PART - I
GENERAL INTELLIGENCE

1. Raju is facing North. He goes 35 metres ahead, turns left and walk 20 metres. He turns right and covers 25 metres, then turns right to cover 30 metres. In which direction is he heading ?
   (A) North (B) South (C) East (D) West

2. Manoranjan walks 10 km towards South of point ‘P’, turns to his right and walks 4 km. Turn to his right and walks 10 km and then he turns to his left and covers a distance of 5 km. How far is he from the point ‘P’ ?
   (A) 1 km (B) 9 km (C) 14 km (D) 20 km

3. Select the correct combination of mathematical signs to replace * signs and to balance the given equation.
   7 * 2 * 3 * 5 * 6
   (A) - + = x (B) - + = x (C) = x + - (D) = x

4. If ‘x’ means ‘+’, ‘*’ means ‘-’, ‘-’ means ‘x’ and ‘-?’ means ‘=’, then
   \[6 \times 4 - 5 + 2 + 1 = ?\]
   (A) 10 (B) 11 (C) 12 (D) 15

5. At a restaurant, five guests are sitting in a row. Neeta is to the left of Manju and to the right of Navin. Rishab is to the right of Kavita, but to the left of Navin. Where is Navin sitting ?
   (A) Extreme right (B) Centre (C) Extreme left (D) Second from the right

6. Statements : All Huts are painted blue.
   Some blue buildings are Bungalows.
   Inferences : I. All Bungalows are blue.
   II. Some blue buildings are not Huts.
   (A) Only inference I follows. (B) Only inference II follows. (C) Both inferences I and II follow. (D) Neither of the two inferences follows.

7. Statements : All chillies are garlics.
   Some garlics are onions.
   All onions are potatoes.
   No potato is ginger.
   Conclusions : I. Some chillies are potatoes.
   II. No onion is ginger.
   (A) Only conclusion I follows. (B) Only conclusion II follows. (C) Both the conclusions I and II follow. (D) None of the conclusions follow.

8. \[5 + 9 + 5 \times 2 = 12\]

9. \[6 \div 3 = [3] \div 2 = ?\]
Directions: (Q. Nos. 8 to 14) Select the related word/letter/number from the given alternatives.

8. Jaundice : Liver :: ?
   (A) Dialysis: Kidney
   (B) Rash: Skin
   (C) Imagination: Brain
   (D) Valentine: Heart

9. ABDE : PQST :: MNPQ : ?
   (A) EFHI
   (B) UVXZ
   (C) IJLN
   (D) TVWX

10. ELIMS : SMILE :: KRAPS : ?
    (A) KRAPS
    (B) SPARK
    (C) PARKS
    (D) KARPS

11. 64 : 100 :: 16 : ?
    (A) 25
    (B) 36
    (C) 50
    (D) 55

12. 167 : 14 :: 143 : ?
    (A) 7
    (B) 8
    (C) 9
    (D) 10

13. Mathematics : Numbers :: History : ?
    (A) People
    (B) Events
    (C) Dates
    (D) Wars

14. Ancient : Modern :: Often : ?
    (A) Always
    (B) Never
    (C) Seldom
    (D) Regular

Directions: In Question Nos. 15 to 18, find the odd word/letters/number pair from the given alternatives.

15. (A) Reward
    (B) Praise
    (C) Encourage
    (D) Punishment

16. (A) 66 : 56
    (B) 101 : 90
    (C) 41 : 30
    (D) 33 : 22

17. (A) Yod Kripa
    (B) Shakti (Shakti)
    (C) Durga
    (D) Mandira

18. (A) FHJL
    (B) DGIK
    (C) KMOQ
    (D) SUWY

19. Which one set of letters when sequentially placed at the gaps in the given letter series shall complete it?
   _ dbc _d _ ca _ bead _ c_db _
   (A) a, a, b, d, b, a, c
   (B) b, b, d, c, a, a, d
   (C) c, c, b, a, b, d, c
   (D) a, c, a, d, d, b, c
Directions: In Question Nos. 23 to 25, a series is given with one term missing. Choose the correct alternative from the given ones that will complete the series.

23. 2, 3, 10, 15, ?
   (A) 25  (B) 26  (C) 4  (D) 6

24. CAE, HFJ, MKO, RPT, ?
   (A) WUY  (B) UTY  (C) VUZ  (D) WUZ

25. 12, 26, 54, 110, ?
   (A) 223  (B) 222  (C) 220  (D) 225

26. Jamal was born on Feb. 29, 1988. How many birthdays will be celebrated up to 29-2-2004?
   (A) 4  (B) 5  (C) 8  (D) 16

27. Ram is elder than Shyam. Lakshman is elder than Shyam, but younger than Ram. Hanuman is younger than both Hari and Shyam. Shyam is elder than Hari. Who is the youngest?
   (A) Ram  (B) Lakshman  (C) Hanuman  (D) Hari

28. Raju and his grandfather have an age difference of 65 years at present. After 10 years the sum of their age is 95 years. What is the present age of Raju and his grandfather?
   (A) 15 & 80  (B) 10 & 65  (C) 5 & 70  (D) 5 & 65

29. In given letter series how many times 'L' occurs, which is in between TY?
   BTLYDEFLFLRYLYZGHTLILYTLY
   (A) 3  (B) 5  (C) 4  (D) 6

30. If A = 1, BAD = 7, then HAT =
   (A) 8  (B) 10  (C) 19  (D) 29

31. If FAITH is coded as 82731, HABIT is coded as 12573 and HEALTH is coded as 192431, how can BELIEF be coded?
   (A) 594598  (B) 594789  (C) 594978  (D) 594798

32. If NATIONAL can be written as LNAANTOI, how can DOMESTIC be written?
   (A) CDIOMTES  (B) CDIOTMSE  (C) CTSIMODE  (D) CSITEMOD

33. In a class, Kartik’s rank is 17th from the top and 28th from the bottom. How many students are there in the class?
   (A) 45  (B) 41  (C) 40  (D) 44

34. Vikash said, “That boy is the grandson of my mother’s husband. I have no brother and sister.” How is the boy related to Vikash?
   (A) Uncle  (B) Son  (C) Nephew  (D) Cousin
35. From the given alternatives, select the word which cannot be formed using the letters of the given word.

