SSC

Combined Higher Secondary Level Exam-2014

Time : 2 Hours　　　　　　　　　　　　　　　　**Max. Marks : 200**

PART I : GENERAL INTELLIGENCE

1. Raju was to go to the planetarium. So he walked 1.5 kms towards east from the place and then turned to right and walked 2.5 kms and then turned towards east walked 1 km. and turned to south and walked 4 kms and reached the place by walking 2.5 kms towards west. What distance is he from the starting point ?
   - (a) 6.5 kms
   - (b) 9.5 kms
   - (c) 10 kms
   - (d) 9 kms

2. A cyclist rides 40 kms to the east, turns north and rides 20 kms. again turns left any rides 20 kms. How far is he from the starting point ?
   - (a) 0 km
   - (b) 10 kms
   - (c) 20 kms
   - (d) 30 kms

DIRECTIONS : *In Question Nos. 3 & 4, Select the missing number from the given responses.*

3.
   81　　729　64　　512　49　　?

   　　9　　　　8　　　　7
   - (a) 444
   - (b) 515
   - (c) 343
   - (d) 373

   　　18　　　　11　　　　6　　　　12
4. 　9　38　6　19　32　9　26　44　3　9　?　20
   　　17　　　　11　　　　15　　　　8
   - (a) 9
   - (b) 40
   - (c) 7
   - (d) 36

DIRECTIONS : *In Questions Nos. 5 & 6, Three statements are given followed by two/four conclusions I, II, III, & IV. You have to consider the three 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.*

5. **Statements :**
   1. Rabindranath Tagore wrote many poems.
   2. Every poet has aesthetic knowledge.
   3. Aesthetic is a part of axiological study.

   Conclusions :
   I. Rabindranath Tagore did different axiological study.
   II. He followed the base of logic and ethics.
   - (a) Only conclusion I.
   - (b) Both conclusion I and II.
   - (c) Only conclusion II.
   - (d) None of these

6. **Statements :**
   1. All clerks are superintendents.
   2. All superintendents are managers.
   3. All managers are supervisors.

   Conclusions :
   I. All supervisors are clerks.
   II. Some clerks are supervisors.
   III. All superintendents are clerks.
   - (a) Only conclusion I.
   - (b) Only conclusion II.
   - (c) Only conclusion III.
   - (d) Only conclusion IV

DIRECTIONS : *In Question Nos. 7 to 15, select the related letter/ word/number from the given alternatives.*

7. Heart : Cardiologist : : Kidney : ?
   - (a) Endocrinologist
   - (b) Orthodontist
   - (c) Nephrologist
   - (d) Neurologist

8. DEF : EFD : : FGH : ?
   - (a) FHG
   - (b) HGF
   - (c) HFG
   - (d) GHF

9. AZB : CYD : : EXF : ?
   - (a) GWH
   - (b) FGV
   - (c) TMR
   - (d) QSV

10. HGOUR : HTOOMS : : ? : REDNET
    - (a) TOUGH
    - (b) THOUG
    - (c) HUGOT
    - (d) HGUOT

11. 7 : 24 : : ?
    - (a) 30 : 100
    - (b) 23 : 72
    - (c) 19 : 58
    - (d) 11 : 43

12. 12 : 140 : : 156 : ?
    - (a) 1820
    - (b) 1500
    - (c) 1250
    - (d) 1121

13. 64 : 4 : : ? 9
    - (a) 18
    - (b) 729
    - (c) 81
    - (d) 144

14. Maharashtra : India : : Texas : ?
    - (a) Canada
    - (b) Mexico
    - (c) Brazil
    - (d) USA

15. Qualm : Nausea : : Burn : ?
    - (a) Fresh
    - (b) Sear
    - (c) Sensible
    - (d) Wet

DIRECTIONS : *In Question Nos. 16 to 23, find the odd word/number letters/number pair from the given alternatives.*

16. (a) Chameleon
    (b) Crocodile
    (c) Alligator
    (d) Locust

17. (a) B C D G
    (b) G I J L
    (c) P R S U
    (d) U W X Z

18. (a) M K H B D
    (b) G F K H C

(c) B D F A T   (d) X V R P I
19. (a) D C E B   (b) P N Q S T
     (c) V K H G M   (d) W P Z L H
20. (a) 1625   (b) 3649
     (c) 6481   (d) 5025
21. (a) 512   (b) 625
     (c) 1296   (d) 2401
22. (a) Poland   (b) Korea
     (c) Spain   (d) Greece
23. (a) Polaris   (b) Nike
     (c) Crux   (d) Phoenix
24. Find the wrong number in the series :
     30, 27, 36, 45, 72
     (a) 30   (b) 27
     (c) 36   (d) 72

DIRECTIONS : *In Question Nos. 25 to 27, which one of the given responses would be a meaningful order of the following ?*

25. 1. Curd   2. Milk
     3. Butter milk   4. Cow
     5. Ghee   6. Butter
     (a) 2, 5, 6, 4, 1, 3   (b) 4, 6, 2, 1, 3, 5
     (c) 4, 2, 1, 3, 6, 5   (d) 2, 6, 4, 5, 3, 1
26. 1. Reading   2. Listening
     3. Writing   4. Speaking
     (a) 4, 2, 1, 3   (b) 2, 4, 3, 1
     (c) 2, 4, 1, 3   (d) 4, 3, 2, 1
27. 1. Adulthood   2. Infancy
     3. Childhood   4. Adolescence
     (a) 1, 3, 4, 2   (b) 2, 3, 4, 1
     (c) 2, 4, 3, 1   (d) 1, 2, 3, 4

DIRECTIONS : *In Question Nos. 28 to 32, a series is given, with one term missing. Choose the correct alternative from the given ones that will complete the series.*

28. 3, 15, 4, 16, 5, 17, 6, **?** , 7
     (a) 12   (b) 13
     (c) 15   (d) 18
29. 68, 81, 96, **?** 132
     (a) 105   (b) 110
     (c) 113   (d) 130
30. 121, 253, 374, 495, **?**
     (a) 565   (b) 523
     (c) 5116   (d) 5102
31. CE, GI, KM, OQ, ?
     (a) TW   (b) TV
     (c) SU   (d) RT
32. R, O, L, I, F ?
     (a) C   (b) A
     (c) E   (d) I
33. A family consisted of a man, his wife, his three sons, their wives and three children in each son's family. How many members are there in the family ?
     (a) 12   (b) 13
     (c) 15   (d) 17
34. From the given alternatives select the word which cannot be formed using the letters of the given word :
     INFLATIONARY
     (a) FLAIR   (b) FAULTY
     (c) NATIONAL   (d) RATION
35. Which one set of letters when sequentially placed at the gaps in the given letter series shall complete it ?

_ cb _ ca _ bacb _ ca _ bac _ d .
     (a) badddb   (b) bbbddd
     (c) addddb   (d) addbbb
36. Mani is double the age of Prabhu. Ramona is half the age of Prabhu. If Mani is sixty, find out the age of Ramona.
     (a) 20   (b) 15
     (c) 10   (d) 24

     J = 1   K = 2   L = 5   M = 7
37. Let
          N = 11   O = 13   P = 17
     Find the letter to be in the box in the relation given :
     (N × ☐ + M) / ÷ K = 31
     (a) L   (b) P
     (c) J   (d) O
38. Some equations are solved on the basis of a certain system. On the same basis, find out the correct answer for the unsolved equation.
     $2 \times 3 \times 4 = 432$, $5 \times 6 \times 7 = 765$
     $7 \times 8 \times 9 = 987$, $2 \times 5 \times 7 = ?$
     (a) 572   (b) 752
     (c) 725   (d) 257
39. The overall rainfall in certain region of India decreases year after year. Find out from the data the trend in decrease.

Year	Rainfall (in mm)
2009	26
2010	25
2011	23
2012	20
2013	16
2014	11
2015	?

     (a) 6mm   (b) 7mm
     (c) 5mm   (d) 8mm
40. If PALE is coded as 2134, EARTH is coded as 41590, how is PEARL coded as ?
     (a) 29530   (b) 24153
     (c) 25413   (d) 25430
41. If the word PRINCIPAL is written as LAPICNIRP, how ADOLESCENCE can be written in that code ?
     (a) ECNCESELODA   (b) ECNECSLEODA
     (c) ECNSCEELODA   (d) ECNECSELODA
42. How many rectangles are there in the question figure ?
     Question figure :
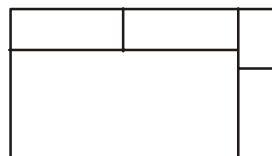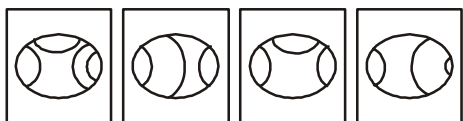

     (a) 6   (b) 7
     (c) 8   (d) 9
43. Among the for answer figures, which figure can be formed from the cut - pieces given below in the question figure ?
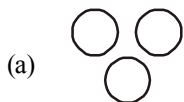
Question figure :

Answer figures :

    (a)   (b)   (c)   (d)

DIRECTIONS : *In Question Nos. 44 and 45 which one of the following diagrams represents the correct relationship among :*
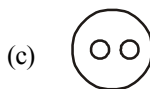
44. Lion, Fox and Carnivorous

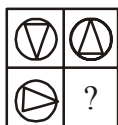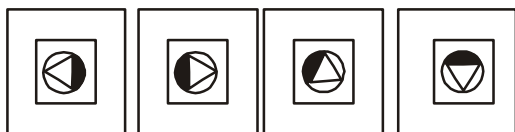45. Manager, Labour Union and Worker

46. Which answer figure will complete the question figure ?
    Question figure :

Answer figures :

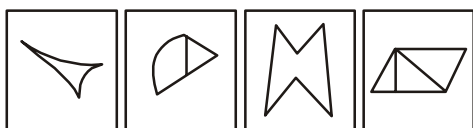   (a)   (b)   (c)   (d)

47. Which of the answer figures is embedded in the question figure ?
    Question figure :
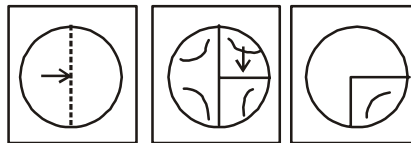

Answer figures :
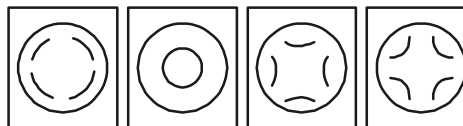

    (a)   (b)   (c)   (d)

48. 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.
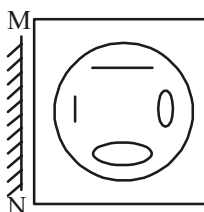   **Question figures :**

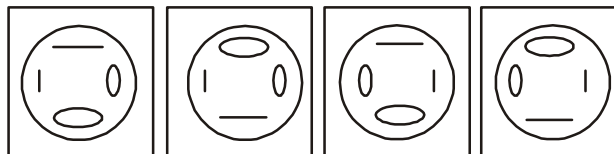**Answer figures :**

    (a)   (b)   (c)   (d)

49. If a mirror is placed on the line MN, then which of the answer figures is the right image of the given figure ?
    Question figure :

Answer figures :

    (a)   (b)   (c)   (d)

50. 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 two 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., A can be represented by 01, 20, 42 etc. and H can be represented by 65, 57, 98 etc. Similarly, you have to identify the set for the word given in the question.

