

STAFF SELECTION COMMISSION

HIGHER SECONDARY LEVEL EXAMINATION

SSC – CHSL (10 + 2) Model Paper

No. of Questions: 100

Maximum Marks: 200

Time: 75 Minutes

GENERAL INTELLIGENCE

1. If DONE is coded as 4372, GUEST is coded as 15289 and DANGLE is coded as 467102, how would you code STOLEN in that code language?
A) 893027 B) 870627 C) 803152 D) 247065
2. If \times denotes +, ' \div ' denotes -, '+' denotes \times and '-' denotes ' \div ', then
 $8 - 2 \times 3 + 6 \div 4 = ?$
A) 9 B) 12 C) 16 D) 18
3. Two statements are given followed by two conclusions I and II. You have to consider the statements to be true even if they seem to be at variance from commonly known facts. You have to decide which of the given conclusions, if any, follow from the given statements.

Statements:

I. The greatest enemy of knowledge is ignorance.

II. Ignorance does not negate facts.

Conclusions:

I. Facts can be negated by informed opinions.

II. Knowledge and ignorance do not go hand in hand.

A) Both conclusions I and II follow

B) Neither conclusion I nor II follows

C) Only conclusion I follows

D) Only conclusion II follows

Directions: In question nos. 4 to 7, find the odd words / letters / number pair from the given alternatives.

4. A) 78, 95 B) 25, 42 C) 56, 72 D) 38, 55
5. A) DOME B) EMOD C) MIDO D) EMDO
6. A) Euro B) Mandarin C) Spanish D) German
7. A) Triangle : 3 B) Quadrilateral : 4 C) Trapezium : 5 D) Hexagon : 6

Directions: In question nos. 8 and 9, select the missing number from the given responses.

8. 18 324 18
26 676 26
31 ? 31
A) 512 B) 961 C) 1089 D) 1521

9. 67 71 63
5 8 9
9 7 3
22 15 ?
A) 36 B) 26 C) 33 D) 25
10. A series is given, with one term missing. Choose the correct alternative from the given ones that will complete the series.
7, 14, 27, 46, 71, ?
A) 100 B) 101 C) 102 D) 103
11. A series is given, with one term missing. Choose the correct alternative from the given ones that will complete the series.
WPI, TSK, QVM, ?
A) MYN B) OXO C) MXP D) NYO
12. From the given alternatives select the word which can be formed using the letters given in the word.
NOMENCLATURE
A) CLOSE B) START C) ACTOR D) MONSTER
13. Which one set of letters when sequentially placed at the gaps in the given letter series shall complete it?
ba_bb_a_b_ab
A) aaba B) abab C) baab D) baba
14. Salim ranks seventeen from the top and eighteen from the bottom in a class. How many students are there in the class?
A) 32 B) 33 C) 34 D) 35
15. A cyclist goes 45 km to West and then turning North he goes 35 km. Again he turns to his right and goes 15 km. After this, he turns to his right and goes 60 km. After this he turns to his left and goes 30 km. How far is he from his starting point?
A) 20 km B) 25 km C) 35 km D) 45 km
16. Which one of the given responses would be a meaningful order of the following?
1) Larva 2) Egg 3) Butterfly 4) Pupa
A) 1, 2, 4, 3 B) 2, 1, 4, 3 C) 4, 2, 1, 3 D) 2, 4, 1, 3
- Directions: In question nos. 17 to 20, select the related word / letters / number from the given alternatives.**
17. Cobbler : Shoe :: Carpenter : ?
A) Wood B) Furniture C) Iron D) Axe
18. Wrestle : Wrestler :: Game : ?
A) Ground B) Kabaddi C) Food D) Player
19. JMPS : BEHK :: ORUX : ?
A) NBEG B) CFIL C) GJLO D) ADGI
20. 64 : 256 :: 81 : ?
A) 162 B) 243 C) 324 D) 486

21. Arrange the following words according to English Dictionary.

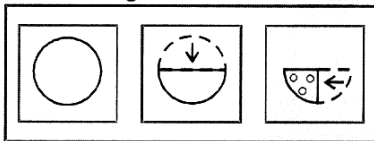
- 1) Restricted 2) Render 3) Reserved 4) Reservation
 A) (2), (3), (4), (1) B) (4), (2), (3), (1) C) (2), (4), (3), (1) D) (1), (2), (3), (4)

22. Identify the diagram that best represents the relationship among Bitter Gourd, Capsicum and Vegetable.

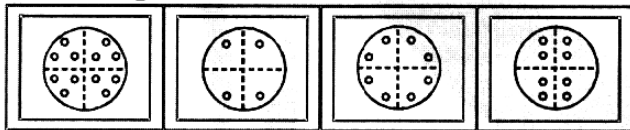


23. A piece of paper is folded and cut/punched as shown below in the question figures. From the answer figures, indicate how it will appear when opened.

