

STAFF SELECTION COMMISSION
COMBINED GRADUATE LEVEL (TIER-I)

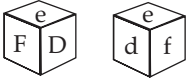
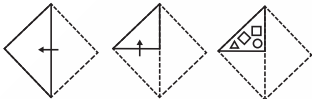
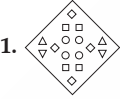

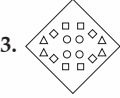

SOLVED PAPER

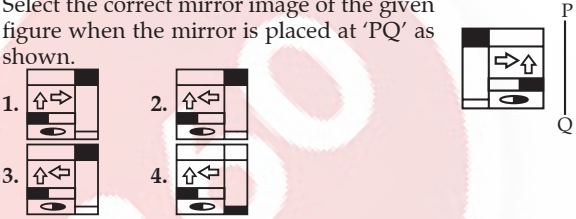
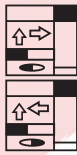



(18th April 2022: Shift-1)

Time Allotted: 1 hour

Max marks: 200

General Intelligence and Reasoning

- In a certain code, 6,218 means 'Laptop is a computer' and 8217 means 'Computer is a machine'. Which of the following is the code for 'Machine makes our life easy'?
1. 75,344 2. 75,894 3. 58,795 4. 76,834
- Six letters D, d, E, e, F and f, are written on the different faces of a dice. Two positions of this dice are shown. Select the letter that will be on the face opposite to the face having the letter 'D'.

 1. E 2. f 3. e 4. d
- Nine employees, K, L, M, N, O, P, Q, R and S are sitting in the office in a straight line, all facing the east. O is third to the right of M. K is third to the left of P. Q is between P and S. N is fourth to the right of M. P is to the immediate right of N. R is fourth to the left of O. Which of the following statements is NOT correct?
 1. R and S are sitting at the corners.
 2. L is sitting third to the left of O.
 3. Q is sitting fourth to the right of K.
 4. O is sitting between K and N.
- The sequence of folding a piece of paper and the manner in which the folded paper has been cut is shown in the following figures. How would this paper look when unfolded?

 1.  2. 
 3.  4. 
- Four letter-clusters have been given, out of which three are alike in some manner and one is different. Select the one that is different.
1. TWY 2. GJM 3. LOQ 4. BEG
- Select the option that is related to the third term in the same way as the second term is related to the first term.
HARMONY : BMLGUDK :: RESOLVE : ?
1. VEOIVHU 2. OVEJUVH 3. EVOJHVU 4. VOEIUVH
- In a certain code language, if ESTEEM is written as HVWHHP, then how will DOCTOR be written in the same code language?
1. GRFWRU 2. GRGVST 3. FQEVQT 4. HSGXSV
- If A denotes 'addition', B denotes 'multiplication', C denotes 'subtraction', and D denotes 'division', then what will be the value of the following expression?
66 A (132 D 12) C (4 A 3) B (15 D 5) A 16 B (-3)
1. 8 2. 10 3. 6 4. 56

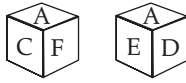
- If '@' means 'addition', '%' means 'multiplication', '\$' means 'division', and '#' means 'subtraction', then find the value of the following expression.
23 @ 105 \$ 15 % 6 # 29
1. 23 2. 28 3. 36 4. 40
- Select the combination of letters that when sequentially placed in the blanks of the given series will complete the series.
g _ o _ d k _ m _ f _ o _ k k _ g f o _ d _ k m
1. f o k d o d m o k 2. f o k g o d m o k
3. f o k g o d f o k 4. f o k g o d m o m
- Select the correct mirror image of the given figure when the mirror is placed at 'PQ' as shown.

 1.  2. 
 3.  4. 
- Select the letter-cluster from among the given options that can replace the question mark (?) in the following series.
RSX, NQW, JOV, FMU, ?
1. BLT 2. DKS 3. CJS 4. BKT
- Select the correct option that indicates the arrangement of the given words in a logical and meaningful order.
1. Core 2. Atmosphere
3. Universe 4. Surface 5. Galaxy
1. 1, 4, 2, 5, 3 2. 4, 3, 5, 2, 1 3. 1, 4, 2, 3, 5 4. 1, 3, 4, 5, 2
- Select the option that is related to the third number in the same way as the second number is related to the first number and the sixth number is related to the fifth number.
21 : 112 :: 36 : ? :: 51 : 272
1. 192 2. 252 3. 72 4. 198
- The average salary of the entire teaching staff in a college is ₹2,000 per day. The average salary of the male teachers is ₹2,500 and that of the female teachers is ₹1,200. If the number of male teachers is 16, then find the number of female teachers in the college.
1. 12 2. 10 3. 18 4. 14
- Study the given matrix carefully and select the number from among the given options that can replace the question mark (?) in it.

12	8	100
18	6	111
15	4	?

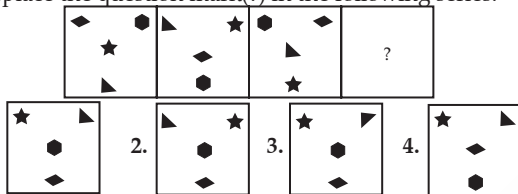
 1. 102 2. 108 3. 62 4. 78
- Read the given statements and conclusions carefully. Assuming that the information given in the statements is true, even if it appears to be at variance with commonly known facts, decide which of the given conclusions logically follow(s) from the statements.
Statements:
All bats are birds.
Some rats are bats.

Conclusions:

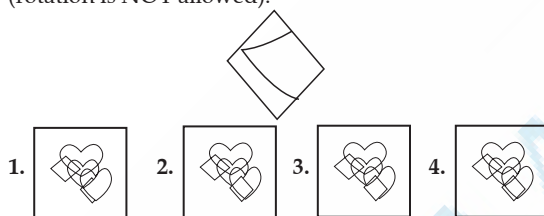
- I. Some rats are birds. II. Some birds are bats.
 III. All rats are bats.
 1. Only conclusion II follows.
 2. Only conclusions I and II follow.
 3. Only conclusions I and III follow.
 4. Only conclusion I follows.
18. Six letters A, B, C, D, E and F are written on different faces of a dice. Two positions of the same dice are shown. Select the letter that will be on the face opposite to the face having the letter 'C'.



1. F 2. D 3. B 4. E
19. Select the number from the given options that can replace the question mark (?) in the following series.
 3, 11, 31, 69, 131, ?
 1. 152 2. 163 3. 198 4. 223
20. Select the figure from among the given options that can replace the question mark (?) in the following series.



1. 2. 3. 4.
21. In a certain code language 'ROUBST' is coded as 61. How will 'FORTUNATE' be coded in that language?
 1. 124 2. 114 3. 141 4. 142
22. Select the number from the given options that can replace the question mark (?) in the following series.
 58, 67, 83, 108, ?
 1. 178 2. 157 3. 139 4. 144
23. Select the option in which the given figure is embedded (rotation is NOT allowed).



1. 2. 3. 4.
24. Select the set of classes among which the relationship is best illustrated by the given Venn diagram.
1. Women, Gynaecologists, Doctors
 2. Males, Females, Daughters
 3. Entrepreneurs, Women Philanthropists
 4. Eatables, Plums, Fruits
25. 'A + B' means 'A is the daughter of B'.
 'A \$ B' means 'A is the husband of B'.
 'A @ B' means 'A is the brother of B'.
 'A & B' means 'A is the mother of B'.
 'A % B' means 'A is the son of B'.
 If 'W @ S % K \$ G & U & T @ R + C', then which of the following statements is correct?
 1. G is the maternal grandmother of R.
 2. G is the father of W.
 3. C is the father-in-law of K.
 4. C is the wife of U.

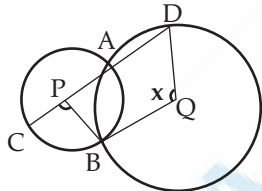
General Awareness

26. The _____ festival of Sikkim is also known as Bhoomi Puja or Chandi Puja.
 1. Barahimizong 2. Losar
 3. Indra Jatra 4. Sakewa
27. Which of the following is India's first Paperless Budget?
 1. Union Budget 2018-19 2. Union Budget 2020-21

3. Union Budget 2019-20 4. Union Budget 2021-22
28. Which of the following is a peninsular river?
 1. Brahmaputra 2. Narmada
 3. Ganga 4. Indus
29. The Poona Pact of 1932 was an agreement between Mahatma Gandhi and _____.
 1. B.R. Ambedkar 2. Lord Irwin
 3. Aurobindo Ghose 4. Bal Gangadhar Tilak
30. Karishma Yadav was awarded by Vikram Award 2019 for _____ by the Government of Madhya Pradesh.
 1. archery 2. hockey 3. shooting 4. swimming
31. Who among the following is the author of the book 'Two Lives'?
 1. Sudha Murty 2. Arundhati Roy
 3. Chetan Bhagat 4. Vikram Seth
32. A bill becomes an Act of the Parliament after being passed by both the houses of Parliament and assented to by the _____.
 1. Prime Minister 2. Vice President
 3. President 4. Speaker of the Lok Sabha
33. Which of the following is the physical quantity for the expression arc/radius?
 1. Surface tension 2. Velocity
 3. Linear momentum 4. Plane angle
34. Which of the following statements about the 'Gotra' practice in ancient India is true?
 1. Men and women were expected to marry within the same gotra.
 2. People belonging to the same gotra were regarded as descendants of the person after whom the gotra was named.
 3. Women retained their father's gotra after marriage.
 4. Each gotra was named after a famous king.
35. _____ is the measure of relative clarity of a liquid.
 1. Turbidity 2. Conductivity
 3. Composting 4. Reduction
36. At a Regional Rural Bank, the share of the Government of India is _____.
 1. 40% 2. 60% 3. 50% 4. 20%
37. The Swachh Bharat Mission (SBM) was launched in the year _____ to fulfil the vision of cleaner India as a tribute to Mahatma Gandhi.
 1. 2014 2. 2015 3. 2017 4. 2016
38. Article _____ of the Constitution of India lays down the process for introducing changes in the Constitution.
 1. 342 2. 351 3. 374 4. 368
39. Which of the following is NOT a water pollutant?
 1. Silt 2. Glacier 3. Arsenic 4. Chromium
40. As per a list compiled by the United Nations Population Division, _____ is the world's fastest-growing city with a 44% increase in population between 2015 and 2020.
 1. Malappuram 2. Surat 3. Kozhikode 4. Jaipur
41. What is the power of 'second' in the SI unit of acceleration?
 1. +1 2. -1 3. -2 4. 0
42. 'Ponung' and 'Tapu' are popular dance forms from the state of _____.
 1. Chhattisgarh 2. Arunachal Pradesh
 3. Goa 4. Bihar
43. Before being renamed, Mount everest was simply known as _____.
 1. Peak IX 2. Peak XV 3. Peak XII 4. Peak VI
44. Ferrum is the Latin name for _____.
 1. nickel 2. copper 3. iron 4. zinc
45. According to the Economic Survey 2020-21, imports are expected to decline by _____ in the second half of FY21.
 1. 8.2% 2. 11.3% 3. 6.3% 4. 5.4%
46. With reference to the Money bills in the Parliament, which of the following statements is INCORRECT?