FAITH

    Matrix -I

	0	1	2	3	4
0	F	A	N	O	I
1	I	O	F	A	N
2	A	N	O	I	F
3	O	F	I	N	A
4	N	I	A	F	O

Matrix -II

	5	6	7	8	9
5	S	E	H	B	T
6	H	S	E	T	B
7	B	T	S	E	H
8	E	H	T	B	S
9	T	S	E	H	B

(a) 24, 31, 10, 59, 57   (b) 12, 20, 40, 68, 65
(c) 31, 34, 23, 76, 79   (d) 43, 42, 41, 78, 89

FOR VISUALLY HANDICAPPED CANDIDATES ONLY

DIRECTIONS : *In Question Nos. 42 to 45, select the related word/letters/number from the given alternatives.*

42. Earthworm : Mud : : Crab : ?
     (a) Sea   (b) Water
     (c) Sand   (d) Bank
43. Peacock : India : : Bear : ?
     (a) Australia   (b) America
     (c) Russia   (d) England
44. UTS : EDC : : WVU : ?
     (a) XWV   (b) WYZ
     (c) SJM   (d) RPO
45. 3 : 11 : : 5 : ?
     (a) 18   (b) 27
     (c) 15   (d) 31

DIRECTIONS: *In Question Nos. 46 and 47, find the odd word/number/letters/number pair from the given alternatives.*

46. (a) Potassium   (b) Gallium
     (c) Germanium   (d) Zirconium
47. (a) Tomato   (b) Cucumber
     (c) Gourd   (d) Potato
48. Choose the correct alternative from the given ones that will complete the series:
     FDBZ, GECA, MKIG, PNLJ, _____?_____
     (a) WVTR   (b) WUSQ
     (c) WUSR   (d) JHFD

DIRECTIONS: *In Question Nos. 49 and 50, find which one is different from the rest of the following.*

49. 1, 4, 9, 16, 25, 36, 49, 64, 81, 100, 111
     (a) 25   (b) 111
     (c) 36   (d) 100
50. 2, 2, 4, 12, 48, 192, 1440
     (a) 48   (b) 192
     (c) 12   (d) 1440

PART II : ENGLISH LANGUAGE

DIRECTIONS: *In Question Nos. 51 to 55, out of the four alternatives choose the one which can be substituted for the given words/sentence.*

51. A poem of fourteen lines.
     (a) Ballad   (b) Psalm
     (c) Sonnet   (d) Carol
52. Incapable of error.
     (a) Erroneous   (b) Incorrigible
     (c) Unbeatable   (d) Infallible
53. One who believes everything he or she hears.
     (a) Credulous   (b) Credible
     (c) Creditable   (d) Credential

54. An allowance made to a wife by her husband, when they are legally separated.
     (a) Alimony   (b) Parsimony
     (c) Matrimony   (d) Honorarium
55. Wild imagination.
     (a) Whim   (b) Fantasy
     (c) Fancy   (d) Memory

DIRECTIONS : *In Question Nos. 56 to 60 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.*

56. (a) Mountainer   (b) Mountaineer
     (c) Mounteener   (d) Mountineer
57. (a) Happened   (b) Happenned
     (c) Hapened   (d) Hapenned
58. (a) Sentimantalist   (b) Sentimentelist
     (c) Sentimentalist   (d) Santimentalist
59. (a) Laibertarian   (b) Libertarian
     (c) Liebertarian   (d) Liberterian
60. (a) Emphetic   (b) Emphattic
     (c) Emphatick   (d) Emphatic

DIRECTIONS : *In Question Nos. 61 to 70, 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.*

Delhi 61 the capital of India. People from all parts of the country and the world 62 to Delhi. There 63 many historical buildings. People 64 the Rajghat, Shantivan and Vijayghat. We visited Delhi last year 65 our cousins. There 66 many other historical cities. Agra 67 one of them. We 68 visit Agra and Jaipur next time. The Red Fort of Delhi and the Hawa Mahal of Jaipur were 69 famous for their Mughal 70 Rajasthani architecture respectively.

61. (a) was   (b) are
     (c) is   (d) were
62. (a) came   (b) comes
     (c) come   (d) coming
63. (a) has   (b) were
     (c) is   (d) are
64. (a) visit   (b) visited
     (c) visiting   (d) visits
65. (a) for   (b) on
     (c) of   (d) with
66. (a) is   (b) are
     (c) were   (d) was
67. (a) are   (b) was
     (c) is   (d) were
68. (a) will   (b) would
     (c) could   (d) can
69. (a) much   (b) very
     (c) too   (d) more
70. (a) either   (b) because
     (c) or   (d) and

DIRECTIONS : *In Question Nos. 71 to 75, 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) in the answer sheet.*

71. $\underset{(a)}{\underline{\text{I worked}}}$ / $\underset{(b)}{\underline{\text{as medical representative}}}$ / $\underset{(c)}{\underline{\text{for eight months}}}$

    $\underset{(d)}{\underline{\text{No error}}}$

72. $\underset{(a)}{\underline{\text{Shakespeare has written}}}$ / $\underset{(b)}{\underline{\text{many plays}}}$

    $\underset{(c)}{\underline{\text{as well as some poetries}}}$ / $\underset{(d)}{\underline{\text{No error}}}$

73. $\underset{(a)}{\underline{\text{Neither of the girls}}}$ / $\underset{(b)}{\underline{\text{were willing to}}}$

    $\underset{(c)}{\underline{\text{accept the proposal.}}}$ / $\underset{(d)}{\underline{\text{No error}}}$

74. $\underset{(a)}{\underline{\text{A interesting book}}}$ / $\underset{(b)}{\underline{\text{'A Tale of two}}}$

    $\underset{(c)}{\underline{\text{cities'}}}$ / $\underset{(c)}{\underline{\text{was written by Alexander}}}$ / $\underset{}{\underline{\text{Dumas}}}$ / $\underset{(d)}{\underline{\text{No error}}}$

75. $\underset{(a)}{\underline{\text{In India}}}$ $\underset{(b)}{\underline{\text{there are}}}$ / $\underset{(c)}{\underline{\text{many poors}}}$ / $\underset{(d)}{\underline{\text{No error}}}$

DIRECTIONS : *In Question Nos. 76 to 80, some parts of the sentences given with blanks to be filled in with an appropriate word(s). Four alternatives are suggested for each question. Choose the correct alternative out of the four and indicate it by blackening the appropriate oval [⬤] in the Answer Sheet.*

76. Is not learning superior _____ wealth ?
    (a) than
    (b) from
    (c) by
    (d) to

77. A group of agitators _____ the mob to break down the Vice-Chancellor's door.
    (a) wished
    (b) excited
    (c) threatened
    (d) incited

78. Turn the lights _____ before you go to bed.
    (a) on
    (b) off
    (c) out
    (d) down

79. There is no _____ evidence to support your assertion.
    (a) facile
    (b) fictitious
    (c) facetious
    (d) factual

80. Throw a stone _____ the fierce dog.
    (a) at
    (b) upon
    (c) on
    (d) above

DIRECTIONS : *In Question Nos. 81 to 85, choose the word opposite in meaning to the given word and mark it in the Answer Sheet.*

81. Equilibrium
    (a) Work out
    (b) Disturb
    (c) Imbalance
    (d) Unevenness

82. Immortal
    (a) Eternal
    (b) Permanent
    (c) Deathly
    (d) Temporary

83. Focus
    (a) Disappear
    (b) Disperse
    (c) Link
    (d) Layer

84. Veteran
    (a) Activist
    (b) Enthusiast
    (c) Novice
    (d) Master

85. Superfluous
    (a) Essential
    (b) Excess
    (c) Unwanted
    (d) Necessary

DIRECTIONS : *In Question Nos. 86 to 90, 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. Persevere
    (a) Fickle
    (b) Persist
    (c) Constant
    (d) Polite

87. Petition
    (a) Rotation
    (b) Administration
    (c) Appeal
    (d) Vocation

88. Proposition
    (a) Intimation
    (b) Protestation
    (c) Proposal
    (d) Invitation

89. Vivacious
    (a) Imaginary
    (b) Lively
    (c) Perceptible
    (d) Languid

90. Sporadic
    (a) Timely
    (b) Scattered
    (c) Frequent
    (d) Irrelevant

DIRECTIONS : *In Question Nos. 91 to 95, 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.*

91. You cannot <u>throw dust into my eyes.</u>
    (a) terrify me
    (b) cheat me
    (c) hurt me
    (d) abuse me

92. He spoke well though it was his <u>maiden speech.</u>
    (a) long speech
    (b) first speech
    (c) brief speech
    (d) emotional speech

93. The students were <u>all ears,</u> when the speaker started talking about the changes in the exam.
    (a) smiling
    (b) silent
    (c) restless
    (d) attentive

94. In his <u>salad days</u> he was quite a dandy.
    (a) childhood
    (b) adolescence
    (c) school days
    (d) old age

95. he is <u>cool about working</u> at night.
    (a) ready to work
    (b) not ready to work
    (c) excited about working
    (d) grudgingly working

DIRECTIONS : *In Question Nos. 96 to 100, 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.*

96. Sohan <u>is pleased</u> at the news yesterday.
    (a) has been pleased
    (b) had been pleased
    (c) was pleased
    (d) No improvement

97. She did not like the movie, <u>nor I did.</u>
    (a) nor did I.
    (b) nor I like it.
    (c) nor did I like it.
    (d) No improvement

98. Old habits die <u>hardly.</u>
    (a) hard
    (b) too hard
    (c) much hardly
    (d) No improvement

99. One cannot be indifferent to one's health, <u>can't one</u>
    (a) can't be ?   (b) can one ?
    (c) isn't it ?   (d) No improvement
100. The mother with her children <u>were</u> expected.
    (a) was   (b) will
    (c) have   (d) No improvement

PART III: QUANTITATIVE APTITUDE

101. The value of

$$\frac{\sin 25° \cos 65° + \cos 25° \sin 65°}{\tan^2 70° - \csc^2 20°} \text{ is}$$

    (a) -1 (b) 0
    (c) 1   (d) 2

102. If θ is a positive acute angle and $4\cos^2 θ - 4\cos θ + 1 = 0$, then the value of $\tan(θ - 15°)$ is equal to
    (a) 0   (b) 1
    (c) $\sqrt{3}$ (d) $\dfrac{1}{\sqrt{3}}$

103. If $(r\cos θ - \sqrt{3})^2 + (r\sin θ - 1)^2 = 0$, then the value of

    $\dfrac{r\tan θ + \sec θ}{r\sec θ + \tan θ}$ is equal to

    (a) $\dfrac{4}{5}$ (b) $\dfrac{5}{4}$

    (c) $\sqrt{\dfrac{3}{4}}$ (d) $\sqrt{\dfrac{5}{4}}$

104. A vertical pole and a vertical tower are standing on the same level ground. Height of the pole is 10 metres. Form the top of the pole is the angle of elevation of the top of the tower and angle of depression of the foot of the tower are 60° and 30° respectively. The height of the tower is
    (a) 20 m   (b) 30 m
    (c) 40 m   (d) 50 m
105. The sum of the interior angles of a polygon is 1444°. The number of sides of the polygon is
    (a) 6   (b) 9
    (c) 10   (d) 12
106. In ΔABC, D and E are two points on the sides AB and AC

    respectively so that DE∥BC and $\dfrac{AD}{BD} = \dfrac{2}{3}$. Then

    $\dfrac{\text{the area of trapezium DECB}}{\text{the area of } ΔABC}$ is equal to