Question figures:



Answer figures:



- A) B) C) D)

24. A word is represented by only one set of numbers as given in any one of the alternatives. The sets of numbers given in the alternatives are represented by two classes of alphabets as in the matrices given below. The columns and rows of Matrix I are numbered from 0 to 4 and that of Matrix II are numbered from 5 to 9. A letter from these matrices can be represented first by its row and next by its column, e.g., 'U' can be represented by 02, 23 etc. and 'V' can be represented by 67, 89 etc. Similarly, to identify the set for the word ROSE.

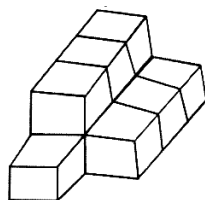
MATRIX I

	0	1	2	3	4
0	E	A	U	O	I
1	I	E	O	A	U
2	O	I	A	U	E
3	U	O	E	I	A
4	A	U	I	E	O

MATRIX II

	5	6	7	8	9
5	V	R	Q	L	S
6	S	L	V	Q	R
7	L	V	S	R	Q
8	R	Q	L	S	V
9	Q	S	R	V	L

- A) 56, 20, 76, 00 B) 97, 02, 96, 32 C) 78, 31, 59, 24 D) 85, 43, 55, 11



25. How many cubes are there in this figure?

- A) 7 B) 8 C) 10 D) 13

ENGLISH LANGUAGE

Directions: In question nos. 26 and 27, sentences are given with blanks to be filled in with an appropriate word. Four alternatives are suggested for each question. Choose the correct alternative out of the four.

26. Rather than considering if their research is right or wrong, the scientists are increasingly adopting a completely attitude.
A) amoral B) immoral C) flimsy D) filthy
27. She saw no reason to the committee of what had happened.
A) apprise B) check C) enquire D) appraise

Directions: In question nos. 28 and 29, a part of the sentence is underlined. Below are given alternatives to the underlined part which may improve the sentence. Choose the correct alternative. In case no improvement is needed, your answer is option (D).

28. Can you tell me where has he gone ?
A) where has gone he
B) where gone has he
C) where he has gone
D) No improvement
29. No sooner I heard the shot when I rushed to the spot.
A) No sooner I heard the shot than
B) No sooner did I hear the shot when
C) No sooner did I hear the shot than
D) No improvement

Directions: In question nos. 30 and 31, choose the word opposite in meaning to the given word.

30. VOLITION
A) Pretext B) Unwillingness C) Compliance D) Interlude
31. COPIOUS
A) Imitable B) Unprecedented C) Shaky D) Shortage

Directions: In question nos. 32 and 33, four words are given in each question, out of which only one word is correctly spelt. Find the correctly spelt word.

32. A) Corderoy B) Corduroy C) Cordroy D) Cordyroy
33. A) Mygrain B) Migrain C) Migren D) Migraine

Directions: In question nos. 34 to 38, in the following passage some of the words have been left out. Read the passage carefully and choose the correct answer to each question out of the four alternatives and fill in the blanks.

There's a (34) in Turkey: "If you kill a cat, you need to build a mosque for God's forgiveness." This all (35) back to a cat named Muezza, the favorite pet of the prophet Muhammad. According to one (36), Muezza saved Muhammad from a deadly snake. When the prophet (37) her back as thanks, cats gained their ability to (38) land on their feet.

34. A) quote B) thing C) saying D) tale

35. A) flowers B) stems C) buds D) leafs
36. A) proverb B) idiom C) maxim D) folktale
37. A) strike B) stripped C) stroked D) stumbled
38. A) surely B) suddenly C) often D) always

Directions: In question nos. 39 and 40, out of the four alternatives choose the one which can be substituted for the given words / sentence.

39. Name used by a writer instead of his own name
- A) Pen Name B) Code Name
C) Byname D) Nickname
40. Highest ranking official who represents his own government while living in another country
- A) NRI B) Secretary
C) Ambassador D) Cosmopolitan

Directions: In question nos. 41 and 42, the first and the last sentences are numbered 1 and 6.

The rest of the passage is split into four parts and named P, Q, R and S. These four parts are not given in their proper order. Read the passage and find out which of the four combinations is correct. Then find the correct answer.

