1. What would be the value of \( \log_{10} 5 \), if \( \log_{10} 2 = 0.3010 \)?
   (A) 0.699  (B) 1.301  (C) -1.301  (D) 0.5661

2. Which of the following cities of East India was built originally for the workers of ‘Sakchi’ and named in 1919 as—
   (A) Bandel  (B) Jamshedpur  (C) Kharagpur  (D) None of the above

3. In a code language CENTRAL is written as LARTNFC. How will SEMINAR be written in the same code language?
   (A) NARIMES  (B) MESIRAN  (C) RANIMES  (D) NARISPM

4. Two buses started simultaneously from the same place and for the same destination at the speeds of 75 km/hr and 57 km/hr, respectively. What would be the distance between the buses after 3 hrs and 2 min?
   (A) 63.5 km  (B) 61.5 km  (C) 60.5 km  (D) 70.5 km

5. Tungska Fireball explosion took place in—
   (A) 1908  (B) 1908  (C) 1945  (D) None of these

6. Directions of the currents of which of the following oceans change twice annually?
   (A) Pacific ocean  (B) Atlantic ocean  (C) Indian ocean  (D) Arctic ocean

7. Which of the following diseases is caused by the fishes polluted by industrial wastage mixed with mercury?
   (A) Bronchitis  (B) Bright disease  (C) Minitimeta disease  (D) Hashimota disease

8. Perimeter of a square-shaped waste land is 208 metres. Width of the path around it is 2 metre. At the rate of Rs. 12.5 per metre, what would be the total cost of fencing around the path?
   (A) Rs. 2500  (B) Rs. 2700  (C) Rs. 2800  (D) None of these

9. As ‘Good’ is related to ‘Bad’, identically ‘Virtue’ is related to which of the following?
   (A) Blame  (B) Cheat  (C) Despair  (D) Vice

10. Which of the following countries has developed the aircraft that is quite invisible to country-made RADAR?
    (A) Iraq  (B) Iran  (C) North Korea  (D) Israel

11. How many authors have been honoured with Tagore Literature Awards?
    (A) 6  (B) 7  (C) 8  (D) 9

12. An amount of Rs. 1655 and Paise 90 is distributed among Amit, Bipin and Chandra in such a way that Amit gets Rs. 3 for every Rs. 2 to Amit and Chandra gets Rs. 3 for every Rs. 4 to Bipin. How much did Amit get?
    (A) Rs. 456 paise 80  (B) Rs. 472 Paise 70  (C) Rs. 486 Paise 90  (D) None of these

13. Who won the Australian Open Men Singles title 2010?
    (A) Andy Rodick  (B) Roger Federer  (C) David Nalibendian  (D) Pete Sampras

14. How many days of the Earth does the Mercury take to take one round of the Sun?
    (A) 88  (B) 98  (C) 78  (D) None of the above

15. What would be the radius of that circle whose area is equal to the sum of the areas of the circles of radius of 5 m and 12 m each?
    (A) 13 m  (B) 14 m  (C) 15 m  (D) None of the above

16. Seventh day of a month lies on three days before Friday. Which will be the day on the 19th date of this month?
    (A) Sunday  (B) Monday  (C) Wednesday  (D) Friday

17. Which of the following is odd?
    (A) Snake  (B) Lizard  (C) Whale  (D) Crocodile

18. A train of 750 m length is running at a rate of 60 km/hr. How long will it take to cross a signal post?
    (A) 50  (B) 40  (C) 55  (D) 45

19. A sold an article to B at a profit of 22.5% and B sold to C at 7.5% profit. C paid Rs. 5267 and 50 Paise for that article. At what cost did A purchase that article?
    (A) 3500  (B) 4000  (C) 4500  (D) 5000

20. Among the following lumbor vertebrae, which has the most damageable intervertebra disc in its centre?
    (A) L2 – L3  (B) L3 – L4  (C) L4 – L5  (D) L5 – S1

21. What fraction of an hour will pass between 4 : 56 p.m. and 5 : 32 p.m.?
    (A) \( \frac{1}{4} \)  (B) \( \frac{3}{4} \)  (C) \( \frac{3}{5} \)  (D) \( \frac{1}{2} \)