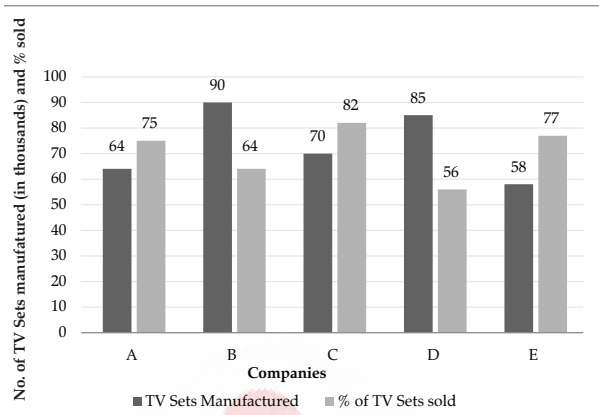
- The Lok Sabha can either accept or reject all or any of the recommendations of the Rajya Sabha.
 - It can be introduced only in the Lok Sabha.
 - It can be rejected or amended by the Rajya Sabha.
 - It can only be introduced by a minister and not by a private member.
- Who among the following is the author of the epic poem 'Kamayani'?
 - Jaishankar Prasad
 - Gopala Sarana Sinha
 - Mahadevi Varma
 - Mahavir Prasad Dwivedi
- Who among the following wrote the novel 'The Great Gatsby'?
 - Chinua Achebe
 - Harper Lee
 - F Scott Fitzgerald
 - Alice Walker
- King Ajatashatru was a ruler of the _____ dynasty.
 - Haryana
 - Mauryan
 - Shishunaga
 - Nanda
- Los Angeles Clippers and Portland Trail Blazers are _____ teams.
 - Women's Tennis
 - Men's Basketball
 - Women's Hockey
 - Men's Volleyball

Quantitative Aptitude

- The value of $\frac{46 + \frac{3}{4} \text{ of } 32 - 6}{37 - \frac{3}{4} \text{ of } (34 + 6)}$ is:
 - $\frac{64}{7}$
 - $\frac{54}{7}$
 - $\frac{44}{7}$
 - $\frac{34}{7}$
- The greatest number that divides 126, 124 and 608 leaving remainders 2, 7 and 19, respectively, is:
 - 27
 - 31
 - 21
 - 37
- In the following figure, P and Q are centres of two circles. The circles are intersecting at points A and B. PA produced on both the sides meets the circles at C and D. If $\angle CPB = 100^\circ$, then find the value of x.
 
 - 115
 - 120
 - 110
 - 100
- A shopkeeper allows a 28% discount on the marked price of an article and still makes a profit of 30%. If he gains ₹39.90 on the sale of one article, then what is the marked price (to the nearest ₹) of the article?
 - 200
 - 240
 - 173
 - 133
- If $\left(x^2 + \frac{1}{x^2}\right) = 23$, $x > 0$, then what is the value of $\left(x^3 + \frac{1}{x^3}\right) = ?$
 - 140
 - 110
 - 110
 - 140
- If $A = 60^\circ$, what is the value of:

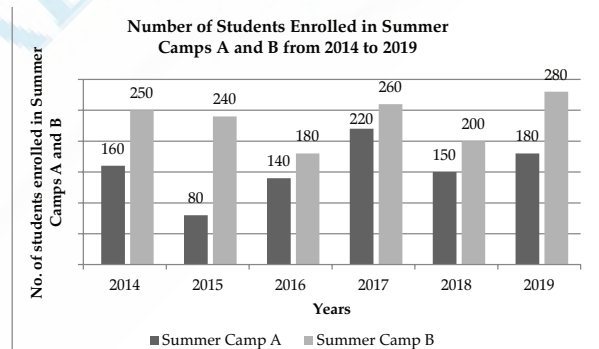
$$\frac{8 \cos A + 7 \sec A - \tan^2 A}{10 \sin \frac{A}{2}} ?$$
 - 5
 - 3
 - 15
 - 10
- Two poles of heights 10 m and 17 m are fixed to a level ground. The distance between the bottom of the poles is 24 m. What is the distance (in m) between their tops?
 - 25
 - 24
 - 30
 - 27
- The given bar chart represents the Televisions Sets (TV) manufactured (in thousands) and the respective

percentage of those TV Sets sold by five different companies A, B, C, D and E in 2015. Study the chart carefully and answer the question that follows.



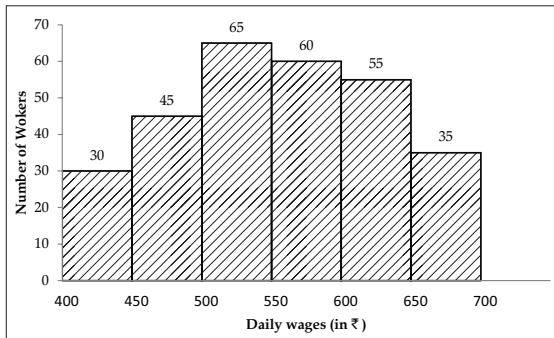
What is the ratio of the number of TV sets sold by company A to that of company B in 2015?

- 6 : 5
 - 4 : 5
 - 5 : 4
 - 5 : 6
- A circle is inscribed in ΔABC , touching AB, BC and AC at the points P, Q and R, respectively. If $AB - BC = 4$ cm, $AB - AC = 2$ cm, and the perimeter of $\Delta ABC = 32$ cm, then AC (in cm) = ?
 - $\frac{35}{3}$
 - $\frac{38}{3}$
 - $\frac{32}{3}$
 - $\frac{26}{3}$
 - If $a + b - c = 5$ and $ab - bc - ac = 10$, then find the value of $a^2 + b^2 + c^2$.
 - 40
 - 5
 - 45
 - 15
 - The sum of three numbers is 98. If the ratio of the first to the second is 2 : 3 and that of the second to the third is 5 : 8, then the third number is:
 - 30
 - 20
 - 49
 - 48
 - The following bar chart shows the number of students enrolled in two Summer Camps A and B from 2014 to 2019. Study the chart carefully and answer the question that follows.



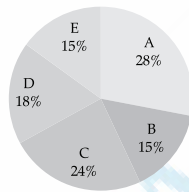
What is the ratio of the students enrolled in Camp A in 2014, 2016 and 2017 to the students enrolled in Camp B in 2015, 2018 and 2019?

- 18 : 13
 - 22 : 15
 - 13 : 18
 - 15 : 22
- What is the amount (in ₹) of a sum of ₹32,000 at 20% per annum for 9 months, compounded quarterly?
 - 37,044
 - 35,087
 - 32,000
 - 30,876
 - Exactly midway between the foot of two towers P and Q, the angles of elevation of their tops are 45° and 60° , respectively. The ratio of the heights of P and Q is:
 - 1 : $\sqrt{3}$
 - 3 : 1
 - 1 : 3
 - $\sqrt{3}$: 1
 - Study the given histogram and answer the following questions:



What is the difference between the total number of workers whose daily wages are less than ₹450 and the total number of workers whose daily wages are ₹650 and above?

1. 4 2. 8 3. 10 4. 5
66. A shopkeeper bought a table for ₹4,600 and a chair for ₹1,800. He sells the table with 10% gain and the chair with 6% gain. Find the overall gain percentage.
1. $7\frac{3}{4}$ 2. $8\frac{7}{8}$ 3. 8 4. 16
67. Find the greatest number $234a5b$, which is divisible by 22, but NOT divisible by 5.
1. 234058 2. 234850 3. 234652 4. 234751
68. The price of an item is reduced by 20%. As a result, customers can get 2 kg more of it for ₹360. Find the original price (in ₹) per kg of the item.
1. 40 2. 45 3. 48 4. 36
69. The given pie chart shows the percentage of students in five schools and the table shows the ratio of boys and girls in each school. Study the pie chart and table and answer the question that follows. The given table shows the ratio of girls and boys in the given five schools.