41. 1: When Galileo was young, people believed that the earth was the centre of the Universe.
P: But Galileo began to argue that it was not so.
Q: This belief was, supported by the State and the Church.
R: He said that the Earth and other planets moved round the sun.
S: He was imprisoned for voicing this unorthodox view.
6: But time has proved that Galileo's view was right.
A) P Q R S B) Q P R S C) Q P S R D) P S R Q
42. 1: I first came to Poland in the autumn of 1986.
P: I had been keeping an eye on the notice board of the English Department for a prospective job.
Q: It was my last month as a student at the University of York.
R: It was at the University of Lodz, which I had never heard of.
S: One day I spotted a little note concerning a lectureship.
6: "Was I still interested?", I asked myself.
A) S R Q P B) Q P S R C) S P Q R D) Q R S P
43. A sentence has been given in active/ passive voice. Out of the four alternatives suggested, select the one which best expresses the same sentence in passive/ active voice.
- Did the project that I am working on interest you?
- A) Are you interested in the project that I am working on?
B) Were you interested in the project that I am working on?
C) Were you being interested in the project that I am working on?
D) Are you being interested in the project that I am working on?

44. A sentence has been given in direct/ indirect. Out of the four alternatives suggested, select the one which best expresses the same sentence in indirect/ direct.

Amit said, "I can go to college everyday".

- A) Amit said that it was easy to go to college.
B) Amit was saying that can go to college everyday.
C) Amit said that he could go to college everyday.
D) Amit declared that he can go to college everyday.

Directions: In question nos. 45 and 46, some parts of the sentences have errors and some are correct. Find out which part of a sentence has an error. If a sentence is free from error, your answer is option (D).

45. Old age and infirmity / had began /catch up with him. / No error.

(A) (B) (C) (D)

46. Its colour makes / the moth undistinguished /from the branch it rests on. / No error.

(A) (B) (C) (D)

Directions: In question nos. 47 and 48, out of the four alternatives, choose the one which best expresses the meaning of the given word.

47. IMPETUS

A) Courage B) Impatience C) Arrogance D) Boost

48. IMPROMPTU

A) Inspiring B) Important
C) Unpremeditated D) Impressive

Directions: In question nos. 49 and 50, four alternatives are given for the idiom / phrase underlined in the sentence. Choose the alternative which best expresses the meaning of the idiom / phrase.

49. I wonder what motivated him to spill the beans about his accomplice.

A) To waste all opportunities B) To disclose secrets
C) To use time efficiently D) To finish the work

50. The baby would start bawling at the drop of a hat.

A) at the slightest provocation B) when the silence is broken
C) when the baby's hat falls D) at dusk

QUANTITATIVE APTITUDE

51. $3 \sec^2 34^\circ \tan^2 56^\circ - \operatorname{cosec}^2 34^\circ - \cot^2 34^\circ - 2 \sin^2 56^\circ - 2 \sin^2 34^\circ$ is equal to

A) 0 B) $\cot^2 34^\circ$ C) $\operatorname{cosec}^2 34^\circ$ D) 1

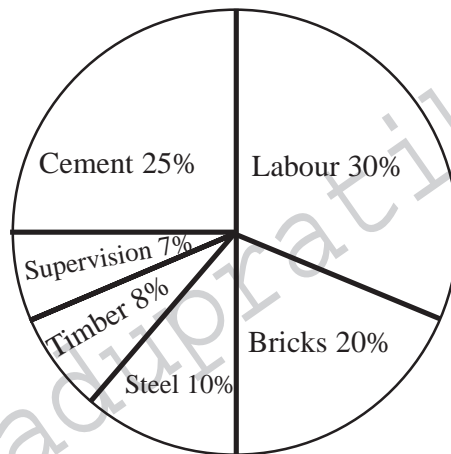
52. The volume of a cone and a hemisphere are in the ratio 1 : 2. Find their diameters and then compare them when the height of the cone is equal to the radius of the cone.

A) Diameter of the hemisphere = Diameter of the cone
B) Diameter of the hemisphere > Diameter of the cone
C) Diameter of the hemisphere < Diameter of the cone
D) Diameter of the hemisphere = 2 times of diameter of the cone