22. When was Indian National Congress founded?
    (A) In 1875  (B) In 1885  (C) In 1895  (D) None of the above
23. In the Besnagar inscription of Heleodorus, there is the description of—  
(A) Samkarshan and Vasudev  
(B) Samkarshan, Vasudev and Pradyumna  
(C) All the five brave  
(D) Vasudeo

24. As per Russia’s Finans magazine, who among the following has been chosen as the wealthiest man of Russia?  
(A) Vladimir Lisin  
(B) Mikhail Prokhorov  
(C) Roman Ebramovich  
(D) Deripaska

25. Branch of botany dealing with the study of algae is—  
(A) Microbiology  
(B) Phycology  
(C) Agrology  
(D) Mycology

26. Who among the following was not a member of the constituent Assembly, constituted in July 1946?  
(A) Dr. Rejendra Prasad  
(B) K.M. Munshi  
(C) Mahatma Gandhi  
(D) Abul Kalam Azad

27. My brother is elder than me by 562 days and my sister is elder than my brother by 75 weeks. If my sister was born on Tuesday, on what day of the week was I born?  
(A) Sunday  
(B) Monday  
(C) Tuesday  
(D) Wednesday

28. Following was the name of the mother of Chhatrapati Shivaji—  
(A) Jodhabai  
(B) Lakshmi Bai  
(C) Jeeja Bai  
(D) Putlibai

29. Height of A is less than that of B, but more than that of C. Height of D is less than A, but more than that of C. Height of E is less than B, but more than that of A. Then who is of the least height?  
(A) B  
(B) C  
(C) A  
(D) D

30. The muscle covering the outermost part of cranium is—  
(A) Gallia Eponeurotica  
(B) Gallia Perineurotica  
(C) Gallia Hyponeurotica  
(D) Gallia Epineurotica

31. Which of the following is odd?  
(A) Carrot  
(B) Bean  
(C) Grape  
(D) Banana

32. As ‘BEGK’ is related to ‘ADFJ’, similarly ‘PSVY’ is related to the following—  
(A) ORUX  
(B) ROUX  
(C) LQUT  
(D) LOQT

33. What minimum amount should be added to Rs. 149250 so that the sum can be distributed equally among 4744 people?  
(A) Rs. 2448  
(B) Rs. 2558  
(C) Rs. 2658  
(D) None of these

34. If ‘Cloud’ is termed as ‘White’, ‘White’ as ‘Rain’, ‘Rain’ as ‘Green’, ‘Green’ as ‘Air’, ‘Air’ as ‘Blue’ and ‘Blue’ as ‘Water’, then the bird flies in which of the following?  
(A) Cloud  
(B) White  
(C) Rain  
(D) Blue

35. Choose the odd term in the following series:  
3, 8, 15, 24, 34, 48, 63  
(A) 15  
(B) 24  
(C) 34  
(D) 48

36. Sum of the digits of a two-digit number is 14. If 36 is added to this number, the digits of the number mutually change their places. Which of the two digits is smaller?  
(A) 4  
(B) 5  
(C) 6  
(D) 7

37. Which of the following is the official language of Maldives?  
(A) Swhelli  
(B) Ashanti  
(C) Urdu  
(D) Divehi

38. Muhammad Iqbal’s song, ‘Saare Jahan Se Acha’ was set to music by who of the following?  
(A) Rabindranath Tagore  
(B) Abanindranath Tagore  
(C) Pt. Ravishankar  
(D) Chitalgarh Ramchandra

39. Lengths of the parallel sides of a trapezium are 11 cm and 25 cm, respectively. Other two sides are of 15 cm and 13 cm, respectively. Area of the trapezium will be—  
(A) 189 cm²  
(B) 216 cm²

40. What would be the value of x, if \(3x - y = 27\) and \(3(x+y) = 243\)?  
(A) 0  
(B) 2  
(C) 4  
(D) 6

41. If ‘Lead’ is termed as ‘Stick’, ‘Stick’ as ‘Nib’, ‘Nib’ as ‘Needle’, ‘Needle’ as ‘Rope’, ‘Rope’ as ‘Thread’, then what would be the term for ‘Nib’ that would be used for writing?  
(A) Sick  
(B) Nib  
(C) Needle  
(D) Thread

42. When small child Temuzin grew up, he was called—  
(A) Atila-de-Hun  
(B) Changze Khan (Zengees Khan)  
(C) Suleman Pratapi  
(D) Taimur Long (Tambarlen)