School	Girls : Boys
A	3 : 4
B	2 : 3
C	5 : 3
D	1 : 2
E	4 : 1

- What is the ratio of the number of boys in school C to the number of girls in school E?
1. 4 : 3 2. 1 : 2 3. 3 : 4 4. 2 : 1
70. If $\sec^2 \theta + \tan^2 \theta = 3\frac{1}{2}$, $0^\circ < \theta < 90^\circ$, then $(\cos \theta + \sin \theta)$ is equal to
1. $\frac{1+\sqrt{5}}{3}$ 2. $\frac{2+\sqrt{5}}{3}$ 3. $\frac{1+\sqrt{5}}{6}$ 4. $\frac{9+2\sqrt{5}}{6}$
71. Shyam drives his car 30 km at a speed of 45 km/h and for the next 1 h 20 min, he drives it at a speed of 51 km/h. Find his average speed (in km/h) for the entire journey.
1. 49 2. 48 3. 48.5 4. 47
72. In ΔABC , the bisector of $\angle A$ meets BC at D. If $AB = 9.6$ cm, $AC = 11.2$ cm and $BD = 4.8$ cm, the perimeter (in cm) of ΔABC is:
1. 30.4 2. 28.6 3. 31.2 4. 32.8

73. A hemispherical depression of diameter 4 cm is cut out from each face of a cubical block of sides 10 cm. Find the surface area of the remaining solid (in cm^2).

$$\left(\text{Use } \pi = \frac{22}{7} \right)$$

1. $900\frac{4}{7}$ 2. $112\frac{4}{7}$ 3. $675\frac{3}{7}$ 4. $713\frac{1}{7}$
74. A man, a woman and a boy can complete a work in 3, 12 and 12 days, respectively. How many boys must assist one man and one woman to complete the same work in one day?
1. 5 2. 7 3. 4 4. 9
75. A boat can cover a distance of 56 km downstream in 3.5 hours. The ratio of the boat in still water and the speed of stream is 3 : 1. How much time (in hours) will the boat take to cover a distance of 41.6 km downstream?
1. 2.1 2. 1.5 3. 2.6 4. 1.8

English Comprehension

76. Select the most appropriate option that can substitute the underlined segment in the given sentence. If there is no need to substitute it, select 'No substitution required'.
This TV channel has a larger viewership from another channel.
1. from the other channel 2. than any other channel
3. No substitution required 4. from any other channel
77. Select the option that can be used as a one-word substitute for the given group of words.
One who can read and write.
1. Illiterate 2. Literate 3. Eligible 4. Illegible
78. Select the most appropriate synonym of the given word.
Final
1. Former 2. Allowed 3. Forbidden 4. Concluding
79. Select the option that expresses the given sentence in passive voice.
Who is creating this mess?
1. By whom is this mess being created?
2. Who has created this mess?
3. By whom has this mess been created?
4. By whom this mess being created?
80. Select the option that expresses the given sentence in indirect speech.
Ajay says, "There is going to be a snowfall."
1. Ajay says that there was going to be a snowfall.
2. Ajay says that there is going to be a snowfall.
3. Ajay said that there will to be a snowfall.
4. Ajay said that there was going to be a snowfall.
81. Select the most appropriate antonym of the given word.
Exonerate
1. Exempt 2. Absolve 3. Engage 4. Acquit
82. Select the most appropriate option to fill in the blank.
You will find it difficult _____ but later you will get used to wearing a mask.
1. on first 2. at first 3. firstly 4. at the first
83. Select the most appropriate antonym of the given word.
Obscure
1. Blurred 2. Apparent 3. Cloudy 4. Veiled
84. The following sentence has been divided into parts. One of them contains an error.
Select the part that contains the error from the given options.
It has / been raining / since / two hours.
1. since 2. been raining
3. It has 4. two hours
85. Select the most appropriate synonym of the given word.
Squawk
1. Suggest 2. Explore 3. Scream 4. Connote

86. Select the most appropriate option that can substitute the underlined segment in the given sentence. If there is no need to substitute it, select 'No substitution required'.
In spite of my niece's dog Casper is very mischievous, he is lovable.
 1. Nevertheless my niece 2. No substitution required
 3. Although my niece's 4. However my nieces
87. Sentences of a paragraph are given below in jumbled order. Arrange the sentences in the correct order to form a meaningful and coherent paragraph.
 A. Firstly, it provides air for respiration, serves the sense of smell and conditions the air by filtering, warming and moistening it.
 B. The nose is the prominent structure between the eyes that serves as the entrance to the respiratory tract.
 C. For inhalation it has two cavities, separated from one another by a wall of cartilage called the septum.
 D. Apart from filtering the air, it also cleans itself of foreign debris extracted from inhalations.
 1. BACD 2. ACDB 3. BADC 4. DBCA
88. The following sentence has been divided into parts. One of them may contain an error.
 Select the part that contains the error from the given options. If you don't find any error, mark 'No error' as your answer.
 Every Saturday, / the workers gets / their weekly wages.
 1. their weekly wages 2. the workers gets
 3. Every Saturday 4. No error
89. Select the correctly spelt word.
 1. Convert 2. Conect 3. Concent 4. Convect
90. Select the most appropriate meaning of the given idiom.
 Cool as a cucumber.
 1. Nervous and fidgety 2. Irritated and annoyed
 3. Calm and composed 4. Happy and excited
91. Select the option that expresses the given sentence in passive voice.
 The judge found the prisoner guilty.
 1. The prisoner had been found guilty by the judge.
 2. The prisoner was found guilty by the judge.
 3. The judge was found guilty by the prisoner.
 4. The prisoner has been found guilty by the judge
92. Select the most appropriate meaning of the given idiom.
 A hair in the butter.
 1. Easy to handle 2. A slippery road
 3. Sinking in debt 4. A challenging situation
93. Select the option that can be used as a one-word substitute for the given group of words.
 Drawings or writing on a wall in a public place.
 1. Portrait 2. Caricature 3. Graffiti 4. Collage
94. The following sentence has been split into four segments. Identify the segment that contains a grammatical error.
 The contrast between / Britain and other countries / of Europe / are striking.
 1. The contrast between 2. are striking
 3. Britain and other countries
 4. of Europe
95. Select the most appropriate option that can substitute the underlined segment in the given sentence. If there is no need to substitute it, select 'No substitution required'.
 Which movie have you watched on television when I called you?
 1. No substitution required 2. were you watching
 3. did you watched 4. are you watching
- In the following passage, some words have been deleted. Read the passage carefully and select the most appropriate option to fill in each blank.
 The camel and the fox were very good friends and very good thieves. One day, the two friends (1) _____ to cross the river so that they could travel to a (2) _____ farm to steal food. The small fox (3) _____ swim, so the camel said to his friend, 'Climb (4) _____ onto my back and I will swim across the (5) _____.'
96. Select the most appropriate option to fill in blank number 1.
 1. deciding 2. will decide 3. decided 4. are decide
97. Select the most appropriate option to fill in blank number 2.
 1. nearby 2. near 3. nearest 4. nearly
98. Select the most appropriate option to fill in blank number 3.
 1. ought to 2. may not 3. might 4. could not
99. Select the most appropriate option to fill in blank number 4.
 1. over 2. across 3. up 4. above
100. Select the most appropriate option to fill in blank number 5.
 1. sea 2. ocean 3. lake 4. river

Answer Key

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

Answers with Explanations

General Intelligence and Reasoning

1. **Option (1) is the correct.**
Explanation:
 6,218 = Laptop is a computer
 8,217 = Computer is a machine

Logic: - The number corresponds to the number of letters in the given word.

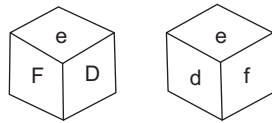
For example: Laptop = 6 (letters)

Hence, the code for "machine makes our life easy" is 75,344.

2. **Option (2) is the correct.**

Explanation:

Find the common face on both dice and move either in a clockwise or anticlockwise direction. From that face



Dice 1 -----e-----

D----F----- (opposite faces)

-clockwise movement

Dice 2 -----e----f----d -----(opposite faces)

clockwise movement

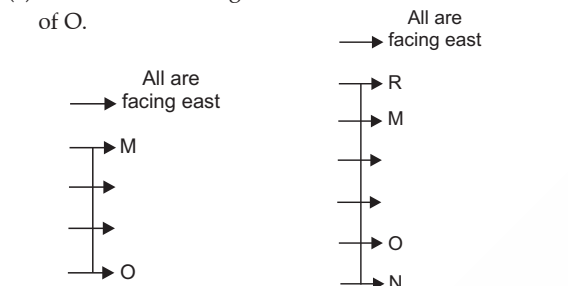
Hence, it is opposite to D.

3. **Option (2) is the correct.**

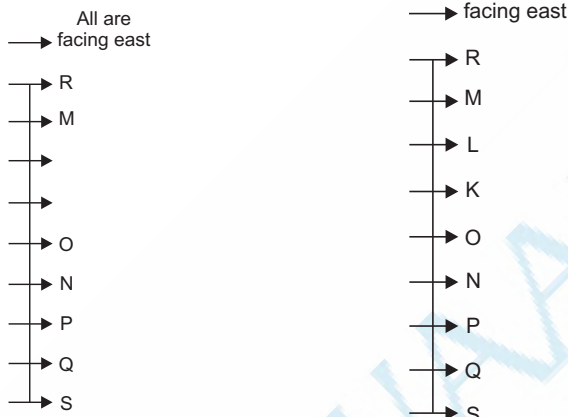
Explanation:

(1) O is third to the right of M

(2) N is fourth to the right of M and R is fourth to the left of O.



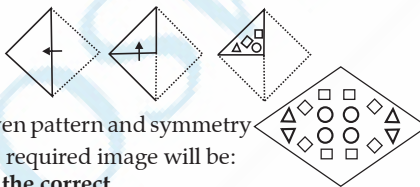
(3) P is to the immediate right of N and Q is immediate between P and S. All are facing east



Hence, option (2) is the wrong statement as per the above arrangement.