53. Raj bought an article from Puneet for Rs.8,892 after getting a discount of 24%. If Puneet doesn't offer any discount on the label price, then he gets 30% profit, what was the cost price for Puneet?
 A) Rs.11,700
 B) Rs.8,000
 C) Rs.9,000
 D) Rs.10,200
54. If $4a^2 + b^2 + c^2 = 2(2a - 3 + 2b - c)$, then the value of $4a - b - 3c$ is
 A) 0
 B) 2
 C) 3
 D) 6
55. A shopkeeper mixed two varieties of rice costing Rs.9.60 and Rs.12.60 per 300 gm in the ratio 9 : 1. He sells the mixed rice at the rate of Rs.7.26 per 200 gm. His percentage gain in the transaction is
 A) 5%
 B) 10%
 C) 20%
 D) 25%
56. A can do a work in 30 days and B can do the same work in 70 days, then in how many days can A and B together do the work?
 A) 14
 B) 15
 C) 18
 D) 21
57. A retailer blends two varieties of tea costing Rs.50 and Rs.30 per 200 gm in the ratio 3 : 7. He sells the blended variety at the rate of Rs.22.5 per 100 gm. His percentage gain in the transaction is
 A) 15%
 B) 20%
 C) 25%
 D) 30%
58. The base of a right prism is a triangle whose perimeter is 36 cm and the radius of the triangle is 7 cm. If the volume of the prism is 1134 cm^3 , then its height is
 A) 6 cm
 B) 7 cm
 C) 8 cm
 D) 9 cm
59. A sum becomes Rs.31,360 in 2 years at 12% per annum compound interest compounded annually. The simple interest at 22% per annum for 3 years on the same amount will be
 A) Rs.3,450
 B) Rs.3,850
 C) Rs.6,850
 D) Rs.5,250
60. If $x \sin \theta - y \cos \theta = \sqrt{x^2 + y^2}$ and $\frac{\sin^2 \theta}{a^2} + \frac{\cos^2 \theta}{b^2} = 1$, then the correct relation is
 A) $\frac{x^2}{a^2} + \frac{y^2}{b^2} = x^2 + y^2$
 B) $\frac{x^2}{a^2} + \frac{y^2}{b^2} = 1$
 C) $\frac{x^2}{a^2} - \frac{y^2}{b^2} = \frac{1}{x^2 + y^2}$
 D) $\frac{x^2}{a^2} + \frac{y^2}{b^2} = \frac{1}{a^2} + \frac{1}{b^2}$
61. If $a = \sqrt{3} + 5$, $b = 4 + \sqrt{5}$ and $c = 3 + \sqrt{10}$, then point out the correct alternative among the four alternatives given below.
 A) $a > b > c$
 B) $c > b > a$
 C) $b > a > c$
 D) $b > c > a$
62. From a point P, two tangents PA and PB are drawn to the circle with centre O. If AP is equal to the radius of the circle, then $\angle AOB$ is
 A) 60°
 B) 45°
 C) 90°
 D) 120°
63. If $xy + yz + zx = 0$, then $\left(\frac{x^2}{x^2 - yz} + \frac{y^2}{y^2 - zx} + \frac{z^2}{z^2 - xy} \right)$, $(x, y, z \neq 0)$ is equal to
 A) 0
 B) 1
 C) 3
 D) $3xyz$
64. The length and breadth of a rectangle are tripled and halved respectively. Percentage increase in area is
 A) 50%
 B) 150%
 C) 250%
 D) 300%

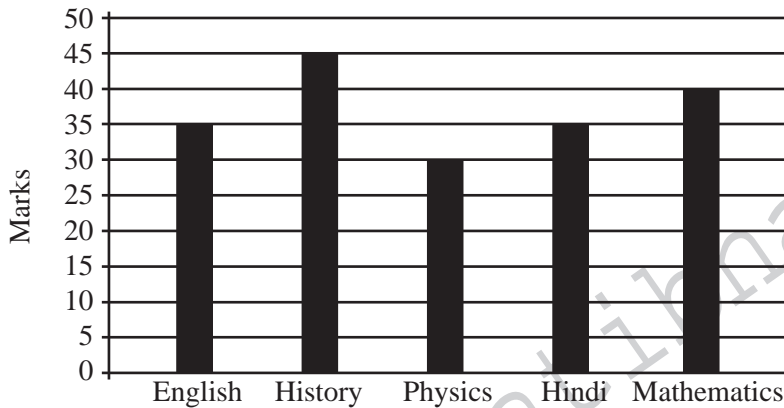
65. If $a + b + c = 12$ (where a, b, c are real numbers), then the minimum value of $a^2 + b^2 + c^2$ is
 A) 12 B) 36 C) 48 D) 102
66. 'a' divides 646 leaving a remainder 22. The largest two-digit value of 'a' is
 A) 52 B) 66 C) 78 D) 86
67. In a two-digit number, the digit at the unit's place is 2 more than twice the digit at the ten's place. If the digits at unit's and ten's place are interchanged, the difference between the new and the original number is more than the original number by 7. The original number is
 A) 14 B) 26 C) 38 D) 49
68. If in ΔABC , $\angle ABC = 4 \angle CAB$ and $\angle ACB = 5 \angle CAB$, then $\angle ABC =$
 A) 60° B) 72° C) 80° D) 90°
69. The length of the shadow of a vertical building on the ground increases by $40\sqrt{3}$ meters when the inclination of the sun changes from 60° to 45° . The height of the building is
 A) $40(\sqrt{3} + 1)m$ B) $40\sqrt{3}m$ C) $60\sqrt{3}m$ D) $60(\sqrt{3} + 1)m$
70. A train is moving at a speed of 108 km/h passes a platform of length 175 m in 8 seconds, then length of the train is
 A) 25 m B) 65 m C) 105 m D) 160 m
71. ABCD is a cyclic quadrilateral in that order. If $\angle BCD + \angle CDA = 150^\circ$ and $\angle ABC + \angle BCD = 180^\circ$, then $\angle DAB - \angle ABC = ?$
 A) 60° B) 0° C) 120° D) 105°

Directions: The pie chart given below shows the various expenditures incurred by a person for construction of a house. Study the chart and answer the Q. Nos. 72 and 73.