    (a) $\dfrac{5}{9}$ (b) $\dfrac{21}{25}$

    (c) $1\dfrac{4}{5}$ (d) $5\dfrac{1}{4}$

107. The H.C.F. and L.C.M. of two numbers are 44 and 264 respectively. If the first number is divided by 2, the quotient is 44. The other number is
    (a) 147   (b) 528
    (c) 132   (d) 264

108. A teacher wants to arrange his students in an equal number of rows and columns. If there are 1369 students, the number of students in the last row are
    (a) 37   (b) 33
    (c) 63   (d) 47

109. If $\dfrac{x}{y} = \dfrac{4}{5}$, then the value of $\left(\dfrac{4}{7} + \dfrac{2y - x}{2y + x}\right)$ is

    (a) $\dfrac{3}{7}$ (b) $1\dfrac{1}{7}$
    (c) 1   (d) 2
110. A and B working separately can do a piece of work in 9 and 15 days respectively. If they work for a day alternately, with A beginning, then the work will completed in
    (a) 10 days   (b) 11 days
    (c) 9 days   (d) 12 days

111. Ram left $\dfrac{1}{3}$ of his property to his widow and $\dfrac{3}{5}$ of the remainder to his daughter. He gave the rest to his son who received ₹ 6,400. How much was his original property worth?
    (a) ₹ 16,000   (b) ₹ 32,000
    (c) ₹ 24,000   (d) ₹ 1,600
112. The first term of an Arithmetic Progression is 22 and the last term is −11. If the sum is 66, the number of terms in the sequence are :
    (a) 10   (b) 12
    (c) 9   (d) 8
113. Area of a regular hexagon with side 'a' is

    (a) $\dfrac{3\sqrt{3}}{4}a^2$ sq. unit   (b) $\dfrac{12}{2\sqrt{3}}a^2$ sq. unit

    (c) $\dfrac{9}{2\sqrt{3}}a^2$ sq. unit   (d) $\dfrac{6}{\sqrt{2}}a^2$ sq. unit

114. The marked price of a saree is ₹ 200. After allowing a discount of 20% on the marked price, the shopkeeper makes a profit of ₹ 16. Find the gain percent.

    (a) $11\dfrac{1}{9}\%$ (b) $9\dfrac{1}{11}\%$

    (c) 11%   (d) 8%
115. The marked price of an item is twice the cost price. For a gain of 15%, the discount should be
    (a) 7.5%   (b) 20.5%   (c) 32.5%   (d) 42.5%
116. Two numbers are in the ratio 3 : 5. If 9 is subtracted from each, the new numbers are in the ratio 12 : 23. The small number is
    (a) 27   (b) 33   (c) 49   (d) 55
117. If x : y = 5 : 2, then (8x + 9y) : (8x + 2y) is
    (a) 22 : 29   (b) 26 : 61
    (c) 29 : 22   (d) 61 : 26
118. Two pipes A and B can fill a tank in 36 min. and 45 min. respectively. Another pipe C can empty the tank in 30 min. First A and B are opened. After 7 minutes, C is also opened. The tank is filled up in
    (a) 39 min.   (b) 46 min.
    (c) 40 min.   (d) 45 min.

119. If the sum of the dimensions of a rectangular parallelepiped is 24 cm and the length of the diagonal is 15 cm, then the total surface area of it is
(a)   420 cm^2
(b)   275 cm^2
(c)   351 cm^2
(d)   378 cm^2

120. A total profit of ₹ 3,600 is to be distributed amongst A, B and C such that A : B = 5 : 4 and B : C = 8 : 9. The share of C in the profit is
(a)   ₹ 1,200
(b)   ₹ 1,500
(c)   ₹ 1,650
(d)   ₹ 1,700

121. A man sold his watch at a loss of 5%. Had he sold it for ₹ 56.25 more, he would have gained 10%. What is the cost price of the watch (in ₹) ?
(a)   370
(b)   365
(c)   375
(d)   390

122. 1% of 1% of 25% of 1000 is
(a)   .025
(b)   .0025
(c)   .25
(d)   .000025

123. The population of a village increases by 5% annually. If its present population is 4410, then its population 2 years ago was
(a)   4500
(b)   4000
(c)   3800
(d)   3500

124. A is twice as fast as B and B is thrice as fast as C is. The journey covered by C in 1½ hours will be covered by A in
(a)   15 minutes
(b)   20 minutes
(c)   30 minutes
(d)   1 hour

125. A sum of ₹ 210 was taken as a loan. This is to be paid back in two equal instalments. If the rate of interest be 10% compounded annually, then the value of each instalment is
(a)   ₹ 127
(b)   ₹ 121
(c)   ₹ 210
(d)   ₹ 225

126. The average salary of all the workers in a workshop is ₹ 8,000. The average salary of 7 technicians is ₹ 12,000 and the average salary of the rest is ₹ 6,000. The total number of workers in the workshop is
(a)   20
(b)   21
(c)   22
(d)   23

127. 3 years ago the average age of a family of 5 members was 17 years. A baby having been born, the average age of the family is the same today. The present age of the baby is
(a)   1 year
(b)   1½ years
(c)   2 years
(d)   3 years

128. A horse take 2½ seconds to complete a round around a circular field. If the speed of the horse was 66 m/sec, then the radius of the field is,

[Given $\pi = \dfrac{22}{7}$]

(a)   25.62 m
(b)   26.52 m
(c)   25.26 m
(d)   26.25 m

129. A flask in the shape of a right circular cone of height 24 cm is filled with water. The water is poured in a right circular cylindrical flask whose radius is $\dfrac{1}{3}^{\text{rd}}$ of the radius of the base of the circular cone. Then the height of the water in the cylindrical flask is
(a)   32 cm
(b)   24 cm
(c)   48 cm
(d)   72 cm

130. If the three medians of a triangle are same, then the triangle is
(a)   equilateral
(b)   isosceles
(c)   right-angled
(d)   obtuse-angled

131. If $x + \dfrac{1}{x} = 3$, then the value of $\dfrac{3x^2 - 4x + 3}{x^2 - x + 1}$ is

(a) $\dfrac{4}{3}$
(b) $\dfrac{3}{2}$

(c) $\dfrac{5}{2}$
(d) $\dfrac{5}{3}$

132. The area of a square park is 25 sq. km. The time taken to complete a round of the field once, at a speed of 3 km/hour is
(a)   4 hours 60 minutes
(b)   4 hours 50 minutes
(c)   6 hours 40 minutes
(d)   5 hours 40 minutes

133. The external fencing of a circular path around a circular plot of land is 33 m more than its interior fencing. The width of the path around the plot is
(a)   5.52 m
(b)   5.25 m
(c)   2.55 m
(d)   2.25 m

134. If $x = p + \dfrac{1}{p}$ and $y = p - \dfrac{1}{p}$, then value of $x^4 - 2x^2 y^2 + y^4$ is
(a)   24
(b)   4
(c)   16
(d)   8

135. If $x = 3 + 2\sqrt{2}$, then $\dfrac{x^6 + x^4 + x^2 + 1}{x^3}$ is equal to

(a)   216
(b)   192
(c)   198
(d)   204

136. The perimeters of two similar triangles ΔABC and ΔPQR are 36 cm and 24 cm respectively. If PQ = 10 cm, the AB is
(a)   15 cm
(b)   12 cm
(c)   14 cm
(d)   26 cm

137. If the sides of a right angled triangle are three consecutive integers, then the length of the smallest side is
(a)   3 units
(b)   2 units
(c)   4 units
(d)   5 units

138. Two circles intersect each other at the points A and B. A straight line parallel to AB intersects the circles at C, D, E and F. If CD = 4.5 cm, then the measure of EF is
(a)   1.50 cm
(b)   2.25 cm
(c)   4.50 cm
(d)   9.00 cm

139. Which one of the following is true ?
(a) $\sqrt{5} + \sqrt{3} > \sqrt{6} + \sqrt{2}$

(b) $\sqrt{5} + \sqrt{3} < \sqrt{6} + \sqrt{2}$

(c) $\sqrt{5} + \sqrt{3} = \sqrt{6} + \sqrt{2}$

(d) $(\sqrt{5} + \sqrt{3})(\sqrt{6} + \sqrt{2}) = 1$

140. If $\dfrac{x}{xa + yb + zc} = \dfrac{y}{ya + zb + xc} = \dfrac{z}{xa + xb + yc}$ and $x + y + z \neq 0$, then each ratio is

  (a) $\dfrac{1}{a - b - c}$ (b) $\dfrac{1}{a + b - c}$

  (c) $\dfrac{1}{a - b + c}$ (d) $\dfrac{1}{a + b + c}$

141. The length of the shadow of a vertical tower on level ground increases by 10 metres when the altitude of the sun changes from 45° to 30°. Then the height of the tower is

  (a) $5(\sqrt{3} + 1)$ metres   (b) $5(\sqrt{3} - 1)$ metres

  (c) $5\sqrt{3}$ metres   (d) $\dfrac{5}{\sqrt{3}}$ metres

DIRECTIONS: *In Question Nos. 142-145, Sales of Books (in thousand numbers) from Six Branches - B1, B2, B3, B4, B5 and B6 of a Publishing Company in 2000 and 2001. Study the graph and answer the question that follow:*
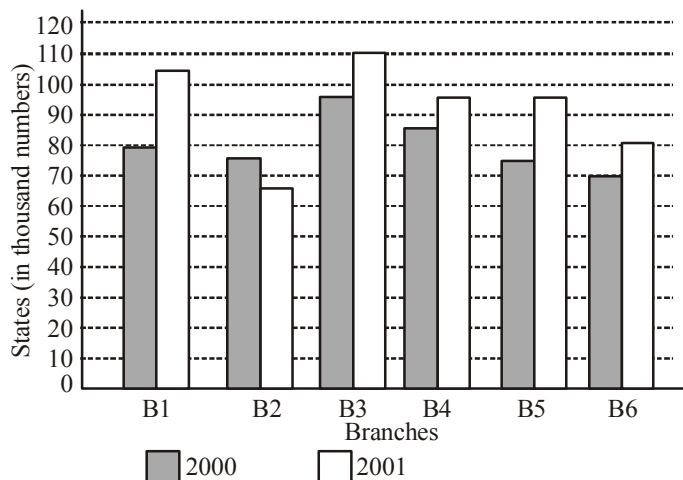
142. Total sale of branches B1, B3 and B5 together for both the years (in thousand numbers) is
  (a) 250   (b) 310
  (c) 435   (d) 560

143. Find the ratio of the total sales of branch B2 for both years to the total sales of branch B4 for both years.
  (a) 2 : 3   (b) 3 : 5
  (c) 4 : 5   (d) 7 : 9

144. Percentage of the average sale of branches B1, B2 and B3 in 2001 and the average sale of branches B1, B3 and B6 in 2000
  (a) 87.5   (b) 75
  (c) 77.5   (d) 82.5

145. Find the percentage increase in the sales of books of branch B3 in the year 2001 than the branch B2.
  (a) 69.2   (b) 50.8
  (c) 40.9   (d) 65.7