4. **Option (4) is the correct.**

Explanation:



As per the given pattern and symmetry followed, the required image will be:

5. **Option (2) is the correct.**

Explanation:

Table of Alphabetical series (point to remember)

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

T +3	W +2	Y
2	21	13
G +3	J +3	M
7	10	13
L +3	O +2	Q
12	15	17
B +3	E +2	G
2	5	7

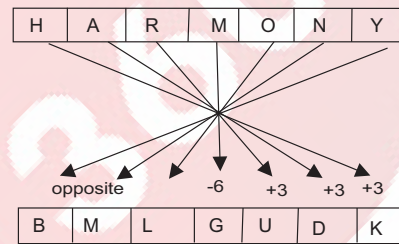
6. **Option (1) is the correct.**

Explanation:

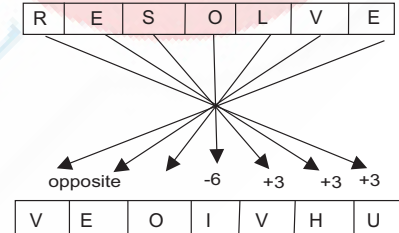
Table of Alphabetical series (point to remember)

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

HARMONY: BMLGUDK



Similarly,



7. **Option (1) is the correct.**

Explanation:

Table of Alphabetical series (point to remember)

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

Now,

5	19	20	5	5	13
E	S	T	E	E	M
↓	↓	↓	↓	↓	↓
+3	+3	+3	+3	+3	+3
H	V	W	H	H	P
8	22	23	8	8	16

Similarly,

4	15	3	20	15	18
D	O	C	T	O	R
↓	↓	↓	↓	↓	↓
+3	+3	+3	+3	+3	+3
G	R	F	W	R	U
7	18	6	23	18	21

8. Option (1) is the correct.

Explanation: According to the BODMAS rule,

B	Bracket in order (), [], {}
O	Of
D	Division (÷)
M	Multiplication (×)
A	Addition (+)
S	Subtraction (-)

Now,

A = +

B = ×

C = -

D = ÷

66 A (132 D 12) C (4 A 3) B (15 D 5) A 16 B (-3)

$66 + (132 \div 12) - (4 + 3) \times (15 \div 5) + 16 \times (-3)$

$66 + 11 - 7 \times 3 - 48$

$66 + 11 - 21 - 48$

$77 - 69 = 8$

9. Option (3) is the correct.

Explanation:

@ = +

% = ×

= -

\$ = ÷

Given series: 23 @ 105 \$ 15 % 6 # 29

After putting the signs, we get

$23 + 105 \div 15 \times 6 - 29$

$\Rightarrow 23 + 7 \times 6 - 29$

$\Rightarrow 23 + 42 - 29 = 8$

$\Rightarrow 65 - 29 = 36$

10. Option (2) is the correct.

Explanation: Given series: g _ o _ d k _ m _ f _ o _ k k _ g

f o _ d _ k m

After inserting alphabets from option no.(2), we get

g f o / d k k m / g f o / d k k m / g f o / d k k m

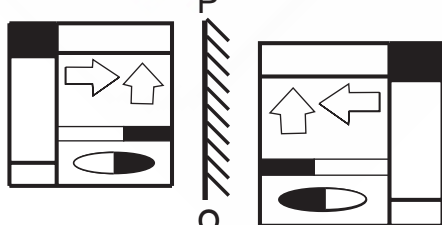
Hence, it forms a logical series.

11. Option (2) is the correct.

Explanation:

Logic: In mirror image, left becomes right and right becomes left.

Now, the mirror image is



12. Option (4) is the correct.

Explanation:

Table of Alphabetical series (point to remember)

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

18	19	24
R	S	X

↓ -4 ↓ -2 ↓ -1

N	Q	W
14	17	23

↓ -4 ↓ -2 ↓ -1

J	O	V
10	15	22

↓ -4 ↓ -2 ↓ -1

F	M	U
6	13	21

↓ -4 ↓ -2 ↓ -1

B	K	T
2	11	20

13. Option (1) is the correct.

Explanation:

Core	Surface	Atmosphere	Galaxy	Universe
------	---------	------------	--------	----------

14. Option (1) is the correct.

Explanation: Given that:

21:112 :: 36 : ? :: 51 : 272

$7 \times 3 = 21$ $: 7 \times 16 = 112$

$12 \times 3 = 36$ $: 12 \times 16 = 192$

$17 \times 3 = 51$ $: 17 \times 16 = 272$

15. Option (2) is the correct.

Explanation:

Average salary of all teachers = ₹ 2,000

Average salary of male teachers = ₹ 2,500

Average salary of female teachers = ₹ 1,200

Number of male teachers = 16

Let the number of female teachers be 'x'

Hence, the average salary

$$= \frac{(2,500 \times 16 + 12 \times x)}{(16 + x)}$$

$$\Rightarrow 2,000 \times (16 + x) = 40,000 + 1,200x$$

$$\Rightarrow 32,000 + 2,000x = 40,000 + 1,200x$$

$$\Rightarrow 2,000x - 1,200x = 40,000 - 32,000$$

$$\Rightarrow 800x = 8,000$$

$$\Rightarrow x = \frac{8,000}{800}$$

$$\Rightarrow x = 10$$

16. Option (3) is the correct.

Explanation: Given that:

$$12 \ 8 \ 100$$

$$18 \ 6 \ 111$$

$$15 \ 4 \ ?$$

The pattern followed here is: $(1^{st} \text{ term} \times 2^{nd} \text{ term}) + (2^{nd} \text{ term} \div 2) = 3^{rd} \text{ term}$.

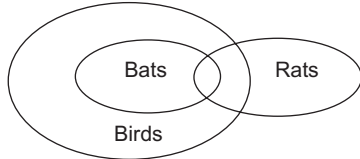
$$12 \ 8 \ 100 = (12 \times 80) + (8 \div 2) = 100$$

$$18 \ 6 \ 111 = (18 \times 6) + (6 \div 2) = 111$$

$$15 \ 4 \ ? = (15 \times 4) + (4 \div 2) = 62$$

17. Option (2) is the correct.

Explanation: As per the question, following venn diagram can be made:



(1) All bats are birds and some rats are bats. So, some rats are birds.

(2) All bats are birds. So, some birds are bats.

(3) All rats can be bats but cannot say definitely.

Hence, only conclusions I and II follows.

18. Option (4) is the correct.

Explanation:

Find the common face in both the dice and move either in a clockwise or a anticlockwise direction. From that face

Dice 1 -----A-----F-----C----- clockwise movement

Dice 2 -----A-----D-----E----- clockwise movement

E is opposite to C

E is opposite to D

Hence, E is opposite to C.

19. Option (4) is the correct.

Explanation: Given series:

3, 11, 31, 69, 131, ?

$$1^3 + 2 = 3$$

$$2^3 + 3 = 11$$

$$3^3 + 4 = 31$$

$$4^3 + 5 = 69$$

$$5^3 + 6 = 131$$

$$6^3 + 7 = 216 + 7 = 223$$

20. Option (1) is the correct.

Explanation:



The symbol at places 1 and 3 is moving anticlockwise, and the symbol at places 2 and 4 is moving clockwise.



21. Option (2) is the correct.

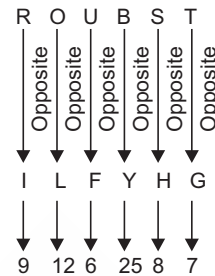
Explanation:

Table of Alphabetical series (point to remember)

Alphabets	A	B	C	D	E	F	G	H	I	J	K	L	M
Positional value	1	2	3	4	5	6	7	8	9	10	11	12	13

Alphabets	Z	Y	X	W	V	U	T	S	R	Q	P	O	N
Positional value	26	25	24	23	22	21	20	19	18	17	16	15	14

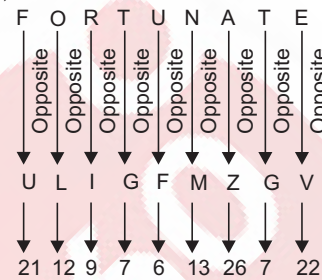
Now, 'R O U B S T' is coded as 6



Number of letters of word ROUBST = 6

$$\text{Hence, } (9 + 12 + 6 + 25 + 8 + 7) - 6 = 67 - 6 = 61$$

Similarly, 'FORTUNATE' is coded as 9



Number of letters of word FORTUNATE = 9

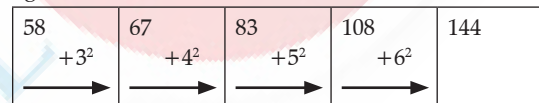
$$\text{Hence, } (21 + 12 + 9 + 7 + 6 + 13 + 26 + 7 + 22) - 9 = 123 - 9 = 114$$

22. Option (4) is the correct.

Explanation: The given series is

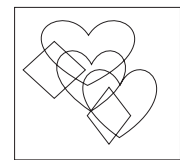
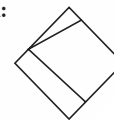
58, 67, 83, 108, ?

Logic is as follows:



23. Option (4) is the correct.

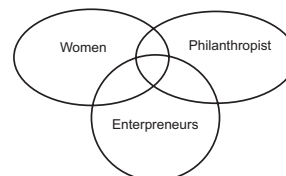
Explanation:



Find the figure from the given option figures.

24. Option (3) is the correct.

Explanation:



25. Option (1) is the correct.

Explanation:

A + B = Daughter

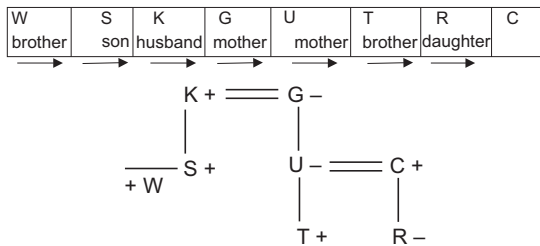
A \$ B = Husband

A @ B = Brother

A & B = Mother

A % B = Son

'W @ S % K \$ G & U & T @ R + C'



G is the maternal grandmother of R is the correct answer.

General Awareness

26. Option (4) is correct.

The Sakewa festival of Sikkim is also known as Bhoomi Puja or Chandi Puja. Chandi Puja is the worship of Mother Earth. It is celebrated by the Kirat Khambu Rai community of Sikkim and the festival begins on full moon day of Baisakh.

Losar is celebrated on the first day of the first month of the Tibetan lunar calendar in Sikkim.

As the name signifies, Indraajatra is a festival to pay homage to Lord Indra and his mother for rains and good harvest. It is celebrated by the Newar community in the state of Sikkim.

Barahimizong is observed and celebrated to worship the forefathers. It is celebrated by the Mangar community in Sikkim.