**BANGALORE**
(A) GARBAGE (B) ORANGE (C) LARGE (D) BANGLE

36. Out of 1865 people, 660 can speak English and 1305 can speak Marathi. But, 120 persons can't speak either language. Then how many can speak both languages?

(A) 220 (B) 440 (C) 120 (D) 1085

37. Some letters are given below in the first line and numbers are given below them in the second line. Numbers are the codes for the alphabets and vice-versa. Choose the correct letter code for the given set of numbers.

EMKBZWQUDJ, 5916482073630825

(A) BJQWUE (B) BJUWQE (C) BJWUQE (D) BJEWUQ

38. From the given alternatives, select the word which can be formed using the letters given in the word.

**ABOMINABLE**
(A) BOWEL (B) METAL (C) BLAND (D) BANAL

39. In Question Nos. 39 and 40, some equations are solved on the basis of a certain system. Find the correct answer for the unsolved equation on that basis.

39. 6 x 4 x 5 = 456
(A) 349 (B) 934 (C) 394 (D) 493

36. 1865 लोगों में से, 660 अंग्रेजी बोलते हैं और 1305 मराठी बोलते हैं। परंतु 120 लोग दोनों भाषाओं को नहीं बोलते हैं, तो जितने लोग दोनों भाषाओं को बोलते हैं?
(A) 220 (B) 440 (C) 120 (D) 1085

40. जो 228 = 12 और 337 = 16, तो 569 = ?
(A) 42 (B) 39 (C) 36 (D) 26

39. 6 x 4 x 5 = 456
3 x 2 x 8 = 283
4 x 9 x 3 = ?
(A) 349 (B) 934 (C) 394 (D) 493

40. यदि 228 = 12 और 337 = 16, तो 569 = ?
(A) 42 (B) 39 (C) 36 (D) 26

37. From the given alternatives, select the word which cannot be formed using the letters of the given word.

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(A) 220 (B) 440 (C) 120 (D) 1085

40. जो 228 = 12 और 337 = 16, तो 569 = ?
(A) 42 (B) 39 (C) 36 (D) 26
43. Choose the correct alternative from the given ones that will complete the series.

Question Figures:

Answer Figures:

44. Select the related figure from the given alternatives.

Question Figures:

Answer Figures:

45. Select the figure which is different from the rest three?

Answer Figures:

46. Select the missing number from the given responses.

(A) 10  (B) 12  (C) 13  (D) 15

47. Identify the diagram that best represents the relationship among classes given below:

Doctor, Patient, Human being

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

48. Which answer figure will complete the pattern in the question figure?

Question Figure:

Answer Figures:

49. Which answer figure will complete the pattern in the question figure?

(A)  (B)  (C)  (D)
49. A piece of paper is folded and cut as shown below in the question figures. From the given answer figures, indicate how it will appear when opened?

**Question figures:**

**Answer figures:**

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

50. From the given answer figures, select the one in which the question figure is hidden/embedded.

**Question figure:**

**Answer figures:**

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

45. If 'S' means '-', 'Q' means 'x', 'R' means '+' and 'P' means '÷' then 1 P 45 R 2 Q 2 S 4 = ?

(A) 40 (B) 42 (C) 36 (D) 46

46. A group of 30 students play cricket and football. 20 play cricket and 15 play football. Each student plays at least one game. How many of them play both?

(A) 0 (B) 5 (C) 10 (D) 15

47. In a row of trees, a tree is 11th in the row from the left and 16th from the right. How many trees are there in the row?

(A) 27 (B) 26 (C) 25 (D) 28

48. What greatest number of 5 digits is divisible by 315?

(A) 99685 (B) 99999 (C) 99555 (D) 99568

49. How many 5s are there in the following number series, which are preceded by '3' but not followed by '2'?

5243546785325735642354752358356

(A) Two (B) Three (C) Four (D) More than four

50. In a joint family there are father, mother, 3 married sons and one unmarried daughter. Of the sons, two have 2 daughters each, and one has a son. How many female members are there in the family?

(A) 2 (B) 3 (C) 6 (D) 9
52. She said to me, "I took breakfast in the morning.

53. John's father reminded him to take his umbrella.

54. He said to her, "Why didn't you put on the brakes?

55. She said to me, "I had put on the brake.

56. "Don't forget to take your umbrella John," his father said. "Remember your umbrellas when you go out."

57. She exclaimed that she had put on the brakes.

58. It does not mean laying down a heavy object.

59. Science is concerned with finding out how things actually happen.

60. This did not agree with the views of most learned men of that time.

61. Nobel prizes for various contributions to humanity are awarded each year.

6. Prizes are given from this fund to people for their enormous destructive power too late.

6. But Galileo proved his point experimentally by dropping weights from the Leaning Tower of Pisa.

6. In the universe, there is no question of the four forces at work.

6. Miss Sullivan was simply making her concerns Galileo's discovery.

6. She asked him why he hadn't put on the brakes.

6. "Don't forget to take your umbrella," John's father said. 

6. Science is concerned with finding out how things actually happen.

6. Miss Sullivan put her big rag doll into her lap and also spelled 'd-o-l-f on to Helen's hand.

6. Helen was simply making her concerns Galileo's discovery.

6. She asked him why he hadn't put on the brakes.

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6. Helen was simply making her concerns Galileo's discovery.

6. She asked him why he hadn't put on the brakes.
16.

Directions: In Question Nos. 62 to 66, in the following passage of 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.

Usually exhaust fans are fitted with an external guard (grill or mesh). Such guards are useful to prevent accidental contact with moving parts of the fan. The tests revealed that though all the models tested conformed to the safety tests, their air delivery and electricity consumption differed widely and hence, their service value also varied. Consumers should make a conscious decision depending on their need. For small spaces, an exhaust fan with high service value would be best because such a fan will give you sufficient air delivery with low energy cost. But for bigger spaces perhaps you wouldn't like to compromise with the air delivery of the fan, even if it adds a little more to your energy bill.