72. The cost of bricks is less than that of the cement by
 A) 5% B) 10% C) 20% D) 25%
73. Marked price of house is 30% above cost price. If the marked price of the house is Rs.10,40,000, then the cost of timber (in Rs.), is
 A) 36,000 B) 40,000 C) 64,000 D) 72,000

Directions: The bar graph shows the marks obtained by a student in an examination out of 50 marks in each subject. Study the diagram and answer the Q. Nos. 74 and 75.



74. Average percentage marks in Hindi and History is
A) 40% B) 50% C) 60% D) 80%
75. The ratio of the marks obtained in English and Physics together and Mathematics is
A) 13 : 4 B) 9 : 8 C) 13 : 8 D) 11 : 8

GENERAL AWARENESS

76. Who among the following ruler named Prayag as Allahabad?
A) Shahjahan B) Jahangir C) Akbar D) Babar
77. The Panchayati Raj was introduced for the first time in India in
A) Jammu and Kashmir B) West Bengal
C) Kerala D) Rajasthan
78. Gorumara National Park is in which Indian state?
A) West Bengal B) Sikkim C) Odisha D) Nagaland
79. Jitu Rai is associated with which of the following sports?
A) Badminton B) Archery C) Shooting D) Hockey
80. Who is the writer of the book 'The First Indian War of Independence, 1857 – 1859'?
A) Karl Marx and Friedrich Engels B) V.D. Savarkar
C) R.C. Mazumdar D) S.N. Sen
81. Rana Pratap Sagar Project is situated at ...
A) Beas river B) Chambal river C) Sone river D) Godavari river
82. Which of the following gas is used as a popular recreational drug?
A) Neon B) Helium C) Nitrous oxide D) MIC
83. Which of the following gas is used for artificial ripening of fruits?
A) Ethylene B) Methane C) Propane D) Butane
84. Which among the following converts mechanical energy into electrical energy?
A) Tube Light B) Solar Cell C) Candle D) Dynamo

85. During Rig Vedic period Jhelum river was known as
- A) Asikani B) Vitasta C) Parushni D) Sutudri
86. One Micron is equal to:
- A) 10^{-9} m B) 10^{-6} m C) 10^{-12} m D) 10^{-15} m
87. An acid turns blue litmus paper into
- A) green B) red C) yellow D) violet
88. Which of the following is not a component of Bharat Nirman Yojna?
- A) Irrigation B) Telephone
C) Electricity D) Cottage industries
89. In March 1946, a Cabinet Mission arrived in India. It was headed by
- A) Sir Stafford Cripps B) Lord Pethick-Lawrence
C) A. V. Alexander D) Lord Wavell
90. Which Mughal Emperor transferred the Mughal Capital from Agra to Delhi?
- A) Aurangzeb B) Jahangir C) Shah Jahan D) Bahadur Shah
91. The ideal pH value of human blood is
- A) 5.5 B) 6.0 C) 7.4 D) 8.0
92. The writer of Arthashastra was contemporary of
- A) Ashoka B) Chandragupta Vikramaditya
C) Samudragupta D) Chandragupta Maurya
93. Who has called Bal Gangadhar Tilak as the 'Father of Indian Unrest'?
- A) Lord Curzon B) Muhammad Ali Jinnah
C) Valentine Chirol D) Webb Miller
94. Which of the following is the oldest oil refinery in Asia?
- A) Digboi Oil Refinery, India
B) Abadan Oil Refinery, Iran
C) Ras Tanura Refinery, Saudi Arabia
D) Fushun Petrochemical Refinery, China
95. Which of the following are also called as the amphibians of the plant kingdom?
- A) Lichens B) Algae C) Mosses D) Ferns
96. Which of the following is not an example of Igneous rocks?
- A) Granite B) Basalt C) Obsidian D) Limestone
97. Goods and Services Tax will come into force from
- A) 1st April 2017 B) 1st January 2017
C) 1st April 2018 D) 1st January 2018
98. The first bank of limited liability managed by Indians was
- A) Oudh Commercial Bank B) Punjab National Bank
C) Indian Overseas Bank D) Punjab and Sind Bank

99. Pradhan Mantri Jan Dhan Yojana (PMJDY) is related with

- A) free delivery of essential services to rural people.
- B) mega financial inclusion plan.
- C) rendering loans at the rate of zero percent, to farmers.
- D) substituting different subsidies in lieu of cash.