27. Option (4) is correct.

Union Budget 2021–22 is India's first Paperless Budget. The government launched an 'Union Budget Mobile Application' to allow a free access of 14 budget documents by the Members of Parliaments and common man. The application is available in both English and Hindi language.

The Union Budget is known as the Annual Financial Statement in the constitution of India and is defined under the Article 112. The first Union Budget of Independent India was presented by the first Finance Minister R.K. Shanukham Chetty on 26 November 1947. Former Finance Minister Moraji Desai presented the Union Budget for a record of 10 times.

28. Option (2) is correct.

Narmada is a peninsular river. It flows through the state of Madhya Pradesh, Gujarat, and Maharashtra and mouths into Arabian Sea in the Bharuch district of Gujarat. It is also known as Reva which is the fifth longest river. It rises from Amarkantak Plateau in Anuppur district Madhya Pradesh. The two major river systems of India are

1. Himalayan rivers-Indus, Ganga, and Brahma-putra rivers.
2. Peninsular rivers-East flowing rivers (Godavari, Krishna, Cauvery, Mahanadi) and West flowing rivers (Narmada and Tapi).

29. Option (1) is correct.

The Poona Pact of 1932 was an agreement between Mahatma Gandhi and B.R Ambedkar. It was signed in the Yerwada Central Jail, Poona on 24 September 1932. On behalf of Mahatma Gandhi, it was signed by Madan Mohan Malviya. This agreement was a result of communal award of 4 August 1932 that called for a separate electorate for the depressed class in the British legislature. The pact was a culmination of two different ideologies for the upliftment of the underprivileged class. According to the Poona Pact, there were nearly twice as many seats in the legislature that were reserved through the initial British communal award. The initial reserved seats were 80 and with the signing of this pact they were increased to 147. The pact assured a fair representation of the underprivileged section in the public services.

30. Option (2) is correct.

Karishma Yadav was awarded the Vikram Award 2019 for hockey by the Government of Madhya Pradesh. She is an international hockey player. It was awarded in the state of Madhya Pradesh on 15 May 1990.

31. Option (4) is correct.

Vikram Seth is the author of the book 'Two Lives.' Vikram Seth

is an Indian novelist and the poet whose notable works include 'A suitable boy', 'The Golden Gate', and 'An Equal Music.'

Sudha Murthy is an Indian author, educator and chairperson of Infosys Foundation. Some of her famous works include Mahashweta, Dollar Bahu, and How I taught my grandmother to Read.

Arundhati Roy is an Indian author. Some of her famous works include 'The God of Small Things' and 'The Ministry of Utmost Happiness.'

Chetan Bhagat is an Indian author who is known for his fiction novels- Five Point Someone, Two states, The story of my marriage, The three mistakes of my Life, Half girlfriend, One Indian Girl.

32. Option (3) is correct.

A bill becomes an Act of the Parliament after being passed by both the houses of Parliament and assented by the President. A bill can be introduced by any member of parliament. If the bill is introduced by a minister, it is known as the Government Bill and if it is introduced by any other member who is not a minister it is known as the Private member's bill. The bill goes through three readings in each house before going to the President for assent. After it receives President's assent, it becomes a law.

33. Option (4) is correct.

Plane Angle is the physical quantity for the expression arc/radius. A plane angle refers to an angle in the 2-Dimensional figure such as circle, square, and triangle. Solid angles are the angles in a 3-Dimensional figure such as cube, cuboid, cone, sphere.

Surface tension is the phenomenon which is witnessed when the surface of liquid comes in contact with another phase. The surface of liquid behaves like an elastic and tends to acquire the least surface area. Its SI unit of measurement is newton per meter Velocity.

Linear Momentum is defined as the product of mass and velocity. It is represented as $p=mv$ where p is the momentum, m is the mass, and v is the velocity. Its SI unit of measurement is Kg.m/s

Velocity is defined as rate of change of an object's position with respect to a frame of reference and time. Its SI unit of measurement is m/s.

34. Option (2) is correct.

People belonging to the same gotra were regarded as descendants of the person after whom the gotra was named. Gotra is a lineage system in the Indian caste system. Gotras are indicatives of the common ancestor, traditional occupation, place of residence, or some important characteristic feature. However, it is not important that people belong to the same gotra are also a part of the same caste. Generally, the wedding between people of same Gotras is not encouraged.

35. Option (1) is correct.

Turbidity is the measure of relative clarity of a liquid. Turbidity measures the amount of light that is scattered by the liquid when light passes through it. It measures the cloudiness and is measured by suspended materials such as organic, silt, clay, organic and inorganic matter, microorganisms. The higher is the intensity of scattered light, higher is the turbidity. It is measured in Nephelometric Turbidity Units (NTU) and Formazin Nephelometric Units (FNU).

Conductivity of an electrolyte is its ability to allow the current to pass through it. The SI units of conductivity is Siemens per meter (S/m).

Reduction is the gain of electrons or a decrease in the oxidation state of the atom.

36. Option (3) is correct.

At a Regional Rural Bank, the share of the Government of India is 50%. These are government of India owned banks that are under Ministry of Finance. These are Scheduled Commercial Banks (SCBs) that were established on the recommendations of the Narasimham committee in order to cater the credit needs of farmers and rural population. The ownership structure of such banks is Central Government-50%, sponsor

bank - 35%, and state government-15%. The first RRB was Pratham Gramin Bank and its commercial sponsor was Syndicate Bank.

37. Option (1) is correct.

The Swachh Bharat Mission (SBM) was launched in the year 2014 to fulfil the vision of cleaner India as a tribute to Mahatma Gandhi. This Mission was launched on 2 October 2014. The phase I of the mission focussed on declaring villages, Gram Panchayats, Districts, States and Union Territories in India 'Open-Defecation Free' (ODF) by 2 October 2019. In the year 2019, India celebrated the 150th anniversary of Mahatma Gandhi. The phase 2 is being implemented from 2020–21 and 2024–25. This initiative was led by Parameswaran Iyer and was done under rural and urban. The rural was financed and monitored through Ministry of Jal Shakti. The urban was overseen by the Ministry of Housing and Urban Affairs.

38. Option (4) is correct.

Article 368 of the Constitution of India lays down the process for introducing changes in the Constitution. An amendment to the constitution is possible only by the introduction of a bill in either houses of parliament. The bill can be a Government bill or a private bill. The bill needs to be passed in both the houses with a special majority, which involves the total membership of the House and a majority of two-thirds of the members of the House present and voting. Both the houses need to individually pass the bill and then it is sent for the president's assent and the president has to compulsorily agree to it.

Article 342 of Indian constitution states specifications and requirements for Scheduled Tribes in relation to a particular State/ Union Territory.

Article 351 of the Indian constitution states that it is the duty of the Union of India to promote and spread Hindi language.

Article 374 of the Indian constitution provides provisions as to judges of Federal court and proceedings pending in the Court.

39. Option (2) is correct.

Glacier is NOT a water pollutant. Glacier is a body of dense ice which is formed due to accumulation of excess snow over the years. It constantly moves under its weight and is the largest reservoir of fresh water on the planet.

Silt is a solid sediment that is transported through ice, water, and wind. It is made up of rock particles with a size less than 0.005 centimeters (0.002 inches) across. It is created when rock is eroded, or worn away, by water and ice.

Arsenic is a chemical element with atomic number 33 and occurs in many minerals. It is used in alloys of lead and is also a potential carcinogen.

Chromium is a chemical element with atomic number 24 and has high corrosion resistance and hardness.

40. Option (1) is correct.

As per a list compiled by the United Nations Population Division, Malappuram is the world's fastest-growing city with a 44% increase in population between 2015 and 2020. This report was released by the Economist Intelligence Unit (EIU) based on Total % change, 2015–20 forecast. Malappuram is a city in Northern Kerala. Kozhikode and Kollam from Kerala were ranked fourth and tenth respectively. Six Indian cities figured on the list of 30 cities.

One of the major reasons for the growth is the inclusion of new areas within the existing limits of Urban Agglomerations.

41. Option (3) is correct.

-2 is the power of 'second' in the SI unit of acceleration. Acceleration is defined as the rate of change of velocity and it is a vector quantity. For example: an object moving in a circular motion at a constant speed is accelerated as the direction of the object is changing continuously. The SI unit of acceleration is m/s^2 .

42. Option (2) is correct.

'Ponung' and 'Tapu' are popular dance forms from the state of Arunachal Pradesh. Ponung is a popular traditional dance form of Adis tribe. It is performed by the women folks

during the celebration of Solung or during any celebrations. It involves the use of sword like musical instrument called 'Yoksha'. Solung is an agriculture festival celebrated during September after sowing of seeds to seek good harvest and prosperity. The festival is celebrated and divided into three parts - Sopi-Yekpi, Binnayat and Ekop. Sopi Yekpi is the first day on which sacrifices of pigs and mithuns are offered to god of domestic animals, Dadi Bote. In Binnayat Goddess of food and crops, Kine Nane is worshipped. In Ekop, Miri who is the lead singer narrates the story of Abotani or Nibo. Nibo is the forefather of Adi tribes.

Tapu is a war dance performed by the males to drive away the evil spirits from villages.

43. Option (2) is correct.

Before being renamed, Mount Everest was simply known as Peak XV. Mount Everest was named after Sir George Everest who was the British surveyor or general of India from 1830 to 1843. The mountain was renamed on the recommendations of Andrew Waugh by the Royal Geographical Society in the year 1865.

Mount Everest is the highest mountain in the world and is situated at a height of 8849 metres from the sea level. This fact was established by Indian mathematician and surveyor, Radhanath Sikdar using trigonometric calculations based on Nicolson's measurements in the year 1852. Mount Everest is known as Sagarmatha in Nepal, Chomolungma in Tibet, and Pinyin in Chinese.