The decision of the customers to buy an exhaust fan would depend on their liking, desire, requirement, or fancy.

Directions: In Question Nos. 72 to 76, some parts of the sentences have errors and some are correct. Find out which part of a sentence has an error and blacken the oval corresponding to the appropriate letter (A, B, C). If a sentence is free from errors, blacken the oval corresponding to (D).

As a boy Dhritiman is very obedient, polite and hard-working. 

but as a student he is always inattentive in study.

When I fail to solve the problem myself, I unhesitatingly called for his help.

I and Tina will go to the market in the evening.

Krishnakali, an early riser and a nature-lover goes to morning walk at Rabindra Sarovar lake before dawn.

There would have been a disaster and for your prompt action.

Come what principles. I shall adhere to my principles.

Slow and steady wins the race.

Night came on and the room was dark.

Only patience and fortitude carried him through the crisis.

Octopuses are mostly shy and harmless to human beings.
Directions: In Question Nos. 82 & 83, choose the word opposite in meaning to the given word and mark it in the Answer Sheet.

82. Indifferent
(A) restless  (B) inattentive  (C) attentive  (D) reliable

83. Agitate
(A) please  (B) disturb  (C) pacify  (D) rouse

Directions: In Question Nos. 84 & 85, four words are given in each question, out of which only one word is correctly spelt. Find the correctly spelt word and mark your answer in the Answer Sheet.

84. (A) wellful  (C) wilful
(B) wilfull  (D) willfull

85. (A) satelite  (C) satallite
(B) satellite  (D) satellite

Directions: In Question Nos. 86 & 87, out of the four alternatives, choose the one which best expresses the meaning of the given word and mark it in the Answer Sheet.

86. Pretend
(A) guess  (B) suspect  (C) think  (D) feign

87. Anguished
(A) sorrowful  (B) doubtful  (C) respectful  (D) joyful

Directions: In Question Nos. 88 to 90, four alternatives are given for the Idiom/Phrase underlined in the sentence. Choose the alternative which best expresses the meaning of the Idiom/Phrase and mark it in the Answer Sheet.

88. We have to put up with the sorrows of life.
(A) bear patiently  (B) fight against  (C) welcome cheerfully  (D) treat with indifference

89. I saw through the trick and was on guard.
(A) anticipated  (B) detected  (C) witnessed  (D) defeated

90. He is not a good lawyer but he has the gift of the gab.
(A) He can talk very fast.  (B) He can speak very well.  (C) He has a good voice.  (D) He can pretend convincingly.

Directions: In Question Nos. 94 & 95, a part of the sentence is underlined. Below are given alternatives to the underlined part at (A), (B), (C) which may improve the sentence. Choose the correct alternative. In case no improvement is needed, your answer is (D). Mark your answer in the Answer Sheet.

94. The President shook hands with all the persons on the dais.
(A) shook hands with all.  (B) shook hands with each of the persons.  (C) shook hands with everyone.  (D) no improvement.

95. The fronds of the coconut tree make a gentle musical note when the wind blows.
(A) music note  (B) music sound  (C) musical sound  (D) no improvement.

Directions: In Question Nos. 96 to 100, 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 and mark your answer in the Answer Sheet.

96. I don’t like people telling me what to do.
(A) I don’t like it when people are telling me what to do.  (B) I don’t like being told what to do.  (C) Telling me what to do is what I don’t like.  (D) I don’t like people when they tell me what to do.

97. Have you been shown what to do?
(A) Have anybody been shown by you what to do?  (B) Have anybody been showing you what to do?  (C) Has you been shown what to do?  (D) Has anybody shown you what to do?

98. Aditya saw Dinesh shopping at the mall.
(A) Dinesh is seen shopping at the mall by Aditya.  (B) Dinesh was seen shopping at the mall by Aditya.  (C) Dinesh was being seen shopping at the mall by Aditya.  (D) Dinesh is being seen shopping at the mall by Aditya.

99. He wasn’t given the information he needed.
(A) Somebody was not given the information he needed.  (B) The information he needed wasn’t given to him.  (C) He needed the information he wasn’t given.  (D) They didn’t give him the information he needed.

100. Bipin was not told about the meeting.
(A) Somebody did not tell Bipin about the meeting.  (B) There was nobody who could tell Bipin about the meeting.  (C) Nobody told Bipin about the meeting.  (D) The meeting was not told about to Bipin.
101. The radius of cross-section of a solid cylindrical rod of iron is 50 cm. The cylinder is melted down and formed into 6 solid spherical balls of the same radius as that of the cylinder. The length of the rod (in metres) is
(A) 0.8
(B) 2
(C) 3
(D) 4

102. The volume of a hemisphere is equal to the volume of a right-circular cylinder whose radius of the base is equal to the radius of the hemisphere. Then the ratio of the height and the radius of the base of the right-circular cylinder is
(A) 2:3
(B) 3:2
(C) 1:3
(D) 1:2

103. If the base of a right pyramid is a triangle of sides 5 cm, 12 cm, 13 cm and its volume is 330 cm$^3$, then its height (in cm) will be
(A) 33
(B) 32
(C) 11
(D) 22

104. The perimeter of a rhombus is 100 cm and one of its diagonals is 40 cm. Its area (in cm$^2$) is
(A) 1200
(B) 1000
(C) 600
(D) 500

105. A kite in the shape of a square with a diagonal 32 cm attached to an equilateral triangle of the base 8 cm. Approximately how much paper has been used to make it?
(use $\sqrt{3} = 1.732$
(A) 539.712 cm$^2$
(B) 538.721 cm$^2$
(C) 540.712 cm$^2$
(D) 539.217 cm$^2$