100. The world's third largest emitter of greenhouse gases is

- A) China
- B) USA
- C) France
- D) India

KEY

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

EXPLANATIONS

1. Each letter is coded as a specific number like 4 for D, 3 for N.

Hence, STOLEN will be coded as 893027.

2. $8 - 2 \times 3 + 6 \div 4 = 8 \div 2 + 3 \times 6 - 4$
 $= 4 + 3 \times 6 - 4 = 18$

3. If two things go hand in hand, it means that they exist together. Since ignorance is the greatest enemy of knowledge, they cannot go hand in hand. The statements do not say anything about opinions.

4. In each option except option (C), next number is 17 more than the first number.

5. Only option (C) has the letter I.

6. Euro is a currency and others are languages.

7. Triangle has 3 sides, Quadrilateral has 4 sides, Hexagon has 6 sides but Trapezium has only 4 sides.

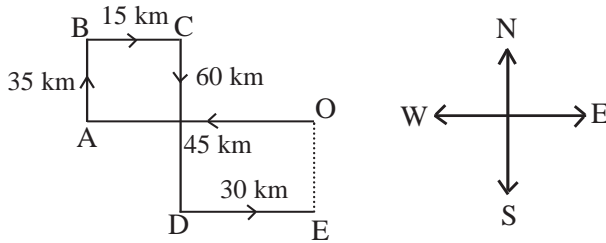
8. $18 \times 18 = 324$, $26 \times 26 = 676$
 $\therefore 31 \times 31 = 961$

9. $(5 \times 9) + 22 = 67$
 $(8 \times 7) + 15 = 71$
 $\therefore (9 \times 3) + 36 = 63$

10. $7 \quad 14 \quad 27 \quad 46 \quad 71 \quad ?(102)$
 $\uparrow \quad \uparrow \quad \uparrow \quad \uparrow \quad \uparrow$
 $+7 \quad +13 \quad +19 \quad +25 \quad +31$
 $\uparrow \quad \uparrow \quad \uparrow \quad \uparrow$
 $+6 \quad +6 \quad +6 \quad +6$

11. $W(23) \xrightarrow{-3} T(20) \xrightarrow{-3} Q(17) \xrightarrow{-3} N(14)$
 $P(16) \xrightarrow{+3} S(19) \xrightarrow{+3} V(22) \xrightarrow{+3} Y(25)$
 $I(9) \xrightarrow{+2} K(11) \xrightarrow{+2} M(13) \xrightarrow{+2} O(15)$

13. baab / baab / baab
 14. Required number of students = $17 + 18 - 1 = 34$
 15. Let O be the starting point and 'E' be the end point. Then,



Hence, the required distance = OE
 $= 60 - 35 = 25$ km.

16. The life-cycle of a butterfly is egg-larva-pupa-butterfly.
 17. A cobbler makes or repairs shoes. Similarly, a carpenter makes or repairs furniture.
 18. A wrestler is related to wrestle, similarly a player is related to game.
 19. In each group of letters, next letter is increasing in position number by 3.
 Hence, word related to ORUX is CFIL.
 20. $64 \times 4 = 256$,
 similarly $81 \times 4 = 324$.
 24. R = 56, 69, 78, 85, 97
 O = 03, 12, 20, 31, 44
 S = 59, 65, 77, 88, 96
 E = 00, 11, 24, 32, 43
 26. 'Amoral' refers to a perception which is objective without any principles.
 27. 'Apprise' means 'to inform'.
 28. The sentence is grammatically correct.
 29. The correct structure is 'No sooner...than.'
 32. The correct spelling is "Corduroy".
 33. The correct spelling is "Migraine".
 41. 1Q and PR are mandatory pairs.
 42. QP and SR are mandatory pairs.
 45. Instead of 'began', it should be 'begun' (participle form).
 46. 'Undistinguished' should be replaced by 'Undistinguishable'.
 49. 'Spill the beans' means to divulge secrets or confidential information.
 50. 'At the drop of a hat' denotes something that is done instantly or at the slightest provocation.
 51. $3 \sec^2 34^\circ \times \tan^2 56^\circ - \operatorname{cosec}^2 34^\circ - \cot^2 34^\circ - 2 \sin^2 56^\circ - 2 \sin^2 34^\circ$
 $= 3 \sec^2 34^\circ \times \tan^2 (90^\circ - 34^\circ) - \operatorname{cosec}^2 34^\circ - \cot^2 34^\circ - 2 \sin^2 (90^\circ - 34^\circ) - 2 \sin^2 34^\circ$
 $= 3 \sec^2 34^\circ \times \cot^2 34^\circ - \operatorname{cosec}^2 34^\circ - \cot^2 34^\circ - 2 \cos^2 34^\circ - 2 \sin^2 34^\circ$