44. Option (3) is correct.

Ferrum is the Latin name for iron. Iron is an element in the periodic table with the atomic number 26. It is a 'd' block and first transition series element, and lies in 'group 8' and 'period 4' of the periodic table. Its symbol is 'Fe' and it is derived from the Latin word 'ferrum'. By mass, Iron is the fourth most abundant element in the Earth's crust. The core of the Earth is composed of iron with nickel and sulphur. The most common iron ore is hematite. Human body is composed of haemoglobin and it is the iron containing oxygen transporting metalloprotein in the Red Blood cells of the human body.

45. Option (2) is correct.

According to the Economic Survey 2020–21, imports are expected to decline by 11.3% in the second half of FY21.

The Economic Survey is an annual document prepared by the Ministry of Finance and presented by the Chief Economic Adviser of India. Generally, it is presented a day before the Union Budget. The 18th and current CEA of India is V Anantha Nageswaran.

46. Option (3) is correct.

Money bills can be rejected or amended by the Rajya Sabha. The Article 110 of Indian constitution defines Money bills and these are concerned with financial matters like public expenditure, taxation, revenues, borrowings. It may also contain the imposition, abolition, remission, alteration or regulation of any tax. Financial bills come under the Articles 117 (1) and 117 (3) of Indian constitution. Money bill is a type of financial bill, however it is not important that all financial bills are money bills. Money bill is introduced only in Lok Sabha only on the recommendation of President of India. The speaker has the authority to decide if it is a money bill or not. This bill cannot be amended or rejected by Rajya Sabha and there is no provision for joint sitting of both the houses in case of any deadlock. Rajya Sabha needs to return the bill within 14 days else it is deemed to be passed.

47. Option (1) is correct.

Jaishankar Prasad is the author of the epic poem 'Kamayani'. It is one of the greatest Hindi literary works and is the epitome of Chhayavadi school of Hindi poetry. Jaishankar Prasad was also known as Chhayavadi poet. He is considered one of the four pillars of Romanticism in Hindi Literature (Chhayavad), along with Sumitranandan Pant, Mahadevi Varma, and Suryakant Tripathi 'Nirala'.

Mahadevi Varma is also known as 'Modern Meera' and was a Hindi essayist, poet, and sketch story writer. Some of her notable

works include 'Rashmi, Neerja, Yama and Mera Parivaar.

Mahavir Prasad Dwivedi was a Hindi writer and editor. He represents Dwivedi Yug of Hindi. Some of his literary works include Sugandh, Mere Jeevan ki Yatra, Kavitalap, Kavya Manjusha, and Sahitya Sandarbh.

48. Option (3) is correct.

F Scott Fitzgerald wrote the novel 'The Great Gatsby.' It was the third novel by Gatsby and is often been called the Great American Novel.

Chinua Achebe is a Nigerian poet, novelist, and critic who is often referred to as 'father of modern African literature'. Some of his notable works include The African Trilogy- Things Fall Apart, No longer at Ease, Arrow of God, A man of the People, Anthills of the Savannah.

Harper Lee is an American Novelist known for her novel-To Kill a Mockingbird.

Alice Walker is an American Novelist, poet, writer, and social activist and is the first African-American woman to win the Pulitzer Prize for Fiction for her work 'The Color Purple.'

49. Option (1) is correct.

King Ajatashatru was a ruler of the Haryanka dynasty. He became the king by killing his father Bimbisara. He fortified a village to form the city of Pataliputra and followed policies of conquest and expansion.

The Mauryan empire was founded by Chandragupta Maurya in 322 BCE. Its capital was Pataliputra, which lies in the modern day Bihar. The Lion Capital of Ashoka at Sarnath was constructed during Mauryan period.

The Shishunaga dynasty was founded by Shishunaga and was established in 413 BCE.

The Nanda dynasty was founded by Mahapadma Nanda and ruled Magadha between 343 BCE to 321 BCE.

50. Option (2) is correct.

Los Angeles Clippers and Portland Trail Blazers are men's basketball teams. The clippers is an American professional basketball team based in Los Angeles. The trail blazers is an American professional basketball team based in Portland, Oregon.

Quantitative Aptitude

51. Option (1) is correct.

The given expression is $\frac{46 + \frac{3}{4} \text{ of } 32 - 6}{37 - \frac{3}{4} \text{ of } (34 + 6)}$

We will use BODMAS rule to solve this expression.

B → Bracket - () { }

O → Order or power - 2⁵, 3⁷, √2

D → Division (÷)

M → Multiplication (×)

A → Addition (+)

S → Subtraction (-)

$$\frac{46 + \frac{3}{4} \text{ of } 32 - 6}{37 - \frac{3}{4} \text{ of } (34 + 6)} = \frac{46 + \frac{3}{4} \times 32 - 6}{37 - \frac{3}{4} \times (34 + 6)}$$

$$= \frac{46 + 24 - 6}{37 - \frac{3}{4} \times 40} = \frac{64}{7}$$

52. Option (2) is correct.

126, 224, and 608 are three numbers leaving the remainder 2, 7, and 19 on dividing by the required greatest number. GCD of numbers 'p', 'q', and 'r' leaving remainder R₁, R₂, and R₃ will be H.C.F. of (p - R₁), (q - R₂), and (r - R₃)
HCF of (126 - 2), (224 - 7), and (608 - 19)

⇒ 124, 217, and 589

$$124 = 31 \times 4$$

$$217 = 31 \times 7$$

$$589 = 31 \times 19$$

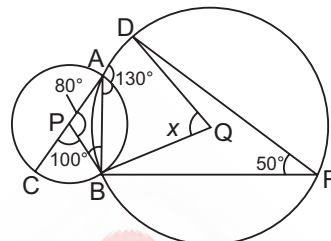
So, HCF = 31

So, the required number is 31.

53. Option (4) is correct.

Given that ∠CPB = 100°.

As per the given information we will have following figure.



In above figure, ∠CPB = 100°

So, ∠APB = 80°

[∠APB = Supplementary Angle of ∠CPB]

In ΔAPB,

AP = PB = radius of the smaller circle

So, ∠PAB = ∠PBA

$$\angle PAB = \frac{[180^\circ - 80^\circ]}{2}$$

⇒ ∠PAB = 50°

Now,

$$\angle DAB = 180^\circ - 50^\circ$$

⇒ ∠DAB = 130°

[∠DAB = Supplementary Angle of ∠PAB]

Since ABRD is a cyclic quadrilateral

So, ∠BRD = 180° - 130° = 50°

[Sum of opposite angles of cyclic quadrilateral is 180°]

Now,

According to the concept,

$$\angle BQD = 50^\circ \times 2 = 100^\circ = x$$

Required value of x is 100°

54. Option (2) is correct.

Given that, discount % = 28, profit% = 30 and profit = ₹ 39.90

$$S.P. = C.P. + C.P. \times \text{profit\%}$$

$$S.P. = M.P. - M.P. \times \text{discount\%}$$

Gain amount = 39.90

As per the question,

30% of the CP of the article = 39.90

⇒ 10% of the CP of the article = 13.30

⇒ 100% of the CP of the article = 133 i.e., C.P.

⇒ 130% of the CP of the article = 172.9 i.e., S.P.

Now,

$$172.9 = M.P. - M.P. \times 28\%$$

⇒ 172.9 = Marked price - 0.28. Marked price

$$172.9 = 0.72 \times \text{Marked price}$$

$$\Rightarrow \frac{172.9}{0.72} = \text{Marked price}$$

⇒ Marked price = 240.133 = ₹ 240

55. Option (2) is correct.

$$\text{Given that, } x^2 + \frac{1}{x^2} = 23$$

$$\Rightarrow x^2 + \frac{1}{x^2} + 2 \times x \times \frac{1}{x} = 23 + 2$$

$$\Rightarrow \left(x + \frac{1}{x}\right)^2 = 25$$

Taking square root both sides,

$$\Rightarrow x + \frac{1}{x} = 5 \quad \dots(i) \text{ (since } x > 0)$$

Cube both sides,

$$\Rightarrow \left(x + \frac{1}{x}\right)^3 = 5^3$$

$$\Rightarrow x^3 + \frac{1}{x^3} + 3 \times x \times \frac{1}{x} \left(1 + \frac{1}{x}\right) = 125$$

$$\Rightarrow x^3 + \frac{1}{x^3} + 3(5) = 125 \quad [\text{using equation (i)}]$$

$$\Rightarrow x^3 + \frac{1}{x^3} = 125 - 15 = 110$$

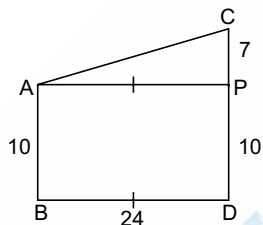
56. **Option (2) is correct.**

$$\begin{aligned} & \frac{8 \cos A + 7 \sec A - \tan^2 A}{10 \sin \frac{A}{2}} \\ &= \frac{8 \cos 60^\circ + 7 \sec 60^\circ - \tan^2 60^\circ}{10 \sin \frac{60^\circ}{2}} \quad (\text{Since } A = 60^\circ) \\ &= \frac{8 \times \frac{1}{2} + 7 \times 2 - (\sqrt{3})^2}{10 \sin 30^\circ} = \frac{4 + 14 - 3}{10 \times \frac{1}{2}} = \frac{15}{5} = 3 \end{aligned}$$

57. **Option (1) is correct.**

Heights of two poles are 10 m and 17 m. Distance between them is 24 m.

As per the given data, the figure will be:



Let us assume AB be 10 m and CD be 17 m.

$$AP = BD = 24 \text{ m}$$

$$AB = PD = 10 \text{ m}$$

$$CP = 7 \text{ m}$$

So,
In $\triangle ACP$

$$\Rightarrow AC^2 = AP^2 + CP^2$$

$$\Rightarrow AC^2 = 24^2 + 7^2$$

$$\Rightarrow AC^2 = 576 + 49$$

$$\Rightarrow AC^2 = 625$$

$$\Rightarrow AC = 25$$

So, distance between their tops is 25m.