106. $2 \sin 68^\circ \cdot 2 \cot 15^\circ - \cos 22^\circ \cdot 5 \tan 75^\circ - 3 \tan 45^\circ \cdot \tan 20^\circ \cdot \tan 40^\circ \cdot \tan 50^\circ \cdot \tan 70^\circ$ is equal to
(A) $\frac{1}{5}$
(B) 0
(C) 1
(D) 2

107. The value of $\cos^2 18^\circ - \cot^2 72^\circ$ is
(A) $\frac{1}{3}$
(B) 2
(C) 3
(D) 1

108. If $\alpha + \beta = 90^\circ$, then the value of $1 - \sin^2 \alpha (1 - \cos^2 \beta) (1 + \tan^2 \beta)$ is
(A) 1
(B) -1
(C) 0
(D) 2

109. If $\tan \theta - \cot \theta = 0$, find the value of $\sin \theta + \cos \theta$.
(A) 0
(B) 1
(C) 2
(D) 3

110. If the interior angle of a regular polygon is double the measure of exterior angle, then the number of sides of the polygon is
(A) 6
(B) 8
(C) 10
(D) 12

111. A right prism stands on a base 6 cm equilateral triangle and its volume is $81\sqrt{3} \text{ cm}^3$. The height (in cm) of the prism is
(A) 9
(B) 10
(C) 12
(D) 15

PART - III
QUANTITATIVE APTITUDE

102. The volume of a hemisphere is equal to the volume of a right-circular cylinder whose radius of the base is equal to the radius of the hemisphere. Then the ratio of the height and the radius of the base of the right-circular cylinder is
(A) 2:3
(B) 3:2
(C) 1:3
(D) 1:2

103. If the base of a right pyramid is a triangle of sides 5 cm, 12 cm, 13 cm and its volume is 330 cm$^3$, then its height (in cm) will be
(A) 33
(B) 32
(C) 11
(D) 22

104. The perimeter of a rhombus is 100 cm and one of its diagonals is 40 cm. Its area (in cm$^2$) is
(A) 1200
(B) 1000
(C) 600
(D) 500

105. A kite in the shape of a square with a diagonal 32 cm attached to an equilateral triangle of the base 8 cm. Approximately how much paper has been used to make it?
(use $\sqrt{3} = 1.732$
(A) 539.712 cm$^2$
(B) 538.721 cm$^2$
(C) 540.712 cm$^2$
(D) 539.217 cm$^2$

106. $2 \sin 68^\circ \cdot 2 \cot 15^\circ - \cos 22^\circ \cdot 5 \tan 75^\circ - 3 \tan 45^\circ \cdot \tan 20^\circ \cdot \tan 40^\circ \cdot \tan 50^\circ \cdot \tan 70^\circ$ is equal to
(A) $\frac{1}{5}$
(B) 0
(C) 1
(D) 2

107. The value of $\cos^2 18^\circ - \cot^2 72^\circ$ is
(A) $\frac{1}{3}$
(B) 2
(C) 3
(D) 1

108. If $\alpha + \beta = 90^\circ$, then the value of $1 - \sin^2 \alpha (1 - \cos^2 \beta) (1 + \tan^2 \beta)$ is
(A) 1
(B) -1
(C) 0
(D) 2

109. If $\tan \theta - \cot \theta = 0$, find the value of $\sin \theta + \cos \theta$.
(A) 0
(B) 1
(C) 2
(D) 3

110. If the interior angle of a regular polygon is double the measure of exterior angle, then the number of sides of the polygon is
(A) 6
(B) 8
(C) 10
(D) 12

111. A right prism stands on a base 6 cm equilateral triangle and its volume is $81\sqrt{3} \text{ cm}^3$. The height (in cm) of the prism is
(A) 9
(B) 10
(C) 12
(D) 15

112. A kite in the shape of a square with a diagonal 32 cm attached to an equilateral triangle of the base 8 cm. Approximately how much paper has been used to make it?
(use $\sqrt{3} = 1.732$
(A) 539.712 cm$^2$
(B) 538.721 cm$^2$
(C) 540.712 cm$^2$
(D) 539.217 cm$^2$

SPACE FOR ROUGH WORK
112. If \((x-\sqrt{24})(\sqrt{75}+\sqrt{50})=1\), then the value of \(x\) is
(A) \(\sqrt{5}\)  (B) 5  (C) \(2\sqrt{5}\)  (D) \(3\sqrt{5}\)

113. The total number of Prime factors in
\(4^{10} \times 7^{3} \times 16^{2} \times 11 \times 10^{2}\) is
(A) 34  (B) 35  (C) 36  (D) 37

114. Out of the numbers 0.3, 0.03, 0.9, 0.09 the number that is nearest to the value of \(\frac{N}{0.9}\) is
(A) 0.3  (B) 0.03  (C) 0.9  (D) 0.09

115. In a division sum, the divisor is 12 times the quotient and 5 times the remainder. If the remainder is 36, then the dividend is
(A) 2706  (B) 2796  (C) 2736  (D) 2826

116. The value of
\[\frac{3^{2} + 2 + \frac{1}{11} + \frac{1}{2} (\frac{1}{2} - \frac{1}{3} - \frac{1}{6})}{2} \]
is
(A) \(\frac{1}{2}\)  (B) \(\frac{2}{2}\)  (C) \(3^{2}\)  (D) \(2\frac{9}{2}\)

117. Arbind spends 75% of his income and saves the rest. His income is increased by 20% and he increases his expenditure by 10%. Then the increase in savings in percentage is
(A) 55%  (B) 52%  (C) 50%  (D) 48%

118. Two alloys are both made up of copper and tin. The ratio of copper and tin in the first alloy is 1 : 3 and in the second alloy is 2 : 5. In what ratio should the two alloys be mixed to obtain a new alloy in which the ratio of tin and copper be 8 : 3?
(A) 3 : 5  (B) 4 : 7  (C) 3 : 8  (D) 5 : 11

119. \[\binom{11}{*} \binom{11}{*} \binom{11}{*} \binom{11}{*} \]
is equal to
(A) 1  (B) \(\frac{1}{2}\)  (C) 2  (D) \(\frac{1}{3}\)