DIRECTIONS: *In Questions Nos. 146-150, The diagram shows the age distribution of the patients admitted to a hospital in a particular day. Study the diagram and answer*
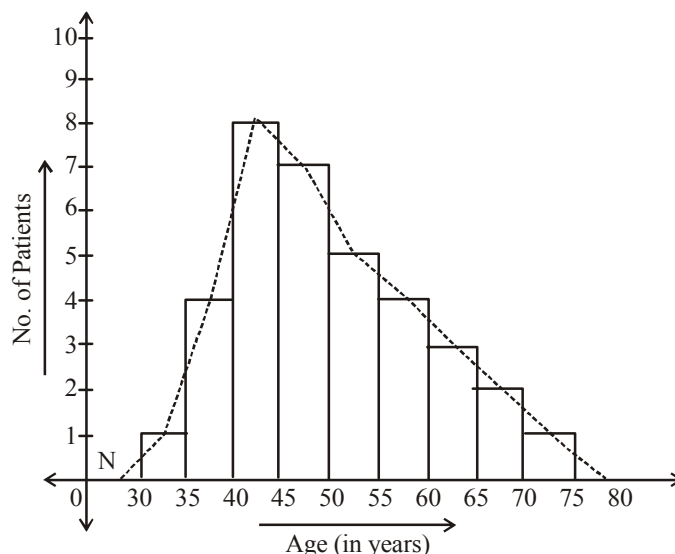
146. Number of patients of age between 55 years to 60 years, who got admitted to the hospital on that day is
  (a) 6   (b) 4
  (c) 24   (d) 8

147. Total number of patients of age more than 55 years, who got admitted to the hospital is
  (a) 4   (b) 7
  (c) 9   (d) 10

148. Number of patients of age more than 40 years and less than 55 years, who got admitted to the hospital on that day is
  (a) 20   (b) 30
  (c) 15   (d) 12

149. Percentage of patients of age less than 45 years, who got admitted to the hospital on that day is approximately equal to
  (a) 14%   (b) 20%
  (c) 37%   (d) 62%

150. About 11% of the patients who got admitted to the hospital on that particular day were of age
  (a) either between 35 years and 40 years or between 55 years and 60 years
  (b) between 60 years and 65 years
  (c) between 35 years and 40 years
  (d) between 35 years and 40 years and between 55 years and 60 years

FOR VISUALLY HANDICAPPED CANDIDATES ONLY

142. If the simple interest and compound interest at the same rate of certain amount for 2 years are ₹ 400 & ₹ 420 respectively, then the rate of interest is
  (a) 12%   (b) 8%
  (c) 10%   (d) 11%

143. Three friends divide ₹ 624 among themselves in the ratio $\dfrac{1}{2} : \dfrac{1}{3} : \dfrac{1}{4}$; the share of the third friend is
  (a) ₹ 288   (b) ₹ 192
  (c) ₹ 148   (d) ₹ 144

144. In the expression xy^2, the values of x and y are each decreased by 25%. The value of the expression is decreased by

    (a) $\dfrac{37}{64}$ of its value   (b) $\dfrac{1}{2}$ of its value

    (c) $\dfrac{27}{64}$ of its value   (d) $\dfrac{3}{4}$ of its value

145. ₹ 64,000 will amount to ₹ 68,921 at 5% per annum and interest payable half yearly in

    (a) $3\dfrac{1}{2}$ years   (b) 2 years

    (c) $2\dfrac{1}{2}$ years   (d) $1\dfrac{1}{2}$ years

146. What is the value of an angle included between x-axis and y-axis in radian?

    (a) $\dfrac{\pi^c}{6}$ (b) $\dfrac{\pi^c}{3}$

    (c) $\dfrac{\pi^c}{4}$ (d) $\dfrac{\pi^c}{2}$

147. The value of $\dfrac{\tan^2\theta}{1+\tan^2\theta}+\dfrac{\cot^2\theta}{1+\cot^2\theta}$ is equal to

    (a) 0   (b) 1
    (c) 2   (d) 3

148. The value of $(1,000,001)^2 - (999,999)^2$ is
    (a) 2,000,000   (b) 4,000,000
    (c) 6,000,000   (d) 8,000,000

149. The sum of the squares of three consecutive natural numbers is 194. The sum of the numbers is
    (a) 24   (b) 27
    (c) 21   (d) 30

150. A vessel is in the form of an inverted cone. Its height is 11 cm and radius of its top, which is open, is 2.5 cm. It is filled with water upto the rim. When lead shots, each of which is a sphere of radius 0.25 cm are dropped into the vessel, 2/5 of the water flows out. The number of lead shots dropped into the vessel is
    (a) 880   (b) 440
   (c) 220   (d) 110

PART IV: GENERAL AWARENESS

151. The President of World Bank is
    (a) Jim You King   (b) Christine Lagarde
    (c) Prema Cariappa   (d) Vijay L.Kelkar

152. Tulsidas wrote Ramcharitmanas in the reign of
    (a) Babar   (b) Akbar
    (c) Aurangzeb (d) Jahangir

153. Grammy Award is given in the field of
    (a) Acting   (b) Music
    (c) Singing   (d) Boxing

154. The first woman to get the Bharat Ratan Award is
    (a) Mother Teresa   (b) Indira Gandhi
    (c) Lata Mangeshker (d) Sarojini Naidu

155. Karl Marx wrote
    (a) Asian Drama   (b) Emma
    (c) Das Kapital   (d) Good Earth

156. The religious text of the Jews is named as
    (a) The Analectus   (b) Torah
    (c) Tripitaka   (d) Zend-Avesta

157. "Meghdoot" was written by
    (a) Humayun Kabir   (b) Khushwant Singh
    (c) Banabhatta   (d) Kalidasa

158. Who among the following is a famous English writer ?
    (a) Amrita Pritam   (b) Mahadevi Verma
    (c) Ashapurna Devi   (d) Mulk Raj Anand

159. Which of the following is not an economic problem ?
    (a) Deciding between paid work and leisure.
    (b) Deciding between expenditure on one good and the other.
    (c) Deciding between alternative methods of personal saving.
    (d) Deciding between different ways of spending leisure time.

160. Which of the following occurs when labour productivity rises ?
    (a) The equilibrium nominal wage falls
    (b) The equilibrium quantity of labour falls
    (c) Competitive firms will be induced to use more capital
    (d) The labour demand curve shifts to the right

161. Which of the following are consumer semi-surable goods ?
    (a) Cars and television sets
    (b) Milk and milk products
    (c) Foodgrains and other food products
    (d) Electrical appliance like fans and electic irons

162. Which of the following statements is correct ?
    (a) Most workers will work for less then their reservation wage.
    (b) The reservation wage is the maximum amount any firm will pay for a worker.
    (c) Economic rent is the difference between the market wage and the reservation wage.
    (d) Economic rent is the amount one must pay to enter a desirable labour market.

163. Other things being equal, a decrease in quantity demanded of a commodity can be caused by
    (a) a rise in the price of the commodity
    (b) a rise in the income of the consumer
    (c) a fall in the price of a commodity
    (d) a fall in the income of the consumer

164. Who admits a new State to the Union of India ?
    (a) President   (b) Supreme Court
    (c) Prime Minister (d) Parliament

165. In which year were the States reorganized on a linguistic basis ?
    (a) 1951   (b) 1947
    (c) 1950   (d) 1956

166. Who has got the power to create All India Services ?
    (a) Supreme Court   (b) The Parliament
    (c) Council of Ministers (d) Prime Minister

167. Which one of the following is the most lasting contribution of the Rastrakutas ?
    (a) Kailasha Temple
    (b) Pampa, Ponna, Ranna, the three writers of Kannada Poetry and Kailasha Temple
    (c) Patronage of Jainism   (d) Conquests

168. Ravikirti, a Jain, who composed the Aihole Prashasti, was patronized by
    (a) Pulakeshi I   (b) Harsha
   (c) Pulakeshi II   (d) Kharavela

169. The "Mein Kampf" was written by
  (a) Hitler   (b) Mussolini
  (c) Bismarck   (d) Mazzini
170. When did the reign of Delhi Sultanate came to an end ?
  (a) 1498 A.D.   (b) 1526 A.D.
  (c) 1565 A. D.   (d) 1600 A.D.
171. In the provisional Parliament of India, how many members were there ?
  (a) 296   (b) 313
  (c) 318   (d) 316
172. It was decided to observe Mahatma Gandhi's birthday October 2 as the International Nonviolence Day at
  (a) International lndology Conference
  (b) Setyagraha Centenary Conference
  (c) Congress Foundation Day Celebration
  (d) None of these
173. ISRO's Master Control Facility is in
  (a) Andhra Pradesh (b) Orissa
  (c) Gujarat   (d) Karantaka
174. India is the largest producer and exporter of
  (a) Cotton   (b) Copper
  (c) Tea   (d) Mica
175. The soils which are rich in Calcium are known as
  (a) Pedocals   (b) Pedalfers
  (c) Podsols   (d) Laterits
176. Cultivable land is defined as
  (a) land actually under crops
  (b) Culitivable waste land + fallow land
  (c) Old fallow lands + current fallow lands
  (d) Total fallow lands + net sown area
177. From which part of Opium Plant we get morphine ?
  (a) Leaves   (b) Stem
  (c) Bark   (d) Fruit coat
178. Which of the following is a Biological method of soil conservation ?
  (a) Contour farming (b) Contour terracing
  (c) Gully control   (d) Basin listing
179. Glucose is a type of
  (a) Pentose sugar   (b) Hexose sugar
  (c) Tetrose sugar   (d) Diose sugar
180. Number of mitochondria in bacterial cell is
  (a) one   (b) two
  (c) many   (d) zero
181. The original founder of the Manuscripts and Editor of Kautilya's Arthashastra was
  (a) Srikanta Shastri   (b) Srinivasa lyangar
  (c) R. Shamashastri   (d) William Jones
182. Which of the following is the largest Biosphere Reserves of India ?
  (a) Nilgiri   (b) Nandadevi
  (c) Sundarbans   (d) Gulf of Mannar
183. Rainbow is formed due to
  (a) refraction and dispersion
  (b) scattering and refraction
  (c) diffraction and refraction
  (d) refraction and reflection
184. Golden view of sea shell is due to
  (a) Diffraction   (b) Dispersion
  (c) Polarization   (d) Reflection

185. An object covers distance which is directly proportional to the square of the time. Its acceleration is
  (a) increasing   (b) decreasing
  (c) zero   (d) constant
186. If the horizontal range of a projectile is four times its maximum height, the angle of projection is
  (a) 30°   (b) 45°
  (c) $\sin^{-1}\left(\dfrac{1}{4}\right)$ (d) $\tan^{-1}\left(\dfrac{1}{4}\right)$
187. Which place is called as "Silicon Valley" of India ?
  (a) Delhi   (b) Pune
  (c) Bengaluru   (d) Hyderabad
188. Telnet stands for
  (a) Telephone Network   (b) Television Network
  (c) Teletype Network   (d) Telefax Network
189. Which of the following metals has least melting point ?
  (a) Gold   (b) Silver
  (c) Mercury   (d) Copper
190. The gas produced in marshy places due to decomposition of vegetation is
  (a) Carbon monoxide (b) Carbon dioxide
  (c) Sulphur dioxide (d) Methane
191. In cactue, the spines are the modified
  (a) stem   (b) sripules
  (c) leaves   (d) buds
192. The smallest known prokaryotic organism is
  (a) Microcystis   (b) Mycoplasma
  (c) Bacteria   (d) Chlorella
193. With what bio-region is the term "Steppe" associated ?
  (a) Grasslands   (b) Tropical Forests
  (c) Savanna   (d) Coniferous Forests
194. About how much of the world's land area is tropical rainforest ?
  (a) 2 percent   (b) 7 percent
  (c) 10 percent   (d) 15 percent
195. According to your text, what can "be thought of as the genetic library that keep life going on Earth" ?
  (a) A bio-engineering lab   (b) Human genes
  (c) The human genome project
  (d) Biodiversity
196. The world's growing appetite for what food product is a leading cause of tropical deforestation ?
  (a) Pork   (b) Sugar
  (c) Lamb   (d) Beef
197. "Life Divine" is a book written by
  (a) M. K. Gandhi   (b) Rabindranath Tagore
  (c) S. Radhakrishnan (d) Shri Aurobindo
198. The Oscar Award was won 36 times by
  (a) Charlie Chaplin (b) Alfred Hitchcock
  (c) Walt Disney   (d) Akiro Kurosawa
199. The boiling point of water decreases at higher altiudes is due to
  (a) low tenperature
  (b) low atmospheric pressure
  (c) high temperature
  (d) high atmospheric pressure
200. The chemical name of "Hypo" commonly used in photography is
  (a) Sodium thiosulphate (b) Silver nitrate
  (c) Sodium nitrate   (d) Silver iodide