$$\begin{aligned}
 &= 3 \operatorname{cosec}^2 34^\circ - \operatorname{cosec}^2 34^\circ - \cot^2 34^\circ - 2(\cos^2 34^\circ + \sin^2 34^\circ) \\
 &= \operatorname{cosec}^2 34^\circ + (\operatorname{cosec}^2 34^\circ - \cot^2 34^\circ) - 2 \\
 &= \operatorname{cosec}^2 34^\circ - 1 = \cot^2 34^\circ
 \end{aligned}$$

52. Let the radius of the cone and the hemisphere be 'x' cm and 'y' cm respectively. Then,

$$\frac{1}{3} \times \pi x^2 \times x : \frac{2}{3} \times \pi y^3 = 1 : 2$$

$$\Rightarrow x = y \therefore 2x = 2y$$

53. Label Price = $\frac{8892}{0.76}$
= 11,700

Cost price for Puneet = $\frac{11700}{130} \times 100 = 9,000$

54. $4a^2 + b^2 + c^2 = 2(2a - 3 + 2b - c)$
 $\Rightarrow 4a^2 - 4a + 1 + b^2 - 4b + 4 + c^2 + 2c + 1 = 0$
 $\Rightarrow (2a - 1)^2 + (b - 2)^2 + (c + 1)^2 = 0$
 $\Rightarrow a = \frac{1}{2}, b = 2 \text{ and } c = -1$

Hence, $4a - b - 3c = 2 - 2 + 3 = 3$

55. His percentage gain in the transaction = $\frac{\frac{7.26}{2} - \frac{1}{3} \left(\frac{9.6 \times 9 + 12.6 \times 1}{9 + 1} \right)}{\frac{1}{3} \left(\frac{9.6 \times 9 + 12.6 \times 1}{9 + 1} \right)} \times 100$
 $= \frac{3.63 - 3.3}{3.3} \times 100 = 10\%$

56. Let x be the required number of days. Then,

$$\frac{1}{x} = \frac{1}{30} + \frac{1}{70} = \frac{1}{21}$$

$$\Rightarrow x = 21$$

57. His percentage gain in the transaction = $\frac{(22.5 \times 2) - \left(\frac{50 \times 3 + 30 \times 7}{3 + 7} \right)}{\left(\frac{50 \times 3 + 30 \times 7}{3 + 7} \right)} \times 100$
 $= \frac{45 - 36}{36} \times 100$
 $= 25\%$

58. Area of the base triangle = inradius \times semi-perimeter
 $= 7 \times 18 = 126$

\therefore Height of the prism = $\frac{\text{Volume of the prism}}{\text{Area of the base}}$

$$= \frac{1134}{126} = 9 \text{ cm}$$

59. Let the required simple interest be 'x' and the principal be 'P'. Then,

$$\frac{31360}{x} = \frac{P \left(1 + \frac{12}{100}\right)^2}{\frac{P \times 3 \times 7}{100}}$$

$$\Rightarrow x = 5,250$$

60. $x \sin \theta - y \cos \theta = \sqrt{x^2 + y^2}$

$$\Rightarrow \frac{x}{\sqrt{x^2 + y^2}} \sin \theta - \frac{y}{\sqrt{x^2 + y^2}} \cos \theta = 1$$

$$\Rightarrow \sin \theta = \frac{x}{\sqrt{x^2 + y^2}} \text{ and } \cos \theta = -\frac{y}{\sqrt{x^2 + y^2}}$$

$$\frac{\sin^2 \theta}{a^2} + \frac{\cos^2 \theta}{b^2} = 1$$

Now,

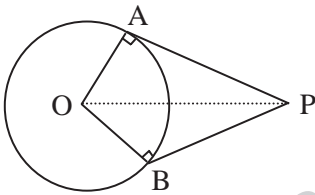
$$\Rightarrow \frac{\frac{x^2}{x^2 + y^2}}{a^2} + \frac{\frac{y^2}{x^2 + y^2}}{b^2} = 1$$

$$\Rightarrow \frac{x^2}{a^2} + \frac{y^2}{b^2} = x^2 + y^2$$

61. $a = \sqrt{3} + 5 \approx 6.7$, $b = 4 + \sqrt{5} \approx 6.3$ and $c = 3 + \sqrt{10} \approx 6.1$

$$\therefore a > b > c$$

62.