120. The sum of two numbers is 520. If the bigger number is decreased by 4% and the smaller number is increased by 12%, then the numbers obtained are equal. The smaller number is
(A) 280  (B) 210  (C) 240  (D) 300

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121. A mixture contains alcohol and water in the ratio 4 : 3. If 5 litres of water is added to the mixture, the ratio becomes 4 : 5. The quantity of alcohol in the given mixture is 
(A) 3 litres (B) 4 litres 
(C) 15 litres (D) 16 litres

122. The average of nine consecutive numbers is n. If the next two numbers are also included the new average will 
(A) increase by 2 (B) remain the same 
(C) increase by 1.5 (D) increase by 1

123. The simple interest on a sum of money is \( \frac{7}{10} \) of the sum. If the number of years is numerically equal to the rate percent per annum, then the rate percent per annum is 
(A) 3\% (B) 6\% (C) 4 (D) 4\%

124. If \( a + b : b + c : (c + a) = 6 : 7 : 8 \) and \( a + b + c = 14 \), then the value of \( c \) is 
(A) 6 (B) 7 
(C) 8 (D) 14

125. Evaluate 
\[ \sqrt{20 + \sqrt{12 + \frac{4}{\sqrt{5 + \sqrt{3}}}}} - \sqrt{81} \]
(A) \( \sqrt{2} \) (B) \( \sqrt{5} \) 
(C) 0 (D) 2\( \sqrt{2} \)

SPACE FOR ROUGH WORK

126. A mobile phone is listed at ₹ 1,500 and a discount of 10% is offered on the list price. What additional discount must be offered to the customer now to bring the net price to ₹ 1,242 ? 
(A) 10\% (B) 8\% 
(C) 12\% (D) 18\%

127. A, B and C entered into a business and their investments ratio was 5 : 4 : 3. After 4 months B invested ₹ 1,000 more and after 8 months C invested ₹ 2,000 more. At the end of one year the profit ratio was 15 : 14 : 11, then the investment of C at the beginning was 
(A) ₹ 3,000 (B) ₹ 6,000 
(C) ₹ 4,500 (D) ₹ 7,500

128. Evaluate 
\[ \frac{2013}{2013 - 24} \]
(A) 2015 (B) 1995 
(C) 1000 (D) 2024

129. An article was sold at a profit of 12\%. If the cost price would be 10\% less and selling price would be ₹ 5.75 more, there would be profit of 30\%. Then at what price it should be sold to make a profit of 20\% ? 
(A) ₹ 115 (B) ₹ 120 
(C) ₹ 125 (D) ₹ 130

130. If the cost price of 12 pens is equal to the selling price of 8 pens, the gain percentage is 
(A) 25\% (B) 33\% \( \frac{1}{3} \) 
(C) 50\% (D) 66\% \( \frac{2}{3} \)

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(A) 3\% (B) 6\% (C) 4 (D) 4\%

124. If \( a + b : b + c : (c + a) = 6 : 7 : 8 \) and \( a + b + c = 14 \), then the value of \( c \) is 
(A) 6 (B) 7 
(C) 8 (D) 14

125. Evaluate 
\[ \sqrt{20 + \sqrt{12 + \frac{4}{\sqrt{5 + \sqrt{3}}}}} - \sqrt{81} \]
(A) \( \sqrt{2} \) (B) \( \sqrt{5} \) 
(C) 0 (D) 2\( \sqrt{2} \)

SPACE FOR ROUGH WORK

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\[ \frac{2013}{2013 - 24} \]
(A) 2015 (B) 1995 
(C) 1000 (D) 2024

129. An article was sold at a profit of 12\%. If the cost price would be 10\% less and selling price would be ₹ 5.75 more, there would be profit of 30\%. Then at what price it should be sold to make a profit of 20\% ? 
(A) ₹ 115 (B) ₹ 120 
(C) ₹ 125 (D) ₹ 130

130. If the cost price of 12 pens is equal to the selling price of 8 pens, the gain percentage is 
(A) 25\% (B) 33\% \( \frac{1}{3} \) 
(C) 50\% (D) 66\% \( \frac{2}{3} \)
131. If \( a - b = 3 \) and \( a^3 - b^3 = 117 \), then \( |a + b| \) is equal to

\[
\text{(A) } 3 \quad \text{(B) } 5 \quad \text{(C) } 7 \quad \text{(D) } 9
\]

132. If \( a + b + c = 15 \) and \( a^2 + b^2 + c^2 = 83 \), then the value of \( a^3 + b^3 + c^3 - 3 abc \) is

\[
\text{(A) } 200 \quad \text{(B) } 180 \quad \text{(C) } 190 \quad \text{(D) } 210
\]

133. If the graphs of the equations \( 3x + 2y = 18 \) and \( 3y - 2x = 1 \) intersect at the point \( (p, q) \), then the value of \( p + q \) is

\[
\text{(A) } 7 \quad \text{(B) } 6 \quad \text{(C) } 5 \quad \text{(D) } 4
\]

134. If \( x = \sqrt{15} \), the value of \( \frac{x^2 + 2x + 1}{x^2 - 2x + 1} \) is

\[
\text{(A) } 1 \quad \text{(B) } 2 \quad \text{(C) } 3 \quad \text{(D) } 4
\]

135. If 4 men or 6 women can do a piece of work in 12 days working 7 hours a day; how many days will it take to complete a work twice as large with 10 men and 3 women working together 8 hours a day?

\[
\text{(A) } 6 \quad \text{(B) } 7 \quad \text{(C) } 8 \quad \text{(D) } 10
\]

136. If \( x^2 - 3x + 1 = 0 \), then the value of \( x^3 + \frac{1}{x^3} \) is equal to

\[
\text{(A) } 87 \quad \text{(B) } 123 \quad \text{(C) } 135 \quad \text{(D) } 201
\]

