (from, through, off) do not fit the context and would make the sentence grammatically incorrect and unclear.

Correct sentence: Good nutrition is the bedrock of child survival, health and development.

Additional Information

• Common Usage of "Bedrock":

• Bedrock of: Used to indicate the fundamental principle or foundation of something. Example: Trust is the bedrock of any strong relationship.

• Incorrect Phrasal Use:

• Bedrock from: This implies a source, which is incorrect in the given context.

• Bedrock through: This implies a means or method, which does not fit here.

• Bedrock off: This is not a common or correct usage.

Q76. Answer: (a) brake

The correct answer is Option 1.

Key Points

• "Brake" refers to a device for slowing or stopping a vehicle, which fits the context of anticipating an accident.

• The other options (broke, break, brig) do not fit the context of the sentence.

Therefore, the correct answer is Option 1.

Additional Information

• Broke: Is the past tense of "break" and is not relevant in this context about vehicle braking.

• Break: Refers to causing something to separate into pieces or creating a pause, which is not suitable here.

• Brig: Refers to a prison on a ship, which is completely unrelated to the context.

Q77. Answer: (a) courageous

The correct answer is '1' i.e. courageous.

Key Points

• The sentence needs an adjective to describe the subject's quality of having courage. The correct adjective form of "courage" is "courageous."

• Using "courageous" makes the sentence grammatically correct and meaningful.

• The other options (encourage, discouraging, discourage) are either verbs or adverbs and do not fit the context of needing an adjective.

Correct sentence: I am not courageous enough to take this risk.

Additional Information

• Word Forms and Usage:

• Courage: Noun - the ability to do something that frightens one.

• Courageous: Adjective - possessing or displaying courage.

• Encourage: Verb - give support, confidence, or hope to (someone).

• Discouraging: Adjective - causing someone to lose confidence or enthusiasm.

• Discourage: Verb - cause (someone) to lose confidence or enthusiasm.

Q78. Answer: (d) tree

The correct answer is Option 4.

Key Points

• "Barking up the wrong tree" is an idiomatic expression meaning to pursue a mistaken or misguided course of action.

• In this context, filing a complaint with the students' union instead of the university administration fits the expression.

Therefore, the correct answer is Option 4.

Additional Information

• Disc: Refers to a flat, thin circular object, which is not relevant in this context.

• Dog: Does not fit as part of the idiomatic expression.

• Pillar: Refers to a tall vertical structure, which is not part of the idiom.

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Q79. Answer: (b) Spectecular

The solution is in Hindi. Read it online.

Q80. Answer: (b) gay

The correct answer is '2' i.e. gay.

Key Points

• The word "gayer" is not appropriately used in the given context. Instead, we need an adjective that appropriately describes the students' state of being happy and cheerful.

• The correct adjective in the sentence should be "gay," which means happy and cheerful.

• The alternative options (most gay, gayest, more gay) do not fit the context or appropriately modify the noun (students) in a grammatical sense.

Correct sentence: Playing in the field, the young gay students were laughing and giggling.

Additional Information

• Forms and Usage of "Gay":

• Gay: Adjective - lighthearted and carefree.

• Form Comparisons:

• Gay: Positive form - used to describe someone who is happy.

• Gayer: Comparative form (less commonly used) - used to compare two things.

• Gayest: Superlative form (less commonly used) - used to compare more than two things.

Q81. Answer: (d) grey

The correct answer is '4' i.e. grey.

Key Points

• The word "greyest" is incorrectly used in the sentence. Since we are describing the appearance of the sky at a specific moment after the storm, the simple adjective "grey" should be used.

• Using "grey" makes the sentence grammatically correct and meaningful.

• The other options (more grey, greyer, most grey) do not fit the context of the sentence as effectively.

Correct sentence: The sky appeared to be grey after the storm.

Additional Information

• Forms and Usage of "Grey":

• Grey: Adjective - having a color intermediate between black and white.

• Comparative and Superlative Forms:

• Greyer: Comparative form - used to compare two things (The sky is greyer today compared to yesterday).

• Greyest: Superlative form - used to compare more than two things (This is the greyest day of the year).

Q82. Answer: (b) Your father will be waiting for you when you reach home.

The correct answer is '2' i.e. Your father will be waiting for you when you reach home.

Key Points

• The original sentence uses an incorrect form of the future progressive tense ("will waiting").

• The correct form of the future progressive tense is "will be waiting."

• The other options (should waiting, would waiting, waiting) are not grammatically correct and do not fit the context of the sentence.

Correct sentence: Your father will be waiting for you when you reach home.

Additional Information

• Future Progressive Tense:

• Usage: The future progressive tense is used to describe an action that will be ongoing at a specific point in the future.

• Form: Subject + will be + present participle (verb + -ing).

• Example: She will be studying when you arrive.

Q83. Answer: (d) Depressing

The solution is in Hindi. Read it online.

Q84. Answer: (c) Mix

The solution is in Hindi. Read it online.

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Q85. Answer: (c) Gourrmet

The solution is in Hindi. Read it online.

Q86. Answer: (b) use of

The correct answer is 'use of'.

Key Points

• The passage discusses traditional medicines and their natural products.

• The appropriate phrase should indicate how these medicines are made from natural products.

• "Use of" fits well as it accurately describes the utilization of natural products in traditional medicines.