Hints & Explanations

PART I : GENERAL INTELLIGENCE

1. (a)
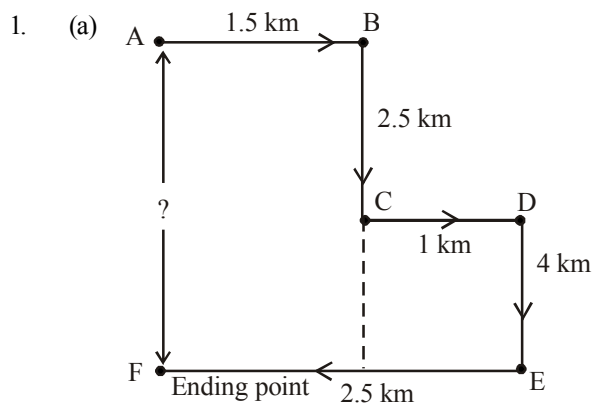
AF = DE + CB
AF = 4 + 2.5
AF = 6.5 kms

2. (d)
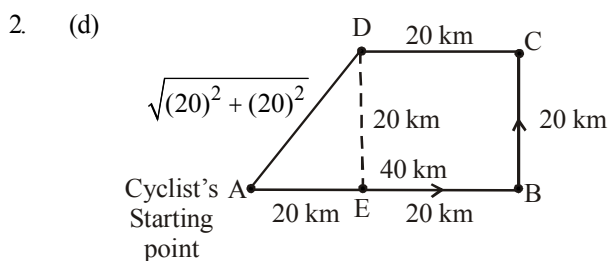
$AD = \sqrt{(20)^2 + (20)^2} = 28.28 \approx 30$ kms

3. (c) $81 \times 9 = 729$
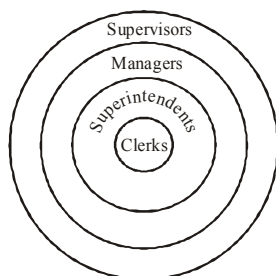$64 \times 8 = 512$
$49 \times 7 = \boxed{343}$
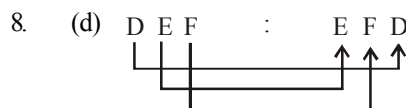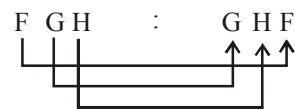
4. (b)

5. (b)
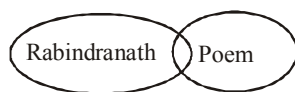
Conclusions:
A. True
B. True

6. (c)

Conclusions:
I. False
II. False
III. True
IV. False

7. (c) A Cardiologist studies and treats the heart diseases.
Similarly,
A Nephrologist studies and treats kidney problems.

8. (d)

Similarly,

9. (a) $A \xrightarrow{+2} C$ Similarly, $E \xrightarrow{+2} G$

$Z \xrightarrow{-1} Y$ $X \xrightarrow{-1} W$

$B \xrightarrow{+2} D$ $F \xrightarrow{+2} H$

10. (d) Reversing the letters. It becomes,
ROUGH : SMOOTH :: TOUGH : TENDER

11. (b) $7 \times 3 + 3 = 24$
$23 \times 3 + 3 = 72$

12. (a) $12 \times 12 - \dfrac{12}{3} = 140$

$156 \times 12 - \dfrac{156}{3} = 1820$

13. (b) $4 \times 4 \times 4 = 64$
$9 \times 9 \times 9 = 729$

14. (d) Maharashtra is the state of India.
Similarly,
Texas is the state of USA.

15. (b) Qualm is the synonym of nausea
Similarly,
Burn is the synonym of sear.

16. (d) Except (d) all others are reptiles.
While locust is a large insect.

17. (a) $B \xrightarrow{+1} C \xrightarrow{+1} D \xrightarrow{+3} G \to$ odd one

$G \xrightarrow{+2} I \xrightarrow{+1} J \xrightarrow{+2} L$

$P \xrightarrow{+2} R \xrightarrow{+1} S \xrightarrow{+2} U$

$U \xrightarrow{+2} W \xrightarrow{+1} X \xrightarrow{+2} Z$

18. (d)

19. (a) Except (a) all others have five letters.

20. (d) By going options:

    (A) 16   25   (B) 36   49

    ↓   ↓   ↓   ↓

    4×4 5×5 6×6 7×7

    (C) 64   81

    ↓   ↓

    8×8 9×9

21. (a) Except (a) all others are squares.

    $25^2 = 625$

    $36^2 = 1296$

    $49^2 = 2401$

22. (b) Except (b) all others are countries in Europe while Korea is situated in East Asia.

23. (b) Except (b) all others mean the central point.

24. (a) $3 + 0 = 3$

    $2 + 7 = 9$

    $3 + 6 = 9$

    $4 + 5 = 9$

    $7 + 2 = 9$

25. (c) Cow → Milk → Curd → Butter Milk → Butter → Ghee

       (4)   (2)   (1)   (3)   (6)   (5)

26. (c) Listening → Speaking → Reading → Writing

        (2)   (4)   (1)   (3)

27. (b) Infancy → Childhood → Adolescence → Adulthood

       (2)   (3)   (4)   (1)

28. (d) There are two series:

    +1   +1   +1

    3 15 4 16 5 17 6 (18)

    +1   +1   +1
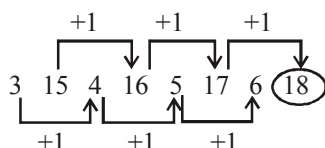
29. (c) 6   81   96   (113)   132

    + 13   + 15   + 17   + 19

30. (c) $2 \times 2 + 1$ $2 \times 3 + 1$ $2 \times 4 + 1$ $2 \times 5 + 1$

    1 2 1   2 5 3   3 7 4   4 9 5   5 11 1   6

    +1   +1   +1   +1

    $1 \times 2 + 1$ $1 \times 3 + 1$ $1 \times 4 + 1$ $1 \times 5 + 1$

31. (c) C $\xrightarrow{+4}$ G $\xrightarrow{+4}$ K $\xrightarrow{+4}$ O $\xrightarrow{+4}$ (S)

    E $\xrightarrow{+4}$ I $\xrightarrow{+4}$ M $\xrightarrow{+4}$ Q $\xrightarrow{+4}$ (U)

32. (a) R $\xrightarrow{-3}$ O $\xrightarrow{-3}$ L $\xrightarrow{-3}$ I $\xrightarrow{-3}$ F $\xrightarrow{-3}$ (C)

33. (d) A man + his wife = 1 + 1 = 2

    His three sons + their wives = 3 + 3 = 6

    Three children in each one's family = $3 \times 3 = 9$

    Total members = 2 + 6 + 9 = 17

34. (b) There is no 'u' in the word INFLATIONARY.

35. (c) a c b d /

    c a d b /

    a c b d /

    c a d b /

    a c b d

36. (b) Mani's Age = 60 years

    Prabhu's Age = 60/2 = 30 years

    Romana's Age = 30/2 = 15 years

37. (a) $(N \times \boxed{L} + M) \div K = 31$

    $(11 \times 5 + 7) \div 2 = 31$

    $62 \div 2 = 31$

38. (b) First and last digits of each equation have been interchanged.

    $2 \times 3 \times 4 = 4\,3\,2$

    $5 \times 6 \times 7 = 7\,6\,5$

    $7 \times 8 \times 9 = 9\,8\,7$

    $2 \times 5 \times 7 = 7\,5\,2$

39. (c) Trend in decrease:

    $26 \xrightarrow{-1} 25 \xrightarrow{-2} 23 \xrightarrow{-3} 20 \xrightarrow{-4} 16 \xrightarrow{-5} 11 \xrightarrow{-6}$ (5)

40. (b) P A L E R T H

    ↓ ↓ ↓ ↓ ↓ ↓ ↓

    2 1 3 4 5 9 0

    The code for PEARL is 24153

41. (d) Reversing the order $\dfrac{P\,R\,I\,N\,C\,I\,P\,A\,L}{L\,A\,P\,I\,C\,N\,I\,R\,P}$ →

    Similarly

    Reversing the order $\dfrac{A\,D\,O\,L\,E\,S\,C\,E\,N\,C\,E}{E\,C\,N\,E\,C\,S\,E\,L\,O\,D\,A}$ →

42. (d)   A   B   E   G

    C

           D   F   H

    K   I   J
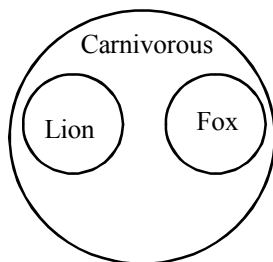
    ☐ABCD, ☐BEDF, ☐EGFH, ☐FHIJ,

    ☐AECF, ☐EGJI, ☐CFIK, ☐AGJK, ☐AEIK
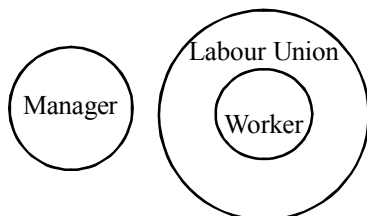
43. (d)

44. (c)

45. (a)

46. (a)   47.   (c)
48. (d)   49.   (c)

50. (c)
F   A   I   T   H
↓   ↓   ↓   ↓   ↓
31   34   23   76   79

FOR VISUALLY HANDICAPPED CANDIDATES ONLY

42. (a) An earthworm lives in mud.
          Similarly,
          A crab lives in the sea.
43. (c) Peacock is the national bird of India.
          Bear is the national animal of Russia.
44. (a) Consecutive letters in reverse order.
45. (b) $3 \times 3 + 2 = 11$
          $5 \times 5 + 2 = 27$
46. (a) All excepts potassium are metals used in semiconductor devices.
47. (d) Except (d) all others grow upon the ground.
48. (b) $F \xrightarrow{-2} D \xrightarrow{-2} B \xrightarrow{-2} Z$

          $G \xrightarrow{-2} E \xrightarrow{-2} C \xrightarrow{-2} A$

          $M \xrightarrow{-2} K \xrightarrow{-2} I \xrightarrow{-2} G$

          $P \xrightarrow{-2} N \xrightarrow{-2} L \xrightarrow{-2} J$

          $W \xrightarrow{-2} U \xrightarrow{-2} S \xrightarrow{-2} Q$

49. (b)

1   4   9   16   25   36   49   64   81   100   ⟨121⟩
  +3 +5 +7 +9 +11 +13 +15 +17 +19   +21

50. (b)   2   2   4   12   48   ⟨240⟩ 1440
            ×1   ×2   ×3   ×4   ×5   ×6

PART II : ENGLISH LANGUAGE

51. (c) A sonnet is a short rhyming poem with 14 lines. The original sonnet form was invented in the 13/14th century by Dante and an Italian philosopher named Francisco Petrarch. The form remained largely unknown until it was found and developed by writers such as Shakespeare. Sonnets use iambic meter in each line and use line-ending rhymes.