58. **Option (4) is correct.**

$$\begin{aligned} \text{No. of TV sets sold by company A} \\ &= 64 \times 75\% = 48 \end{aligned}$$

$$\begin{aligned} \text{No. of TV sets sold by company B} \\ &= 90 \times 64\% = 57.6 \end{aligned}$$

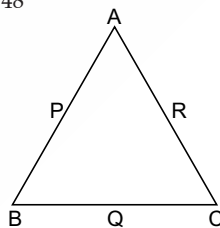
$$\text{Ratio} = 48 : 57.6$$

$$\Rightarrow 5 : 6$$

So, the required answer is 5: 6.

59. **Option (3) is correct.**

Given that, $AB - BC = 4 \text{ cm}$, $AB - AC = 2 \text{ cm}$ and perimeter of



$\triangle ABC$.

$$AB - BC = 4 \text{ cm}$$

$$\Rightarrow BC = AB - 4$$

$$\text{Also, } AB - AC = 2 \text{ cm}$$

$$\Rightarrow AC = AB - 2$$

$$\text{Perimeter of } \triangle ABC = 32 \text{ cm}$$

$$\text{So, } AB + BC + AC = 32$$

$$\Rightarrow AB + AB - 4 + AB - 2 = 32$$

$$\Rightarrow 3AB = 38$$

$$\Rightarrow AB = \frac{38}{3}$$

$$\text{Now, } AC = AB - 2$$

$$\Rightarrow AC = \left[\left(\frac{38}{3}\right) - 2\right]$$

$$\Rightarrow AC = \frac{32}{3} \text{ cm}$$

60. **Option (2) is correct.**

Given that: $a + b - c = 5$ and $ab - bc - ac = 10$

We know that: $(a + b - c)^2$

$$= a^2 + b^2 + c^2 + 2ab - 2bc - 2ac$$

$$\Rightarrow \{a + b + (-c)\}^2 = a^2 + b^2 + c^2 + 2ab - 2bc - 2ac$$

$$\Rightarrow (5)^2 = a^2 + b^2 + c^2 + 2(ab - bc - ac)$$

$$25 = a^2 + b^2 + c^2 + 2 \times 10$$

$$\Rightarrow a^2 + b^2 + c^2 = 25 - 20$$

$$\Rightarrow a^2 + b^2 + c^2 = 5$$

So, value of $a^2 + b^2 + c^2$ is 5.

61. **Option (4) is correct.**

Given, the sum of three numbers = 98.

First number : Second number is 2 : 3.

Second number : Third number is 5 : 8.

Let us assume that the three numbers be A, B and C.

Then,

$$A : B = 2 : 3 \text{ and } B : C = 5 : 8$$

$$\Rightarrow B : C = 5 \times \frac{3}{5} : 8 \times \frac{3}{5} = 3 : \frac{24}{5}$$

$$\Rightarrow A : B : C = 2 : 3 : \frac{24}{5} = 10 : 15 : 24$$

$$\Rightarrow C = 98 \times \frac{24}{(10 + 15 + 24)} = 48$$

Therefore, the third number is 48.

62. **Option (3) is correct.**

Total no. of the students in Camp A in 2014, 2016, and 2017 = $160 + 140 + 220 = 520$

Total no. of the students in Camp B in 2015, 2018, and 2019 = $240 + 200 + 280 = 720$

Required ratio = $520 : 720 = 13 : 18$

63. **Option (1) is correct.**

Given to us:

Sum = ₹ 32000, rate of interest, $r = 20\%$ p.a. and time, $t = 9$ months.

$$\text{Amount (compounded quarterly)} = P \left(1 + \frac{r}{100}\right)^{4t}$$

$$\text{Interest rate for quarterly} = \frac{20}{4} = 5\%$$

$$\text{Time} = 4 \times \frac{9}{12} = 3 \text{ quarter}$$

$$A = 32,000 \times \left(1 + \frac{5}{100}\right)^3$$

$$\Rightarrow A = 32,000 \times \left(1 + \frac{1}{20}\right)^3$$

$$\Rightarrow A = 32,000 \times \left(\frac{21}{20}\right)^3$$

$$A = 32,000 \times \left(\frac{9,261}{8,000}\right)$$

$$A = 37,044$$

Therefore, the amount = ₹ 37,044

64. **Option (1) is correct.**

The given angle elevation of point P and Q from the ground are 45° and 60° respectively.

Let's make the figure for this problem:

Let assume that height of tower P and tower Q be AB and CE and D is the midpoint of BE.

$$BD = DE$$

Taking ΔABD

$$\tan 45^\circ = \frac{AB}{BD}$$

$$\Rightarrow 1 = \frac{AB}{BD}$$

$$\Rightarrow BD = AB$$

Taking ΔCED

$$\tan 60^\circ = \frac{CE}{DE}$$

$$\Rightarrow \sqrt{3} = \frac{CE}{DE}$$

$$\Rightarrow CE = \sqrt{3}DE = \sqrt{3}BD$$

(Since, BD = AB = DE)

Ratio of height of tower P and Q

$$= AB : CE = BD : \sqrt{3}BD = 1 : \sqrt{3}$$

Therefore the ratio of the heights of P and Q is 1 : √3.

65. **Option (4) is correct.**

From the given histogram,

No. of workers whose daily wages is less than ₹ 450 = 30

No. of workers whose daily wages are less than ₹ 650 and above = 35

Required difference = 35 - 30 = 5

66. **Option (2) is correct.**

Given that, C.P. of the chair = ₹ 1,800

profit on table = 10%

Profit on chair = 6%

Since we know that

$$S.P. = \text{Cost price} + \text{cost price} \times \text{profit \%}$$

$$S.P. \text{ of table} = 4,600 + 4,600 \times \frac{10}{100} = 5,060$$

$$S.P. \text{ of chair} = 1,800 + 1,800 \times \frac{6}{100} = 1,908$$

$$\text{Total selling price} = 5,060 + 1,908 = 6,968$$

$$\text{Total cost price of table and chair} = 4,600 + 1,800 = 6,400$$

So, overall profit = 6,968 - 6,400 = 568

$$\text{Profit \%} = \left(\frac{568}{6,400}\right) \times 100 = \frac{71}{8} = 8\frac{7}{8}$$

The required overall profit percentage is $8\frac{7}{8}$.

67. **Option (3) is correct.**

We will use the divisibility law of 11 to solve the question.

[If the difference of the alternating sum of digits of the number is a multiple of 11 (For example: 8,393 is divisible by 11 because (8 + 9) - (3 + 3) = 11, which is a multiple of 11)].

The given number is 234a5b

$$22 = 11 \times 2$$

So, b must be any of the digit among 0, 2, 4, 6, 8

But the number is not divisible by 5, so 0 cannot be the possible value of b.

To get the greatest number a must be greater than b.

Now,

$$(2 + 4 + 5) - (3 + a + b) = 0 \text{ or multiple of } 11$$

$$\Rightarrow 11 - 3 - a - b = 0 \text{ or multiple of } 11$$

$$\Rightarrow 8 - a - b = 0 \text{ or multiple of } 11$$

$$\Rightarrow a + b = 8$$

Possible value of a and b are (8, 0), (7, 1), (6, 2), (5, 3), (4, 4),

(3, 5), (2, 6), (1, 7), (0, 8)

For b = 2, a = 6 For b = 4 a = 4

So, only possible values of a and b = (6, 2)

So, the required number is 2,34,652.

68. **Option (2) is correct.**

The price of an item is decreased by 20%. As a result, customers can get 2 kg more of it for ₹ 360.

Since, 20% = 1/5

Let us assume that actual price be 5x

So, after reduction price will be 4x

As per the question,

$$\left(\frac{360}{4x}\right) - \left(\frac{360}{5x}\right) = 2$$

$$\Rightarrow \left(\frac{90}{x}\right) - \left(\frac{72}{x}\right) = 2$$

$$\Rightarrow \left[\frac{90 - 72}{x}\right] = 2$$

$$\Rightarrow 18 = 2x$$

$$\Rightarrow x = 9$$

So, actual price of the item = 5 × 9 = 45

69. **Option (3) is correct.**

Let the total number of students in all schools are 100k.

Total no. of students in school C = 24k

$$\Rightarrow \text{No. of boys in school C} = \frac{3}{8} \times 24k = 9k$$

Total no. of students in school E = 15k

$$\Rightarrow \text{No. of boys in school C} = \frac{4}{5} \times 15k = 12k$$

So, the required ratios = 9k : 12k = 3 : 4

70. **Option (2) is correct.**

$$\text{Given that: } \sec^2 \theta + \tan^2 \theta = 3\frac{1}{2} = \frac{7}{2}$$

$$1 + \tan^2 \theta + \tan^2 \theta = \frac{7}{2}$$

$$\Rightarrow 2 \tan^2 \theta = \frac{7}{2} - 1 = \frac{5}{2}$$

$$\Rightarrow \tan^2 \theta = \frac{5}{4}$$

$$\Rightarrow \tan \theta = \frac{\sqrt{5}}{2}$$

Let us assume a right triangle whose perpendicular sides are √5k units and 2k units.

$$\therefore \text{hypotenuse} = \sqrt{(\sqrt{5}k)^2 + (2k)^2} = 3k$$

$$\text{Now, } \sin \theta + \cos \theta = \frac{\sqrt{5}k}{3k} + \frac{2k}{3k} = \frac{\sqrt{5} + 2}{3}$$

71. **Option (1) is correct.**

Given that Shyam drives car 30 km at a speed of 45 km/h. Then for the next 1 h 20 m, he drives it at a speed of 51

km/h.

We know that, Average speed = $\frac{\text{Total distance}}{\text{Total time}}$

Shyam can go 45 km in 60 min.

So, Shyam can go 3 km in 4 min.

Again, he can go 30 km in 40 min.

For next 1 h and 20 min, he drove at a speed of 51 km/h.