• Other options ("used off", "uses of", "used of") do not fit correctly in the context of the sentence.

Therefore, the correct answer is 'Option 2'.

Complete Passage: Traditional medicines (TMs) make (1) _____ natural products and are of great importance. Such forms of medicine as traditional Chinese medicine (TCM), Ayurveda, Kampo, traditional Korean medicine (TKM), and Unani (2) ___ natural products and have been (3) ___ all over the world for hundreds or even thousands of years, and they (4) ___ blossomed into orderly-regulated systems of medicine. In their various forms, they may have certain defects, but they (5) _____ still a valuable repository of human knowledge.

Additional Information

• Used off: "Used off" is not a grammatically correct phrase in this context.

• Uses of: "Uses of" does not fit properly into the structure of the sentence.

• Used of: "Used of" is not a grammatically correct phrase.

Q87. Answer: (a) employ

The correct answer is 'employ'.

Key Points

• The passage discusses various systems of traditional medicine and their use of natural products.

• The appropriate verb should be in a form that correctly describes the action of these systems of medicine using natural products.

• "Employ" fits well as it accurately describes the use of natural products by these traditional medicines.

• Other options ("employing", "employs", "employed") do not fit correctly in the context of the sentence.

Therefore, the correct answer is 'Option 1'.

Complete Passage: Traditional medicines (TMs) make (1) use of natural products and are of great importance. Such forms of medicine as traditional Chinese medicine (TCM), Ayurveda, Kampo, traditional Korean medicine (TKM), and Unani (2) employ natural products and have been (3) _____ all over the world for hundreds or even thousands of years, and they (4) ___ blossomed into orderly-regulated systems of medicine. In their various forms, they may have certain defects, but they (5) _____ still a valuable repository of human knowledge.

Additional Information

• Employing: "Employing" is a present participle, which does not fit the structure of the sentence.

• Employs: "Employs" is in singular form, whereas the subject is plural (traditional medicines).

• Employed: "Employed" is a past participle, which does not fit the context of the sentence.

Q88. Answer: (b) practised

The correct answer is 'practised'.

Key Points

• The passage discusses traditional medicines that have been used for a long time and are still being used.

• The appropriate word should be in the past participle form to indicate the continuous usage over a long period.

• "Practised" fits well as it correctly describes how the traditional medicines have been used all over the world for centuries.

• Other options ("practice", "practises", "practices") do not fit correctly in the context of the sentence.

Therefore, the correct answer is 'Option 2'.

Complete Passage: Traditional medicines (TMs) make (1) use of natural products and are of great importance. Such forms of medicine as traditional Chinese medicine (TCM), Ayurveda, Kampo, traditional Korean medicine (TKM), and Unani (2) employ natural products and have been (3) practiced all over the world for hundreds or even thousands of years, and they (4) _____ blossomed into orderly-regulated systems of medicine. In their various forms, they may have certain defects, but they (5) _____ still a valuable repository of human knowledge.

Additional Information

• Practice: "Practice" is a noun and does not fit the verb requirement in this context.

• Practises(British English): "Practises" is in the present tense and does not indicate the historical continuity of usage.

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• Practices (American English): "Practices" is in the present tense and does not convey the extended duration of usage.

Q89. Answer: (b) have

The correct answer is 'have' (option 2).

Key Points

• The passage discusses the historical development and the current state of traditional medicines.

• The appropriate verb form should indicate an ongoing state or result of past actions.

• "Have" fits well as it describes the present perfect tense, indicating the action began in the past and continues to have relevance in the present.

• Other options ("have being," "had," and "has") do not fit correctly in the context of the sentence.

Therefore, the correct answer is 'Option 2'.

Complete Passage: Traditional medicines (TMs) make (1) use of natural products and are of great importance. Such forms of medicine as traditional Chinese medicine (TCM), Ayurveda, Kampo, traditional Korean medicine (TKM), and Unani (2) employ natural products and have been (3) practiced all over the world for hundreds or even thousands of years, and they (4) have blossomed into orderly-regulated systems of medicine. In their various forms, they may have certain defects, but they (5) are still a valuable repository of human knowledge.

Additional Information

• Have being: "Have being" is not grammatically correct in this context.

• Had: "Had" is in the past perfect tense and does not fit the present relevance required here.

• Has: "Has" is singular and does not agree with the plural "they" in the sentence.

Q90. Answer: (b) are

The correct answer is 'are'.

Key Points

• The passage discusses traditional medicines in the present time.

• The appropriate verb form should agree with the plural subject "they."

• "Are" fits correctly as it agrees with the subject and indicates present relevance.

• Other options ("was," "am," and "is") do not fit correctly in the context of the sentence.

Therefore, the correct answer is 'Option 2'.

Complete Passage: Traditional medicines (TMs) make (1) use of natural products and are of great importance. Such forms of medicine as traditional Chinese medicine (TCM), Ayurveda, Kampo, traditional Korean medicine (TKM), and Unani (2) employ natural products and have been (3) practiced all over the world for hundreds or even thousands of years, and they (4) have blossomed into orderly-regulated systems of medicine. In their various forms, they may have certain defects, but they (5) are still a valuable repository of human knowledge.

Additional Information

• Was: "Was" is past tense and does not fit the present context.

• Am: "Am" is first person singular and does not agree with the plural subject "they."

• Is: "Is" is singular and does not agree with the plural subject "they."

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