137. ABC is an isosceles right angled triangle with \( \angle B = 90^\circ \). On the sides AC and AB, two equilateral triangles ACD and ABE have been constructed. The ratio of areas of \( \triangle ABE \) and \( \triangle ACD \) is

\[
\text{(A) } 1:3 \quad \text{(B) } 2:3 \quad \text{(C) } 1:1 \quad \text{(D) } 1:1\sqrt{2}
\]

138. The radii of two concentric circles are 13 cm and 8 cm. AB is a diameter of the bigger circle and BD is a tangent to the smaller circle touching it at D and the bigger circle at E. Point A is joined to D. The length of AD is

\[
\text{(A) } 20 \quad \text{(B) } 19 \quad \text{(C) } 18 \quad \text{(D) } 17
\]

139. The radius of two concentric circles are 17 cm and 10 cm. A straight line ABCD intersects the larger circle at the point A and D and intersects the smaller circle at the points B and C. If BC = 12 cm, then the length of AD (in cm) is

\[
\text{(A) } 20 \quad \text{(B) } 24 \quad \text{(C) } 30 \quad \text{(D) } 34
\]

140. The exterior angles obtained on producing the base BC of a triangle ABC in both ways are 120° and 105°, then the vertical \( \angle A \) of the triangle is of measure

\[
\text{(A) } 36^\circ \quad \text{(B) } 40^\circ \quad \text{(C) } 45^\circ \quad \text{(D) } 55^\circ
\]

141. If AD, BE and CF are medians of \( \triangle ABC \), then which one of the following statements is correct?

\[
\begin{align*}
\text{(A) } AD + BE + CF & < AB + BC + CA \\
\text{(B) } AD + BE + CF & > AB + BC + CA \\
\text{(C) } AD + BE + CF & = \sqrt{2}(AB + BC + CA) \\
\text{(D) } AD + BE + CF & = \sqrt{2}(AB + BC + CA)
\end{align*}
\]

137. ABC is an isosceles right angled triangle, \( \angle B = 90^\circ \), then \( \angle A + \angle C \) is equal to

\[
\text{(A) } 2 \times 3 \quad \text{(B) } 2 \times 5 \quad \text{(C) } 2 \times 1 \quad \text{(D) } 2 \times 9
\]

132. If \( a + b + c = 15 \) and \( a^2 + b^2 + c^2 = 83 \), then the value of \( a^3 + b^3 + c^3 - 3 abc \) is

\[
\text{(A) } 200 \quad \text{(B) } 180 \quad \text{(C) } 190 \quad \text{(D) } 210
\]

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\[
\text{(A) } 7 \quad \text{(B) } 6 \quad \text{(C) } 5 \quad \text{(D) } 4
\]

134. If \( x = \sqrt{15} \), the value of \( x^2 + 2x + 1 \) is

\[
\text{(A) } 1 \quad \text{(B) } 2 \quad \text{(C) } 3 \quad \text{(D) } 4
\]

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\[
\text{(A) } 2 \times 3 \quad \text{(B) } 2 \times 5 \quad \text{(C) } 2 \times 1 \quad \text{(D) } 2 \times 9
\]
142. The product of two numbers is 2160 and their HCF is 12. Number of such possible pairs is
(A) 1 (B) 2 (C) 3 (D) 4

143. If two pipes function simultaneously, a tank is filled in 12 hours. One pipe fills the tank 10 hours faster than the other. How many hours does the faster pipe alone take to fill the tank?
(A) 20 (B) 18 (C) 15 (D) 12

144. Two right circular cones of equal heights of radii of bases 3 cm and 4 cm are melted together and made to a solid sphere of radius 5 cm. The height of a cone is
(A) 10 cm (B) 20 cm (C) 30 cm (D) 40 cm

145. The elevation of the top of a tower from a point on the ground is 45°. On travelling 60 m in a direction towards the tower, the elevation of the top becomes 60°. The height of the tower, in metres is
(A) 30 (B) 30(3 - \sqrt{3}) (C) 30(3 + \sqrt{3}) (D) 30

146. The value of \( \frac{(a-b)^2}{(b-c)(c-a)} + \frac{(b-c)^2}{(c-a)(a-b)} + \frac{(c-a)^2}{(a-b)(b-c)} \) where a ≠ b ≠ c, is
(A) 0 (B) 1 (C) 2 (D) 3

147. The decrease in the number of candidates qualified under Arts discipline from 2010 to 2011 was
(A) 11 (B) 18 (C) 42 (D) 69

148. The difference in the average number of candidates qualified in Science discipline per year from 2006 to 2008 and the average number of candidates qualified in the same discipline from 2009 to 2011 was
(A) 47 (B) 57 (C) 74 (D) 141

149. Direction: Study the following table and answer Question Nos. 147 and 148.

<table>
<thead>
<tr>
<th>Year</th>
<th>Arts</th>
<th>Science</th>
<th>Commerce</th>
<th>Agriculture</th>
<th>Engineering</th>
<th>Total Candidates Qualified</th>
</tr>
</thead>
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<td>40</td>
<td>19</td>
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<td>09</td>
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<tr>
<td>2007</td>
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<td>18</td>
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<td>12</td>
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<td>20</td>
<td>08</td>
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<td>15</td>
<td>46</td>
<td>14</td>
<td>10</td>
<td>12</td>
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<td>35</td>
<td>15</td>
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</tr>
<tr>
<td>2011</td>
<td>18</td>
<td>42</td>
<td>14</td>
<td>12</td>
<td>14</td>
<td>850</td>
</tr>
</tbody>
</table>

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149. If two pipes function simultaneously, a tank is filled in 12 hours. One pipe fills the tank 10 hours faster than the other. How many hours does the faster pipe alone take to fill the tank?
(A) 20 (B) 18 (C) 15 (D) 12

150. If two pipes function simultaneously, a tank is filled in 12 hours. One pipe fills the tank 10 hours faster than the other. How many hours does the faster pipe alone take to fill the tank?
(A) 20 (B) 18 (C) 15 (D) 12

151. The elevation of the top of a tower from a point on the ground is 45°. On travelling 60 m in a direction towards the tower, the elevation of the top becomes 60°. The height of the tower, in metres is
(A) 30 (B) 30(3 - \sqrt{3}) (C) 30(3 + \sqrt{3}) (D) 30

152. The value of \( \frac{(a-b)^2}{(b-c)(c-a)} + \frac{(b-c)^2}{(c-a)(a-b)} + \frac{(c-a)^2}{(a-b)(b-c)} \) where a ≠ b ≠ c, is
(A) 0 (B) 1 (C) 2 (D) 3

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Direction: Study the following graph and answer Q. No. 149 & 150.