43. The value of \[ \frac{3 \times \sqrt{2}}{(\sqrt{6}+\sqrt{3})} - \frac{2 \times \sqrt{6}}{(\sqrt{3}+1)} + \frac{2 \times \sqrt{3}}{(\sqrt{6}+2)} \]  
(A) 3  
(B) 2  
(C) 0  
(D) \(\sqrt{3}\)

44. Which of the following states does not produce wheat?  
(A) Karnataka  
(B) Maharashtra  
(C) West Bengal  
(D) Tamil Nadu

45. Neither A is equal to B nor B is equal to C nor C is equal to D and D = 3A = B + C (all are positive), then which of the following are equal?  
(A) B and D  
(B) A and C  
(C) A and D  
(D) B and C

46. Who among the following invaded India in 711?  
(A) Muhammad-bin-Tughluq  
(B) Muhammad Ghazni  
(C) Muhammad  
(D) Muhammad-bin-Kasim

47. Who among the following was the topmost reformer and devotional saint?  
(A) Ramanand  
(B) Tulsi Das  
(C) Kabir  
(D) Namdev
48. A contractor employs a labourer at Rs. 75 per day as remuneration, along with the condition that if he is absent, he will be fined Rs. 15 per day and will not get the remuneration of absent days. After 20 days the contractor paid Rs. 1140 to the labourer, for how many days had the labourer been absent from his work?
   (A) 3   (B) 5   (C) 4   (D) 2

49. How many maximum number of points can a player earn in a single attempt in the game of snooker?
   (A) 145   (B) 147   (C) 150   (D) 153

50. ‘Jhooming’ agriculture of North-East India is called ‘Ladang’ in Malaysia, and ‘Masole’ in the valley of Zaire. Then, which of the following is called Jhooming agriculture?
   (A) Shifting Agriculture
   (B) Mixed Agriculture
   (C) Transplanting Agriculture
   (D) Livelihood Agriculture

51. Out of 60 students of a class, 35 study mathematics and 20 study mathematics and chemistry both. Then how many students study only chemistry?
   (A) 40   (B) 35   (C) 25   (D) 15

52. RAMAN is written as 12325 and DINESH as 675489, then how will HAMAM be written?
   (A) 92233   (B) 92323   (C) 93232   (D) 93232

53. Citizen of which of the following countries won the U.S. Open Men Singles 2009 title?
   (A) U.S.A.   (B) Argentina   (C) Switzerland   (D) France

54. A and B complete a piece of work in 10 and 15 days, respectively. A worked for 4 days alone and B for 5 days alone. Then C completed the rest portion of work alone in 8 days. How long will all the three take together to complete that work?
   (A) 4 days   (B) 5 days   (C) 6 days   (D) None of these

55. Which of the following states are famous for tobacco production?
   (A) Andhra Pradesh and Gujrat
   (B) Maharashtra and Karnataka
   (C) Karnataka and Kerala
   (D) Kerala and Tamil Nadu

56. The nearest city of Mud Island is—
   (A) Port Blair   (B) Chennai   (C) Kolkata   (D) Mumbai

57. The highest peak of Andaman Nicobar Island is—
   (A) Saddle Peak
   (B) Thulnar Mountain
   (C) Diyavolo Mountain
   (D) Kayole Mountain

58. Ratio of the present age of A and that of B is 4 : 5 and after 5 years it will be 5 : 6. Then what is present age of A?
   (A) 10 yrs   (B) 20 yrs   (C) 25 yrs   (D) 40 yrs

59. Which of the following is odd?
   (A) Lake   (B) Pool
   (C) Pond   (D) Small river

60. The factors of $8x^2 - 18x + 9$ are
   (A) $(4x - 3)(2x + 3)$
   (B) $(8x - 1)(x - 9)$
   (C) $(8x - 3)(x - 3)$
   (D) $(2x - 3)(4x - 3)$

61. Who among the following is known as ‘Ashok Second’?
   (A) Samudragupta
   (B) Chandragupta Maurya
   (C) Kanishka
   (D) Harshvardhan

62. Since mid-day till mid-night, how many times do both the pointers (neglecting the pointer of second) of a watch form right angles?
   (A) 15   (B) 22   (C) 23   (D) 24

63. Three pipes are connected to a tank. First two pipes can fill it in 3 hrs and 3 hrs 45 min., respectively. Third can empty it in one hour. All the three pipes start functioning at 1 p.m., 2 p.m. and 3 p.m., at what time will the tank be emptied?
   (A) 4:20 p.m.   (B) 4:45 p.m.   (C) 5:20 p.m.   (D) 5:45 p.m.