52. (d) "Fallible" means capable of making mistakes or easier to remember - capable of failing. Infallible means exactly the opposite - incapable of failing.

53. (a) A credulous person is one who is willing to believe or trust too readily, especially without proper or adequate evidence.

54. (a) Alimony is a legal obligation on a person to provide financial support to his or her spouse before or after marital separation or divorce.

55. (b) Fantasy is the faculty or activity of imagining impossible or improbable things.

56. (b) Mountaineer is the correctly spelt word.

57. (a) Happened is the correctly spelt word.

58. (c) sentimentalist is the correctly spelt word.

59. (b) libertarian is the correctly spelt word.

60. (d) Empathic is the correctly spelt word.

61. (c) Delhi is the capital of India. (The sentence is in present tense).

62. (b) People from all parts of the country comes to Delhi.

63. (d) There are many historical buildings.

64. (a) People visit the Rajghat, Shantivan and Vijaygath.

65. (d) We visited Delhi last year with our cousins.

66. (b) There are many other historical cities.

67. (c) Agra is one of them.

68. (a) We will visit Agra and Jaipur next time.

69. (b) The Red Fort of Delhi and Hawa Mahal of Jaipur were very famous.

70. (d) for their Mughal and Rajasthani architecture respectively.

71. (d) No error.

72. (c) Shakespeare has written many plays as well as few poetry. [Poetry is an Uncountable Noun or Mass Noun; which means a noun that cannot be used freely with numbers or the indefinite article, and which therefore takes no plural form.]

73. (b) Neither of the girls are willing to accept the proposal.

74. (a) The correct sentence should be- 'An interesting book 'A tale of two cities' was written by Alexander Dumas. Article 'a' in the first part should be replaced by 'an' because it is followed by a vowel letter.

75. (c) In India, there are many poor. [Poors is no word. Poor refer to all the poor people.]

76. (d) Is not learning superior to wealth?

77. (d) A group of agitators incited the mob to break down the Vice- Chancellor's door. (Incited means encourage or stir up (violent or unlawful behaviour).

78. (b) Turn the lights off before you go to bed.

79. (d) There is no factual evidence to support your assertion.
80. (a) Throw a stone at the fierce dog. [To throw a stone to someone is so that they catch it, though if they do not you might unintentionally hit them with the stone instead! But,
    To throw a Stone at someone is intentionally to hit them with the stone.]
81. (c) Equilibrium means balance. Its opposite is imbalance.
82. (d) Immortal means death-defying or endless. Its opposite is temporary.
83. (a) Focus means the state or quality of having or producing clear visual definition. Its opposite is disappear.
84. (c) Veteran means experienced. Whereas, Novice means a person just learning something.
85. (d) Superfluous means unnecessary. Its opposite is necessary.
86. (b) Persevere means continue in a course of action even in the face of difficulty or with little or no indication of success. Persist means continue in an opinion or course of action in spite of difficulty or opposition.
87. (c) Petition means a formal written request, typically one signed by many people, appealing to authority in respect of a particular cause.
88. (c) Proposition means a plan or scheme proposed.
89. (b) Vivacious means attractively lively and animated.
90. (b) sporadic means occurring at irregular intervals or only in a few places; scattered or isolated.
91. (b) The idiom throw dust into my eyes means to confuse or mislead somebody to deceive.
92. (b) Maiden speech means first speech.
93. (d) The idiom 'all ears' means listening eagerly and carefully.
94. (b) Salad days refers to the time of youth, innocence, and inexperience.
95. (a) Cool about working means he is relax and has no problem in working late at night.
96. (c) Sohan was pleased at the news yesterday. (the sentence is in past tense)
97. (a) She did not like the movie, nor did I.
98. (a) Old habits die hard.
99. (b) One cannot be indifferent to one's health, can one?
100. (a) The mother with her children was expected.

PART III : QUANTITATIVE APTITUDE

101. (a) $\dfrac{\sin 25° \cos 65° + \cos 25° \sin 65°}{\tan^2 70° - \sec^2 70°}$

    $= \dfrac{\sin(25° + 65°)}{-1} = \dfrac{\sin 90°}{(-1)} = -1$

102. (b) $4\cos^2\theta - 4\cos\theta + 1 = 0$
    $(2\cos\theta - 1)^2 = 0$
    or, $2\cos\theta = 1$

    $\Rightarrow \cos\theta = \dfrac{1}{2}$

    $\theta = 60°$
    Hence, the value of $\tan(\theta - 15°) = \tan(60° - 15°)$
    $\qquad\qquad\qquad\qquad = \tan 45° = 1$

103. (a) $\left(r\cos\theta - \sqrt{3}\right)^2 + \left(r\sin\theta - 1\right)^2 = 0$

    If and only if, $r\cos\theta - \sqrt{3} = 0$, and $r\sin\theta - 1 = 0$

    $r\cos\theta = \sqrt{3}$ ...(1)

    $r\sin\theta = 1$ ...(2)

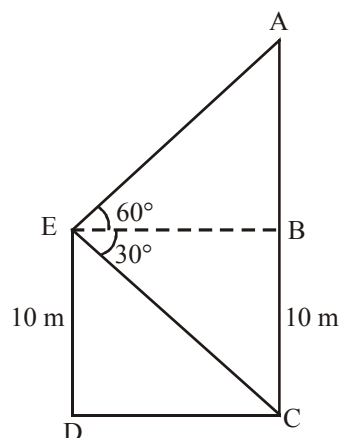   dividing (1) by (2)

    $\tan\theta = \dfrac{1}{\sqrt{3}}$

    $\sec\theta = \sqrt{1 + \tan^2\theta} = \sqrt{1 + \dfrac{1}{3}} = \dfrac{2}{\sqrt{3}}$

    Also $r^2\cos^2\theta + r^2\sin^2\theta = \left(\sqrt{3}\right)^2 + 1^2$

    $r^2 = 4 \Rightarrow r = 2$

    $\dfrac{r\tan\theta + \sec\theta}{r\sec\theta + \tan\theta} = \dfrac{2 \times \dfrac{1}{\sqrt{3}} + \dfrac{2}{\sqrt{3}}}{2 \times \dfrac{2}{\sqrt{3}} + \dfrac{1}{\sqrt{3}}} = \dfrac{4/\sqrt{3}}{5/\sqrt{3}} = \dfrac{4}{5}$

104. (c)

    $ED = BC = 10\,m$

    In $\triangle ABE$, $\tan 60° = \dfrac{AB}{EB}$

    $\sqrt{3} = \dfrac{AB}{EB} \Rightarrow AB = \sqrt{3}EB$ ...(1)

    In $\triangle EBC$, $\tan 30° = \dfrac{BC}{EB}$

    $\dfrac{1}{\sqrt{3}} = \dfrac{10}{EB} \Rightarrow EB = 10\sqrt{3}\,m$

    Putting value of EB in (1)

    $AB = \sqrt{3}\left(10\sqrt{3}\right) = 30\,m$

    $AC = AB + BC = 40\,m$

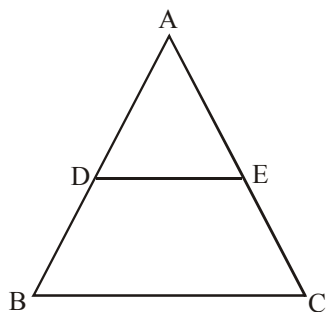**105. (c)** Sum of interior angles of polygon $= (n - 2) \times 180°$

$(n - 2) \times 180° = 1440$

$n - 2 = \dfrac{1440}{180} = 8$

$n = 10$

Hence, the number of sides is 10.

106. (d)

Since DE is parallel to BC

$\Delta ADE \cong \Delta ABC$

$\dfrac{ar(\Delta ABC)}{ar(\Delta ADE)} = \dfrac{(AB)^2}{(AD)^2} = \dfrac{25}{4}$

$\dfrac{ar(DECB)}{ar(ADE)} + \dfrac{ar(ADE)}{ar(ADE)} = \dfrac{25}{4}$

$\dfrac{ar(DECB)}{ar(ADE)} = \dfrac{25}{4} - 1 = \dfrac{21}{4} = 5\dfrac{1}{4}$

107. (c) First number $= 2 \times 44 = 88$

Other number $= \dfrac{44 \times 264}{88} = 132$

108. (a) If they are equal number of rows and columns then,

$\sqrt{1369} = 37$

109. (c) $\dfrac{4}{7} + \dfrac{\dfrac{2y}{y} - \dfrac{x}{y}}{\dfrac{2y}{y} + \dfrac{x}{y}} = \dfrac{4}{7} + \dfrac{2 - \dfrac{4}{5}}{2 + \dfrac{4}{5}} = \dfrac{4}{7} + \dfrac{6}{14} = 1$

110. (b) Two days work $= \dfrac{1}{9} + \dfrac{1}{15} = \dfrac{5 + 3}{45} = \dfrac{8}{45}$

Ten days work $= 5 \times \dfrac{8}{45} = \dfrac{40}{45} = \dfrac{8}{9}$

Remaining work $= 1 - \dfrac{8}{9} = \dfrac{1}{9}$ which is done by A on

11th day.

Hence, the work will be completed in 11 days.

111. (c) Let original property worth ₹ x

Property left for Ram's widow $= \dfrac{x}{3}$

Property left for his daughter $= \dfrac{3}{5} \times \dfrac{2x}{3} = \dfrac{2x}{5}$

Remaining property $= x - \left(\dfrac{x}{3} + \dfrac{2x}{5}\right) = \dfrac{4x}{15}$

$\dfrac{4x}{15} = 6,400$

$x = \dfrac{6,400 \times 15}{4} = 24,000$

112. (b) The sum of Arithmetic Progression is given by

$s = \dfrac{n}{2}(a + l)$

$66 = \dfrac{n}{2}(22 - 11) = \dfrac{n}{2} \times 11$

$n = 12$

113. (c) Area of hexagon $= 6 \times \dfrac{\sqrt{3}}{4}a^2 = \dfrac{3\sqrt{3}}{2}a^2$ or $\dfrac{9}{2\sqrt{3}}a^2$

114. (a) Selling price = Marked price – Discount

$= 200 - 20\%$ of $200 = 160$

Cost Price $= 160 - 16 = 144$

Gain% $= \dfrac{16}{144} \times 100 = \dfrac{100}{9}\% = 11\dfrac{1}{9}\%$

115. (d) Marked Price, M = 2C, where C is cost price for 15%

gain, S.P. $= C + \dfrac{15}{100}C = 1.15C$

Let discount be x%

$2C - \dfrac{x}{100} \times 2C = 1.15C \Rightarrow x = 42.5\%$

116. (b) Let two numbers be 3x and 5x

$\dfrac{3x - 9}{5x - 9} = \dfrac{12}{23}$

$23(3x - 9) = 12(5x - 9)$

$69x - 207 = 60x - 108$

$9x = 99$

$x = 11$

Hence, the small number will be $3 \times 11 = 33$

117. (c) $\dfrac{x}{y} = \dfrac{5}{2}$

$\dfrac{8x + 9y}{8x + 2y} = \dfrac{8\dfrac{x}{y} + \dfrac{9y}{y}}{8\dfrac{x}{y} + \dfrac{2y}{y}} = \dfrac{8 \times \dfrac{5}{2} + 9}{8 \times \dfrac{5}{2} + 2} = \dfrac{29}{22}$

118. (a) In one minute (A + B) can together fill $\dfrac{1}{36} + \dfrac{1}{45} = \dfrac{1}{20}$ part.