In right angled ΔPAO ,

$$OA = AP$$

$$\Rightarrow \angle AOP = 45^\circ$$

$$\Rightarrow \angle AOB = 2 \times \angle AOP = 2 \times 45^\circ = 90^\circ$$

63.
$$\frac{x^2}{x^2 - yz} + \frac{y^2}{y^2 - zx} + \frac{z^2}{z^2 - xz}$$

$$= \frac{x^2}{x^2 + xy + xz} + \frac{y^2}{y^2 + xy + yz} + \frac{z^2}{z^2 + yz + zx}$$

$$= \frac{x}{x+y+z} + \frac{y}{x+y+z} + \frac{z}{x+y+z} = 1$$

64. Let the length and breadth of the rectangle be 'l' cm and 'b' cm respectively, then the length and breadth of the new rectangle be '3l' cm and $\frac{b}{2}$ cm respectively.

$$\text{Required percentage increase} = \frac{3l \times \frac{b}{2} - lb}{lb} \times 100 = 50\%$$

65. For minimum value of $a^2 + b^2 + c^2$, $a^2 = b^2 = c^2$

$$\Rightarrow a = b = c = \frac{12}{3} = 4$$

$$\text{Hence, the minimum value of } a^2 + b^2 + c^2 = 3 \times 4^2 = 48$$

66. $646 - 22 = 624$

$$= 2 \times 2 \times 2 \times 2 \times 3 \times 13 = 78 \times 8$$

Hence, the largest 2 digits value of 'a' is 78.

67. Let the two digit number be $10x + y$. Then,

$$(10y + x) - (10x + y) = (10x + y) + 7$$

$$\Rightarrow 8y - 19x = 7 \dots\dots\dots (i)$$

$$\text{And, } y - 2x = 2 \dots\dots\dots (ii)$$

From equation (i) and (ii), we get

$$x = 3 \text{ and } y = 8$$

$$\text{Number} = (10 \times 3 + 8) = 38$$

68. Let $\angle ABC = x$, then

$$\angle CAB = \frac{x}{4} \text{ and } \angle ACB = 5, \angle CAB = \frac{5x}{4}$$

$$\therefore \angle ABC + \angle CAB + \angle ACB = 180^\circ$$

$$\Rightarrow x + \frac{x}{4} + \frac{5x}{4} = 180^\circ$$

$$\Rightarrow x = 72^\circ$$

69. Let AB be the building and position of the shadow changes from C to D. Then,

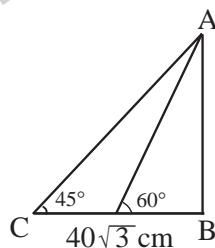
In right angled ΔABC ,

$$\tan 60^\circ = \frac{AB}{BC}$$

$$\Rightarrow BC = \frac{AB}{\sqrt{3}}$$

In right angled ΔABD ,

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



$$\Rightarrow AB = \frac{AB}{\sqrt{3}} + 40\sqrt{3}$$

$$\Rightarrow AB = \frac{120}{\sqrt{3} - 1} = 60(\sqrt{3} + 1) \text{ cm}$$

70. Let length of the train be 'x' m. Then,

$$x + 175 = 108 \times \frac{5}{18} \times 8$$

$$\Rightarrow x = 65$$

71. As ABCD is a cyclic quadrilateral, therefore, $\angle DAB + \angle BCD = 180^\circ$ and it is given,

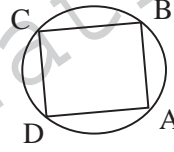
$$\angle ABC + \angle BCD = 180^\circ$$

$$\therefore \angle DAB = \angle ABC$$

$$= \frac{360^\circ - (\angle BCD + \angle CDA)}{2}$$

$$= \frac{360^\circ - 150^\circ}{2} = 105^\circ$$

$$\therefore \angle DAB - \angle ABC = 0^\circ$$



72. Required percentage = $\frac{25 - 20}{25} \times 100$

$$= 20\%$$

73. The cost of timber = $\frac{8}{100} \times \frac{1040000}{\left(1 + \frac{30}{100}\right)}$

$$= 64,000$$

74. Required average percentage = $\frac{\frac{45 + 35}{2}}{50} \times 100$

$$= 80\%$$

75. Required ratio = $(35 + 30) : 40$

$$= 13 : 8$$

97. Goods and Services Tax will come into force from 1st April 2017.

It is officially known as The Constitution (One Hundred and First Amendment) Act, 2016.

100. India, the world's third largest emitter of greenhouse gases, ratified the landmark Paris climate deal, giving a significant push for the deal to enter into force by the end of this year.

(ఈ నమూనా ప్రశ్నపత్రాన్ని Career Launcher సంస్థకు చెందిన నిపుణులు రూపొందించారు)