149. In which year, there has been a maximum percentage increase in the amount invested in raw materials compared to the previous year?
(A) 1996  (B) 1997  (C) 1998  (D) 1999

150. What was the difference between the average amount invested in raw materials during the given period and the average value of sales of finished goods during this period?
(A) ₹ 62.5 lakhs  (B) ₹ 68.5 lakhs  (C) ₹ 71.5 lakhs  (D) ₹ 77.5 lakhs

For Visually Handicapped Candidates only

147. A and B’s income are in the ratio 3:2 and their expenses are in the ratio 5:3. If each of them saves ₹2000, then the income of A is
(A) ₹8,000  (B) ₹10,000  (C) ₹12,000  (D) ₹15,000

148. A and B have monthly incomes in the ratio 6:5 and their monthly expenditures in the ratio 4:3. If they save ₹1,600 and ₹1,800 respectively per month, then the monthly income of B is
(A) ₹7,200  (B) ₹5,800  (C) ₹6,400  (D) ₹6,000

149. Ratio of incomes of A and B is 4:5 and ratio of their expenditure is 3:4. If each A and B save ₹1,500, then the income of A is
(A) ₹6,000  (B) ₹7,500  (C) ₹5,500  (D) ₹5,000

150. The ratio of monthly incomes of A and B is 3:4 and the ratio of their monthly expenditure is 2:3. If each of them saves ₹12,000 per month, then monthly income of A is
(A) ₹24,000  (B) ₹36,000  (C) ₹48,000  (D) ₹60,000

Space for Rough Work
151. Who is the Union Minister of Petroleum and Natural Gas?
(A) S. Jaipal Reddy
(B) M. Veerappa Moily
(C) Vayalar Ravi
(D) Ajit Singh

152. In which event in the Asian Athletic Championships, 2013 Vikas Gowda won a gold medal?
(A) Long Jump
(B) 400 mts. Running Race
(C) Shot Put
(D) Discuss throw

153. Which one of the following annual cultural events is not held in Madhya Pradesh?
(A) Marwar Festival
(B) Tansen Music Festival
(C) Ustad Allauddin Festival
(D) Kalidas Samman

154. Dr. Ravuri Bharadwaja has been chosen for the Jnanpith Award, 2012 for his outstanding literary contribution in
(A) Tamil
(B) Telugu
(C) Kannada
(D) Malayalam

155. Which of the following series is true about energy flow in an ecosystem?
(A) Producers → Decomposers → Consumers.
(B) Decomposers → Consumers → Producers.
(C) Producers → Consumers → Decomposers.
(D) Consumers → Producers → Decomposers.

156. Which of the following three R’s are regarded as environment friendly?
(A) Reduce, Rebuild, Restrict.
(B) Random, Reduce, Recall.
(C) Read, Register, Recall.
(D) Reduce, Reuse, Recycle.

157. The Union territory of Puducherry does not have a common boundary with
(A) Madhya Pradesh
(B) Kerala
(C) Karnataka
(D) Tamil Nadu

158. Which one of the following countries and their capitals is wrongly paired?
(A) Switzerland - Geneva
(B) Austria - Vienna
(C) Germany - Berlin
(D) Finland - Helsinki

159. Which of the following Grand Slam titles is also known as “Rolland Garros” title?
(A) Australian Open
(B) French Open
(C) Wimbledon
(D) U.S. Open

160. Which one of the following literary works was not written by R.K. Narayan?
(A) Malgudi Days
(B) Swami and his friends
(C) Guide
(D) Gardner

161. Kisan Diwas (Farmer's Day) is observed on the
(A) 1st July
(B) 4th December
(C) 18th December
(D) 23rd December

162. Who is the Union Minister of Petroleum and Natural Gas?
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(C) Vayalar Ravi
(D) Ajit Singh
163. Third stage of Law of Variable Proportion is called
(A) negative returns
(B) positive returns
(C) constant returns
(D) increasing returns

164. Elasticity of demand with respect to price is
(A) elasticity = \frac{\% \text{ change in demand}}{\% \text{ change in price}}
(B) elasticity = \frac{\% \text{ change in supply}}{\% \text{ change in price}}

165. The incomes of Indians working abroad are a part of
(A) domestic income of India
(B) income earned from Abroad
(C) net domestic product of India
(D) gross domestic product of India

166. Which Indian industry is employing large number of workers?
(A) Iron & Steel Industry
(B) Textile Industry
(C) Jute Industry
(D) Sugar Industry

167. Cross demand expresses the functional relationship between
(A) demand and prices of related commodities.
(B) demand and income.
(C) demand and price.
(D) demand and supply.

168. In which House, is the Presiding Officer, not a member of that House?
(A) Lok Sabha
(B) Rajya Sabha
(C) Vidhan Sabha
(D) Vidhan Parishad

169. To which category right to vote belongs?
(A) Human Rights
(B) Civil Rights
(C) Natural Rights
(D) Political Rights

170. "Residuary powers" under the Indian Constitution means
(A) the powers relating to International Affairs.
(B) the powers relating to Internal Emergency.
(C) the powers, which can be exercised both by the Union Government and the States.
(D) the powers, which have not been specifically enumerated in the Union List, State List and Concurrent List.