In 7 minutes part of tank filled = $\dfrac{7}{20}$

remaining part $= 1 - \dfrac{7}{20} = \dfrac{13}{20}$

In 8th minutes, part filled by A, B and C altogether

$= \dfrac{1}{36} + \dfrac{1}{45} - \dfrac{1}{30} = \dfrac{1}{20} - \dfrac{1}{30} = \dfrac{1}{60}$

$\dfrac{13}{20}$ part of tank filled by (A + B + C)

$= 60 \times \dfrac{13}{20} = 39$ minutes

119. (c) Let length, breadth and height of parallelopiped be l, b and h respectively.
$l + b + h = 24$ cm

$\sqrt{l^2 + b^2 + h^2} = 15$ cm $\Rightarrow l^2 + b^2 + h^2 = 225$ cm^2
$(l + b + h)^2 - 2(lb + hb + lh) = 225$
$(24)^2 - 225 = 2(lb + bh + hl)$
$351 = 2(lb + bh + hl)$
Total surface area is 351 cm^2.

120. (a) A : B = 5 : 4, B : C = 8 : 9
A : B : C = $5 \times 8 : 4 \times 8 : 4 \times 9 = 40 : 32 : 36$
A : B : C = 10 : 8 : 9

Share of C in the profit $= \dfrac{9}{10 + 8 + 9} \times 3600 = ₹\,1,200$

121. (c) Let Cost Price of watch be ₹ x

$S.P = x - \dfrac{5}{100} x = .95\,x$

If S.P = 0.95x + 56.25 then profit = 10%

$\dfrac{0.95x + 56.25 - x}{x} \times 100 = 10$

$\dfrac{56.25}{x} - 0.05 = \dfrac{1}{10}$

$\dfrac{56.25}{x} = \dfrac{1}{10} + \dfrac{5}{100} = \dfrac{3}{20}$

$x = 56.25 \times \dfrac{20}{3} = 375$

122. (a) $\dfrac{1}{100} \times \dfrac{1}{100} \times \dfrac{25}{100} \times 1000 = 0.025$

123. (b) Population 2 years ago $= \dfrac{4410}{\left(1 + \dfrac{5}{100}\right)^2} = \dfrac{4410}{441} \times 400$

$= 4000$

124. (a) Let C's speed = x km/h
Then, B's speed = 3x km/h
and A's speed = 6x km/h
Ratio of speeds of A, B, C = 6x : 3x : x = 6 : 3 : 1

Ratio of time taken $= \dfrac{1}{6} : \dfrac{1}{3} : 1$

$= 1 : 2 : 6$
It C's 90 minutes
Hence, 6x = 90
x = 15 minutes
Hence, A should take 15 minutes.

125. (a) Principal (P) = 210
Ratio (R) = 10%
Loan has to be paid in the instalments i.e., is it take two years to pay.

$CI = P\left(1 + \dfrac{R}{100}\right)^2$

$= 210\left(1 + \dfrac{10}{100}\right)^2 \Rightarrow 210 \times \dfrac{11}{10} \times \dfrac{11}{10} = 254$

So, equal instalment $= \dfrac{254}{2} = 127$

126. (b) Let total number of workers be n
total salary of all workers = 8000 n
total salary of 7 technicians = $7 \times 12000 = 84{,}000$
total salary of remaining workers = $(n - 7) \times 6000$
$84000 + (n - 7) \times 6000 = 8000\,n$
$84 + 6n - 42 = 8n$
$42 = 2n$
$n = 21$

127. (c) Let total age of family be S years
3 years ago, total age = $S - 3 \times 5 = S - 15$

$\dfrac{S - 15}{5} = 17$

$S = 17 \times 5 + 15 = 100$
Let present age of baby be x years

$\dfrac{S + x}{6} = 17$

$100 + x = 17 \times 6$
$x = 102 - 100 = 2$ years

128. (d) Total distance covered by horse in $2\dfrac{1}{2}$ seconds

$= 66 \times \dfrac{5}{2} = 165$ m

Radius of the field $= \dfrac{165}{2\pi} = \dfrac{165 \times 7}{2 \times 22} = 26.25$ m

129. (d) Let radius of base of cone be r and height of cylinder be h.
Vol. of cone = Vol. of cylinder

$$\frac{1}{3}\pi r^2 \times 24 = \pi\left(\frac{r}{3}\right)^2 \times h$$

h = 72 cm

130. (a)

131. (c) $\dfrac{3x^2 - 4x + 3}{x^2 - x + 1} = \dfrac{\dfrac{3x^2}{x} - \dfrac{4x}{x} + \dfrac{3}{x}}{\dfrac{x^2}{x} - \dfrac{x}{x} + \dfrac{1}{x}}$

$$\frac{3\left(x + \dfrac{1}{x}\right) - 4}{\left(x + \dfrac{1}{x}\right) - 1} = \frac{3 \times 3 - 4}{3 - 1} = \frac{5}{2}$$

132. (c) Side of square park = $\sqrt{25}$ km = 5 km
Perimeter of park = $4 \times 5 = 20$ km

Time taken = $\dfrac{20\text{km}}{3\text{ km}/\text{h}} = 6$ hours 40 minutes

133. (b) Let radius of internal and external circular Plot be r and R respectively.
$2\pi R - 2\pi r = 33$ m

Width of path, $(R - r) = \dfrac{33 \times 7}{2 \times 22} = \dfrac{21}{4} = 5.25$m

134. (c) $x^4 - 2x^2y^2 + y^4 = (x^2 - y^2)^2 = [(x+y)(x-y)]^2$

$$= \left(2p \times \frac{2}{p}\right)^2 = 16$$

135. (d) We have, $x = 3 + 2\sqrt{2}$

$$\frac{1}{x} = \frac{1}{3 + 2\sqrt{2}} \times \frac{3 - 2\sqrt{2}}{3 - 2\sqrt{2}} = 3 - 2\sqrt{2}$$

$$x + \frac{1}{x} = 6$$

$$\frac{x^6 + x^4 + x^2 + 1}{x^3} = x^3 + x + \frac{1}{x} + \frac{1}{x^3}$$

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

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

$$= \left(x + \frac{1}{x}\right)\left[\left(x + \frac{1}{x}\right)^2 - 3\right] + \left(x + \frac{1}{x}\right)$$

$$= 6[6^2 - 3] + 6 = 198 + 6 = 204$$

136. (a) $\triangle ABC \sim \triangle PQR$ (given)

$$\frac{AB}{PQ} = \frac{BC}{QR} = \frac{AC}{PR}$$

(Corresponding sides are proportional)

$$\Rightarrow \frac{AB}{PQ} = \frac{BC}{QR} = \frac{AC}{PR} = \frac{AB + BC + AC}{PQ + QR + PR}$$

$$\Rightarrow \frac{AB + BC + AC}{PQ + QR + PR} = \frac{AB}{PQ} \Rightarrow \frac{\text{Perimeter of ABC}}{\text{Perimeter of PQR}} = \frac{AB}{PQ}$$

$$\Rightarrow \frac{36}{24} = \frac{AB}{10} \Rightarrow AB = \frac{36 \times 10}{24} \Rightarrow 15 \text{ cm}$$

137. (a) Consecutive integer = 3, 4 and 5

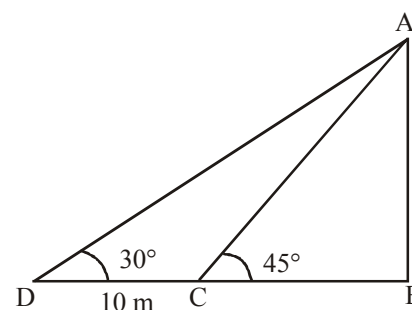138. (c)

139. (a) $\sqrt{5} + \sqrt{3} > \sqrt{6} + \sqrt{2}$
Squaring both sides

$$5 + 3 + 2\sqrt{15} > 6 + 2 + 2\sqrt{12}$$

$\sqrt{15} > \sqrt{12}$ which is true

140. (d)

141. (a)

In $\triangle ABC$, $\tan 45° = \dfrac{AB}{BC}$

$$1 = \frac{AB}{BC} \Rightarrow AB = BC \qquad ...(1)$$

In $\triangle ABD$, $\tan 30° = \dfrac{AB}{BD}$

$$\frac{1}{\sqrt{3}} = \frac{AB}{BD}$$

$BD = AB\sqrt{3}$

$DC + BC = AB\sqrt{3}$

$DC = AB\sqrt{3} - AB$ [from (i)]

$10 = AB(\sqrt{3} - 1)$

$$AB = \frac{10}{\sqrt{3} - 1} \times \frac{\sqrt{3} + 1}{\sqrt{3} + 1} = 5(\sqrt{3} + 1)\text{m}$$

142. (d) Total sales of branches B1, B3 and B5.
= (80 + 105 + 95 + 110 + 75 + 95) = 560 thousand

143. (d) Required ratio = $\dfrac{75 + 65}{85 + 95} = \dfrac{140}{180} = \dfrac{7}{9}$

144. (a) Average sale of B1, B2 and B3 in 2001.

$= \dfrac{105 + 65 + 110}{3} = \dfrac{280}{3}$

Average sale of B1, B3 and B6 in 2000.

$= \dfrac{80 + 95 + 70}{3} = \dfrac{245}{3}$

Required % = $\dfrac{\frac{245}{3}}{\frac{280}{3}} \times 100 = 87.5\%$

145. (a) Sales of books B3 in 2001 = 110 thousand
Sales of books B2 in 2001 = 65 thousand

% increase = $\dfrac{110 - 65}{65} \times 100 = 69.2$

146. (b)

147. (d) More than 55 years = 4 + 3 + 2 + 1 = 10

148. (a) Number of patients of age more than 40 years and less than 55 years = 8 + 7 + 5 = 20

149. (c) Total patients = 35

Required % = $\dfrac{1 + 4 + 8}{35} \times 100 \approx 37\%$

150. (a) 11% of 35 = $\dfrac{11}{100} \times 35 \approx 3.8 \approx 4$

FOR VISUALLY HANDICAPPED CANDIDATES

142. (c) Let P be the Principal amount and R be the rate of interest

$400 = \dfrac{P \times R \times 2}{100}$

PR = 20000 or $P = \dfrac{20000}{R}$

For 2 years, C.I − S.I. = $P \dfrac{R^2}{(100)^2}$

$420 - 400 = \dfrac{20000}{R} \times \dfrac{R^2}{10000}$

$20 = 2R$

$R = 10$

143. (d) $\dfrac{1}{2} : \dfrac{1}{3} : \dfrac{1}{4} = 6 : 4 : 3$

Share of third friend = $\dfrac{3}{6 + 4 + 3} \times 624$

$= \dfrac{3}{13} \times 624 = ₹\,144$

144. (a) $K = xy^2$

$K' = (x - 25\% \text{ of } x)(y - 25\% \text{ of } y)^2$

$= \left(\dfrac{3x}{4}\right)\left(\dfrac{3y}{4}\right)^2 = \dfrac{27}{64}xy^2$

Value decreased by $K - K' = \left(1 - \dfrac{27}{64}\right)xy^2$

$= \dfrac{37}{64}xy^2$

145. (d) For Half yearly, $A = P\left(1 + \dfrac{\frac{R}{2}}{100}\right)^{2n}$

$68921 = 64000\left(1 + \dfrac{5}{200}\right)^{2n}$

$\dfrac{68921}{64000} = \left(\dfrac{41}{40}\right)^{2n}$

$\left(\dfrac{41}{40}\right)^3 = \left(\dfrac{41}{40}\right)^{2n}$

$n = \dfrac{3}{2} = 1\dfrac{1}{2}$ years

146. (d) Angle between x-axis and y-axis is 90° i.e., $\dfrac{\pi^c}{2}$

147. (b) $\dfrac{\tan^2\theta}{1 + \tan^2\theta} + \dfrac{\cot^2\theta}{1 + \cot^2\theta}$