Now, 1 h and 20 min = $\frac{4}{3}$ hours

Now,

In $\frac{4}{3}$ hours he will go $51 \times \frac{4}{3} = 68$ km

Total distance = $68 + 30 = 98$ km

Total time = 40 min + 1 hour 20 min = 2 hours

Average speed = $\frac{98}{2} = 49$ km/h

Shyam's average speed for the entire journey was 49 km/h.

72. Option (3) is correct.

As per the given information, we will draw the following figure.

By angle bisector theorem,

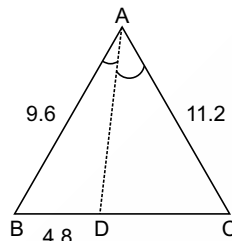
$$\frac{AB}{AC} = \frac{BD}{DC}$$

$$\Rightarrow \frac{9.6}{11.2} = \frac{4.8}{DC}$$

$$\Rightarrow CD = 5.6 \text{ cm}$$

Perimeter of triangle ABC

$$\begin{aligned} &= AB + AC + BD \\ &= AB + AC + BD + CD \\ &= 9.6 + 11.2 + 4.8 + 5.6 = 31.2 \text{ cm} \end{aligned}$$

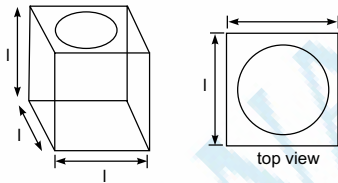


73. Option (3) is correct.

Edge of the cube, $a = 10$ cm

Diameter of the hemispherical depression, $d = 4$ cm

As per the given information, we will draw the followings figures.



Hemispherical shape will be formed on each face of the cube

Radius of the hemisphere, $r = \frac{4}{2} = 2$ cm

As per the given question,

Required surface area = TSA of the cube - 6 \times areas of circle form on the top of each face of the cube + 6 \times CSA of hemisphere formed on each face of a cube

$$\Rightarrow \text{Required surface area} = 6 \times 10^2 - 6 \times \pi \times 2^2 + 6 \times 2\pi \times 2^2$$

$$\text{Required surface area} = 600 + 6\pi \times 2^2$$

$$\Rightarrow \text{Required surface area} = 600 + 24 \left(\frac{22}{7} \right)$$

$$\text{Required surface area} = 600 + \frac{528}{7}$$

$$\Rightarrow \text{Required surface area} = 600 + 75 \frac{3}{7} = 675 \frac{3}{7}$$

Therefore, surface area of the remaining solid is $6,75 \frac{3}{7}$ cm².

74. Option (1) is correct.

$$1 \text{ day work of 1 man} = \frac{1}{3}$$

$$1 \text{ day work of 1 woman} = \frac{1}{4}$$

$$1 \text{ day work of 1 boy} = \frac{1}{12}$$

According to question

$$\Rightarrow 1 \times \left(\frac{1}{3} \right) + 1 \times \left(\frac{1}{4} \right) + x \times \left(\frac{1}{12} \right) = 1$$

{x be the no. of boys needed}

$$\frac{x}{12} = 1 - \left(\frac{1}{3} \right) - \left(\frac{1}{4} \right)$$

$$\Rightarrow \frac{x}{12} = \frac{12-7}{12} \Rightarrow x = 5$$

So, 5 Boys are needed to complete the given work.

75. Option (3) is correct.

The given boat can cover a distance of 56 km downstream in 3.5 hours

Ratio of the boat in still water and the speed of the stream is 3 : 1

Since we know that $S = \frac{D}{T}$

$$\text{Speed of the boat downstream} = \frac{56}{3.5}$$

$$\Rightarrow = 16 \text{ km/h}$$

Now,

$$\text{To cover 41.6 km downstream it will take} = \frac{41.6}{16} \text{ hours} = 2.6 \text{ hours}$$

Therefore, the boat will take 2.6 hours to cover 41.6 km downstream.

English Comprehension

76. Option (2) is correct.

In the given sentence, the viewership of a TV channel is compared with that of other channels. When using a comparative adjective, the adjective is followed by "than" and not by "from." Also, when we use a comparative adjective with the force of a superlative, we use "any other" after "than."

77. Option (2) is correct.

One who can read and write is called "literate." One who cannot read and write is called "illiterate." Something that is not clear enough to be read is called "illegible."

78. Option (4) is correct.

The meaning of "final" is "closing, concluding." Hence, the correct answer is option (4). Forbidden means "not allowed, banned."

79. Option (1) is correct.

When an action performed by the subject is expressed by the verb, it is called an "active voice." When the action expressed by the verb is received by the subject, it is called passive voice. The structure of the sentence in active voice is: Subject + Verb-I + Object (ACTIVE VOICE). The structure of the converted sentence in the passive voice is Subject + is + V-III + by + Object. The passive form of the given question is option (1).

80. Option (2) is correct.

Reporting the message of the speaker in the exact words spoken by him is called direct speech. Reporting the message of the speaker in our own words is called indirect speech. The reporting verb in direct speech is in the present tense, so the verb to be reported will be in the present form itself while getting transformed into reported speech.

81. Option (3) is correct.

The meaning of "exonerate" is "to be free from blame, acquit, absolve." Example: "An inquiry exonerated those involved." Antonym of "exonerate" is "engage."

82. Option (2) is correct.

The sentence's second half says "but later you will get used to..." thus the first blank needs something opposite to this part. "At first" is the correct expression in the given context.

83. Option (2) is correct.

"Obscure" means "hazy, blurred, or cloudy." The antonym of "obscure" is "apparent." Hence, the correct answer is option (2). "Veiled" means "expressed in an indirect way; not openly declared or expressed."

84. Option (1) is correct.

The sentence is in the present perfect tense. The error is in the usage of "since." We do not use "since" for duration; we use "since" to express a point in time, and we use "for" to express duration. Hence, the correct usage will be "for two hours."

85. Option (3) is correct.

The meaning of "squawk" is "make a loud, harsh noise." Example: "With a startled squawk the rook flew off." The correct synonym of "squawk" is "scream." Hence the correct answer is option (3). Rest of the words are:

Suggest: put forward for consideration. Example: "I suggest that we wait a day or two."

Explore: to inquire into or discuss (a subject) in detail. Example: "He sets out to explore fundamental questions."

Connote: (of a word) imply or suggest (an idea or feeling) in addition to the literal or primary meaning. Example: "The term 'modern science' usually connotes a complete openness to empirical testing."

86. Option (3) is correct.

The use of "in spite" in the given sentence is grammatically incorrect in this context. The main difference between the usage of "in spite of" and "although" is that "in spite of" is followed by a noun/pronoun, or verb + ing, and "although" is followed by a clause (subject + verb). Hence, the phrase 'in spite of' will be replaced with 'although' which means 'and yet'.

87. Option (3) is correct.

The paragraph is about the nose's function. The subject is first mentioned in the statement (B). Hence, (B) is the obvious opener; it will be followed by (A) because (A) carries forward the idea by stating that "the nose provides air for respiration." "BA" will be followed by (D), since (D) further explains the functions of the nose, which have been partly discussed in (A). Hence, the sequence will be BADC.

88. Option (2) is correct.

The sentence has an error in subject-verb agreement. A singular subject must take a singular verb, and a plural subject must take a plural verb. In the given sentence, the subject "workers" is plural, and it should be followed by "get."

89. Option (1) is correct.

The correctly spelled word is "convert." Rest of the words are incorrectly spelled.

90. Option (3) is correct.

This question checks a student's understanding of phrases and idioms. The meaning of "as cool as a cucumber" is "calm and composed." Example: You can hardly be held responsible for Darrow waltzing in, cool as a cucumber, and demanding thousands of pounds.

91. Option (2) is correct.

In the active voice, the sentence's subject performs the action. It is used to direct the reader's attention to the subject of a sentence. In the passive voice, the action's target is the focus, and the verb acts upon the subject. To convert active voice into passive voice, students need to identify the (S+V+O) subject, verb, and object in the active sentence.

Active: Subject + verb + s/es + object...

Passive: Object + is/are + verb (III rd from) + by + subject

The given sentence is in active voice.

92. Option (4) is correct.

This question checks a student's understanding of phrases and idioms. The meaning of "a hair in the butter" is "a challenging situation." Example: "Forgetting my textbook at school has proved to be a real hair in the butter for my study plans."

93. Option (3) is correct.

This question checks a student's vocabulary. "Drawing or writing on a wall in a public place" is known as "graffiti." Hence, the correct answer is option (3). A portrait is a painting, drawing, photograph, or engraving of a person, especially one depicting only the face or head and shoulders. Caricature means a picture, description, or imitation of a person in which certain striking characteristics are exaggerated in order to create a comic or grotesque effect. Collage means a piece of art made by sticking various different materials, such as photographs and pieces of paper or fabric, to a backing.

94. Option (2) is correct.

The sentence has an error in subject-verb agreement. A singular subject must take a singular verb, and a plural subject must take a plural verb. In the given sentence, the subject is "contrast," which is singular. As a result, the concern verb should be singular as well. Replace "are striking" with "is striking."

95. Option (2) is correct.

The given sentence is in past tense. The later part of the sentence asks what the person was doing when he was called up. Thus, the use of the present perfect tense is incorrect; it should be in the past continuous tense.

96. Option (3) is correct.

The paragraph is in past tense. The first line says the two were good friends. Thus, the next sentence will also be in the past tense. So, "decided" is the best word to fill the blank with.

97. Option (1) is correct.

In the paragraph, the two friends decided to go to a farm to steal food. In the blank, we need a word that gives additional information about the farm. The best word to fill the blank with is "nearby."

98. Option (4) is correct.

The sentence is about the ability of the fox. Hence, the blank can be filled with the word that shows capability. "May" is used to seek permission, "ought to" expresses obligation, and "can" shows capability.

99. Option (3) is correct.

The correct idiomatic expression is "climb up."

100. Option (4) is correct.

Since the previous sentence stated that the fox could not swim and the camel suggested the fox climb up onto the camel's back so they could cross the river, the blank can be best filled with "river."