171. Which dynasty immediately succeeded the Maurya dynasty and ruled Magadha Kingdom?
(A) Satavahana
(B) Sunga
(C) Nanda
(D) Kanva

172. How many members are nominated by the President to Rajya Sabha?
(A) 2
(B) 12
(C) 15
(D) 20

173. The Chairman of the Public Accounts Committee of the Parliament is appointed by
(A) Speaker of Lok Sabha
(B) Prime Minister of India
(C) President of India
(D) Chairman of Rajya Sabha

174. In 
(A) mango
(B) apple
(C) pear
(D) cherry

175. The number of members nominated by the President to Rajya Sabha is
(A) 2
(B) 12
(C) 15
(D) 20

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200. The number of members nominated by the President to Rajya Sabha is
(A) 2
(B) 12
(C) 15
(D) 20
174. For the annexation of which Indian Kingdom, the “Doctrine of Lapse” was not followed?
(A) Satara (B) Nagpur
(C) Jhansi (D) Punjab

175. During the Second World War, which one of the following countries was not one of the three Axis Powers, which fought against the Allied Powers?
(A) Germany (B) Italy
(C) China (D) Japan

176. The highest mountain peak in Peninsular India is
(A) Anaimudi (B) Dodabetta
(C) Mahendragiri (D) Nilgiris

177. Breaking down of rock in situ is known as
(A) Erosion (B) Weathering
(C) Mass wasting (D) Degradation

178. The longest river of Europe is
(A) Rhine (B) Rhone
(C) Danube (D) Volga

179. Which of the following is an example of Plutonic Igneous Rock?
(A) Basalt (B) Granite
(C) Slate (D) Dolomite

180. The Marker Regulation system was introduced by
(A) Muhammad-Bin-Tughlaq (B) Illutmish
(C) Ala-ud-din Khilji (D) Ghias-ud-din

181. Which of the following Moghal Emperors wrote their own autobiographies?
(A) Shah Alam and Farukh Siyar (B) Babur and Jahangir
(C) Jahangir and Shah Jahan (D) Akbar and Aurangzeb

182. Richest productive disease of Cattle is caused by
(A) Insects (B) Bacteria
(C) Viruses (D) Protozoa

183. The plant that behave as a root parasite is
(A) Ficus (B) Santalum
(C) Cascuta (D) Euphorbia

184. The largest White Blood Corpuscle is
(A) Lymphocyte (B) Monocyte
(C) Thrombocyte (D) Erythrocyte

185. Which of the following does not act both as an exocrine gland and as an endocrine gland?
(A) Pituitary (B) Pancreas
(C) Testis (D) Ovary

186. Match correctly the Nutrient deficiency given in List-I with the diseases caused by the deficiency given in List-II.

List-I
(a) Iodine (b) Iron (c) Niacin (d) Vitamin B_{12}

List-II
(i) Microcytic anaemia (ii) Goitre (iii) Pellagia (iv) Pernicious anaemia

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

187. The Coast of Norway is an example of
(A) Dalmatian Coast (B) Fiord Coast
(C) Ria Coast (D) Emerged Coast

188. Name the tiny pores present on the surface of leaves in plants.
(A) Pits (B) Stomata
(C) Trichomes (D) Hydathodes

189. Which of the following Minerals does not act both as an exocrine gland and as an endocrine gland?
(A) Pituitary (B) Pancreas
(C) Testis (D) Ovary

190. Match correctly the Nutrient deficiency given in List-I with the diseases caused by the deficiency given in List-II.

List-I
(a) Iodine (b) Iron (c) Niacin (d) Vitamin B_{12}

List-II
(i) Microcytic anaemia (ii) Goitre (iii) Pellagia (iv) Pernicious anaemia

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

191. The Coast of Norway is an example of
(A) Dalmatian Coast (B) Fiord Coast
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192. Which of the following Minerals does not act both as an exocrine gland and as an endocrine gland?
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198. Which of the following Minerals does not act both as an exocrine gland and as an endocrine gland?
(A) Pituitary (B) Pancreas
(C) Testis (D) Ovary
189. In a filament type light bulb most of the electric power consumed appears as
(A) visible light
(B) infra-red rays
(C) ultra-violet rays
(D) fluorescent light

190. A man standing on the edge of a cliff throws a stone vertically upwards with a certain speed. He then throws another stone downwards with the same speed. Find the ratio of the speeds of the two stones when they hit the ground.
(A) 1:1
(B) 1:2
(C) 1:4
(D) Cannot be found from the given information.

191. Who introduced the concept of "Stored Program"?
(A) John Von Neumann
(B) Charles Babbage
(C) Blaise Pascal
(D) John Mauchly

192. Dioptric is the unit of
(A) power of a lens
(B) focal length of a lens
(C) light intensity
(D) sound intensity

193. When a stone is thrown in the calm water of a pond the waves produced on the surface of water in the pond are
(A) longitudinal
(B) transverse
(C) both longitudinal and transverse
(D) waves are not produced

194. The gas used to extinguish fire is
(A) Neon
(B) "Nitrogen"
(C) Carbon dioxide
(D) Carbon monoxide

195. The non-metal found in the liquid state is
(A) bromine
(B) nitrogen
(C) fluoride
(D) chlorine

196. Ionisation energy of nitrogen is greater than that of oxygen because nitrogen has
(A) high bond dissociation energy
(B) smaller atomic radius
(C) stable half filled 2p sub level
(D) high nuclear charge

197. Sulphuric acid is
(A) monobasic
(B) dibasic
(C) tribasic
(D) tetrabasic

198. Which one of the following group of gases contribute to the "Green House Effect"?
(A) Carbon dioxide and Methane
(B) Ammonia and ozone
(C) Carbon monoxide and Sulphur dioxide
(D) Carbon tetrachloride and Nitrous oxide

199. Which of the following is a Disk Operating System (DOS) command?
(A) LIST
(B) CHANGE
(C) DUPLICATE
(D) FORMAT

200. A type of internet account, in which the computer is not connected directly to the net.
(A) Shell Account
(B) Kernel Account
(C) Server Account
(D) TCP/IP Account