$= \dfrac{\tan^2\theta}{\sec^2\theta} + \dfrac{\cot^2\theta}{\cos ec^2\theta}$

$= \sin^2\theta + \cos^2\theta = 1$

148. (b) $= (1000001 + 999999)(1000001 - 999999)$
$= (2000000)(2)$
$= 4{,}000{,}000$

149. (a) $(a - 1)^2 + a^2 + (a + 1)^2 = 194$
$(a^2 - 2a + 1) + a^2 + (a^2 + 2a + 1) = 194$
$3a^2 + 2 = 194$
$3a^2 = 192$
$a^2 = 64$
$a = 8$
Number are 7, 8, 9
Sum of numbers = 7 + 8 + 9 = 24

150. (b) Vol. of cone = $\dfrac{1}{3}\pi \times (2.5\,\text{cm})^2 \times 11\,\text{cm}$

Vol. of one sphere = $\dfrac{4}{3}\pi(0.25\text{cm})^3$

Vol. of all spheres = Vol. of water dropped into vessel

$$n \times \frac{4}{3}\pi(0.25cm)^3 = \frac{2}{5} \times \frac{\pi}{3} \times (2.5cm)^2 \times 11cm$$

$$2n \times \frac{25}{100} \times \frac{25}{100} \times \frac{25}{100} = \frac{1}{5} \times \frac{25}{10} \times \frac{25}{10} \times 11$$

$$n = 440$$

PART IV : GENERAL AWARENESS

151. (a) Jim Yong Kim is a Korean American physician and anthropologist who has been the 12th President of the World Bank since 1 July 2012.

152. (b) Tulsidas wrote Shri Ram-Charit-Manas during the reign of Mughal Emperor Akbar. Tulsidas started writing this greatest Hindu 'Granth' on the birth day of Lord Shree Ram, i.e. Chaitra Navmi (9th day of Hindu month Chaitra) in year 1574. The life span of Akbar is 1556 – 1605.

153. (b) A Grammy Award is an accolade by the National Academy of Recording Arts and Sciences (NARAS) of the United States to recognize outstanding achievement in the music industry.

154. (b) Indira Gandhi was the first woman of India who received the Bharat Ratna, the highest civilian award of the Republic of India, in 1971.

155. (c) Das Kapital by Karl Marx, is a critical analysis of political economy, intended to reveal the economic laws of the capitalist mode of production.

156. (b) The Torah is written on scrolls and kept in a special cabinet called the aron hakodish, the holy ark, in synagogues. The Torah is read with a pointer called a yad (hand) to keep it from being spoiled. Each week, one section is read until the entire Torah is completed and the reading begins again.

157. (d) Meghdoot is a lyric poem written by Kalidas, considered to be one of the greatest Sanskrit poets.

158. (d) Mulk Raj Anand was an Indian writer in English, notable for his depiction of the lives of the poorer castes in traditional Indian society. One of the pioneers of Indo-Anglian fiction, he together with R. K. Narayan, Ahmad Ali and Raja Rao, was one of the first India-based writers in English to gain an international readership.

159. (d) Deciding between different ways of spending leisure time is not an economic problem.

160. (d) When labour productivity rises, the labour demand curve shifts to the right. As the productivity increases, the production function shifts up and simultaneously the labour demand curve shifts out and right. At a given real wage, more workers are hired and output increases.

161. (c) Semi durable consumer goods are products with durability of about one year. E.g., food grains and food products.

162. (c) Economic rent is the difference between the market wage and the reservation wage.

163. (a) Other things being equal, a decrease in quantity demanded of a commodity can be caused by a rise in the price of the commodity.

164. (d) The parliament of India has power to add a new state to the Union of India. This is done by collecting votes of Members of Parliament in the favour of new state.

165. (d) The States Reorganisation Act, 1956 was a major reform of the boundaries of India's states and territories, organising them along linguistic lines.

166. (b) the Parliament has the power to create all India Services.

167. (a) Architecture reached a milestone in the Dravidian style during the reign of Rashtrakutas, the finest example of which is seen in the Kailasanath Temple or Kailasa Temple at Ellora.

168. (c) The famous Badami Chalukyas King Pulakeshi II (610-642 A.D.) was a follower of Vaishnavism. The inscription of Ravikirti, his court poet, is a eulogy of the Pulakeshi II and is available at the Meguti temple. It is dated 634 CE and is written in Sanskrit language and old Kannada script. The Aihole inscription describes the achievements of Pulakeshi II and his victory against King Harshavardhana.

169. (a) Mein Kampf is an autobiographical manifesto by Nazi leader Adolf Hitler, in which he outlines his political ideology and future plans for Germany.

170. (b) The Delhi Sultanate was the name of Delhi-based Muslim kingdoms that ruled over large parts of India for 320 years (1206 – 1526). Five dynasties ruled over Delhi Sultanate sequentially, the first four of which were of Turkic origin and the last was the Afghan Lodi. The Lodi dynasty was replaced by the Mughal dynasty. The five dynasties were the Mamluk dynasty (1206–90); the Khilji dynasty (1290–1320); the Tughlaq dynasty (1320–1414); the Sayyid dynasty (1414–51); and the Afghan Lodi dynasty (1451–1526).

171. (b) The Provisional Parliament of India was consisted of 313 members. The Constitutional Assembly of India was introduced in 1934. This will become the major assembly to draft constitution for India (Including present day Pakistan and Bangladesh). Members of this assembly was indirectly elected representatives from across the India. It consists of the members of Congress and Muslim League. The first official meeting of this Constituent Assembly was held on 9 Dec, 1946 while the last meeting was held on 24 Jan, 1950. On 26th Jan, 1950, the day when Constitution of India finally took in effect, Constitutional Assembly was renamed as Provisional Parliament of India. This Provisional Parliament was dissolved after the first general election of India in 1952.

172. (d) On 15 June 2007, the United Nations General Assembly voted to establish 2 October as the International Day of Non-Violence. The resolution by the General Assembly asks all members of the UN system to commemorate 2 October in "an appropriate manner and disseminate the message of non-violence, including through education and public awareness

173. (d) The Master Control Facility (MCF) is a facility set up by the Indian Space Research Organisation (ISRO) in the city of Hassan in the Indian state of Karnataka.

174. (c) India is the largest producer and exporter of tea. The Indian tea industry has grown to own many global tea brands and has evolved into one of the most technologically equipped tea industries in the world. Tea production, certification, exportation, and all other facts of the tea trade in India is controlled by the Tea Board of India.

175. (a) Pedocal is a subdivision of the zonal soil order. It is a class of soil which forms in semiarid and arid regions. It is rich in calcium carbonate and has low soil organic matter.

176. (d) Land able to be used for farming is called "cultivable land". It includes total fallow land and net sown area.

177. (d) Morphine is the most abundant opiate found in opium, the dried latex from unripe seedpods of Papaver somniferum (the opium poppy).

178. (a) Efforts by the U.S. Soil Conservation Service to promote contouring in the 1930s as an essential part of erosion control eventually led to its widespread adoption. The practice has been proved to reduce fertilizer loss, power and time consumption, and wear on machines, as well as to increase crop yields and reduce erosion. Contour farming is most effective when used in conjunction with such practices as strip cropping, terracing, and water diversion.

179. (b) Glucose has the molecular formula $C_6H_{12}O_6$ and is thus a hexose sugar.

180. (d) Bacteria are prokaryotes, which, by definition, are cells that don't possess membrane-bound organelles. Mitochondria are membrane-bound organelles.

181. (c) R. Shamashastri transcribed, edited and published the Sanskrit edition in 1909. He proceeded to translate it into English, publishing it in 1915.

182. (d) Gulf of Mannar with a area of 10500 sq.km. is the largest biosphere reserve of India.

183. (d) The rainbow comes from the reflection and refraction of the sunlight in the falling drops; its colors are mainly due to dispersion, which means that the refractive index of water depends on the wavelength of light.

184. (c) When a ray of light falls on sea shell, then its small amount gets refracted (slightly polarised) and rest almost gets reflected back (fully polarised).

185. (d) An object covers distance which is directly proportional to the square of the time. Its acceleration is constant.

186. (b) If the horizontal range of a projectile is four times its maximum height, the angle of projection is 45 degrees. Range is the total horizontal distance covered during the time of flight. It is calculated as $\dfrac{u^2 \sin 2\theta}{g}$, where θ is the angle of projection.

187. (c) The Silicon Valley of India is a nickname of the Indian city of Bangalore. The name signifies Bangalore's status as a hub for information technology (IT) companies in India and is a comparative reference to the original Silicon Valley, based around Santa Clara Valley, California, a major hub for IT companies in the United States.

188. (a) The acronym TELNET stands for Telephone Network.

189. (c) Mercury has the least melting point of the following metals (–38.83°C). Gold, silver and copper have 1064°C, 961.8°C and 1085°C respectively.

190. (d) Marsh Gas or methane gas is produced when vegetation decomposes in water. Methane, also called marsh gas, colourless, odourless gas that occurs abundantly in nature as the chief constituent of natural gas, as a component of firedamp in coal mines, and as a product of the anaerobic bacterial decomposition of vegetable matter under water.

191. (c) In cactus, spines are modified leaves, and thorns are modified branches.

192. (b) Mycoplasma are the smallest bacterial cells yet discovered, can survive without oxygen and are typically about 0.1 µm in diameter.

193. (a) In physical geography, a steppe is an ecoregion, characterized by grasslandplains without trees apart from those near rivers and lakes.

194. (a) Covering around 2 percent of the Earth's total surface area, the world's tropical rainforests are home to 50 percent of the Earth's plants and animals. Rainforests can be found all over the world from as far north as Alaska and Canada to Latin America, Asia and Africa.

195. (d) Biodiversity can be thought of as the genetic library that keeps life going on Earth. Biodiversity, short for biological diversity, is the term used to describe the variety of life found on Earth and all of the natural processes. This includes ecosystem, genetic and cultural diversity, and the connections between these and all species.

196. (d) The world's growing appetite for beef is a leading cause of tropical deforestation.

197. (d) Shri Aurbindo has written 'Life Divine' which deals with theoretical aspects of Integral Yoga.

198. (c) Walt Disney has won the most Oscar awards.

199. (b) Boiling point of water is lower at higher altitudes due to the decreased air pressure. Boiling point of water changes with altitude because atmospheric pressure changes with altitude.

200. (a) Sodium thiosulphate, also called sodium hyposulphite or "hypo" is used as a photographic fixer in photography.