64. Date of Jalianwala massacre is—
   (A) March 13, 1919
   (B) 13th April, 1919
   (C) March 13, 1920
   (D) April 13, 1920

65. Which of the following statements is incorrect about mangrove forests?
   (A) Wood of sundari trees is used as fuel and to make boats.
   (B) During high tides, roots of sundari trees should be submerged in salty water.
   (C) Sundari trees grow in lower littoral area.
   (D) Wood of sundari trees is ideal for pulp making.

66. Recently, under which of the following conditions did the Supreme Court approve long-standing demand of Army for construction of strategic road near the tri-junction of Tibet, Bhutan and Sikkim?
   (A) To pay 10% of total loss to Tibet due to deforestation.
   (B) To pay 5% of total loss to Sikkim due to deforestation.
   (C) To pay 10% of total loss to Sikkim due to deforestation.
   (D) To pay 10% of total loss to Bhutan due to deforestation.

67. Who among the following biologists used the statement “Survival of the fittest” for the first time in his book, ‘Principles of Biology’?
   (A) Charles Darwin
   (B) Jagdish Chandra Bose
   (C) Herbert Spencer
   (D) Richard Lické

68. Plain of Ganga is an example of—
   (A) Morphogenetic plain
   (B) Depositional plain
   (C) Outwash Plain
   (D) Eroded plain

69. Recently, Stephan Court of Kolkata was in news since a fire had broken out there. Who among the following land property agents had built Stephen Court and Grand Hotel?
   (A) Arathan Stephen
   (B) George Stephen
   (C) William Stephen
   (D) Monokothun Stephen
70. Maximum percentage of the compound that is found in the stone formed in kidney is—
   (A) Calcium oxalate
   (B) Magnesium sulphate
   (C) Sodium chloride
   (D) Sodium phosphate

71. Number of cranial nerves in human body is—
   (A) 12 pairs
   (B) 13 pairs
   (C) 14 pairs
   (D) 15 pairs

72. As shoe is related to leather, similarly shirt is related to—
   (A) Thread
   (B) Yarn
   (C) Fabric
   (D) Cloth

73. Which of the following is the dominant probability of formation of the fog?
   (A) Dry cool current blows over warm current
   (B) Warm air with moisture blows over cool current
   (C) Dry and cool air blows over cool current
   (D) Warm current with moisture blows over warm current

74. Pack animal of Peru is—
   (A) Camel
   (B) Yak
   (C) Lama
   (D) Ibex

75. Who built Panama Canal?
   (A) Fredinand Megellan
   (B) Ferdinando-de-Lapcepe
   (C) Lee Korbuear
   (D) Edward Lutins

Directions — (Q. 76 to 80) Read the following informations attentively and answer the questions given below—

1. P, Q, R, S and T are the members of a family.
2. There are two married pairs in the family.
3. Q is a trader and father of T.
4. U is a teacher and grandfather of R.
5. S is a house wife and grandmother of T.
6. R is the daughter of P.
7. Who is the husband of P?
   (A) R
   (B) U
   (C) Q
   (D) None of these

8. Who is the sister of T?
   (A) U
   (B) Q
   (C) R
   (D) None of these

78. Who among the following are married couples?
   (A) US and OP
   (B) US and RP
   (C) US and QT
   (D) TS and RU

79. On the basis of profession, what is P?
   (A) Housewife
   (B) Engineer
   (C) Student
   (D) Engineer or student

80. Which of the following groups consists inevitably of only men?
   (A) QA
   (B) QUT
   (C) TUK
   (D) QUR

81. Read the sentence given below to find out any grammatical error or idiomatic error in it. The error, if any, will be in one part of the sentence. The letter indicating that part is the answer (Ignore errors of punctuation, if any).
   "Mammoths were a / species of
   (A) elephant / who lived millions of
   (B) year ago / but are now extinct" (C)
   (D)

82. Choose the word which is most opposite in meaning to the word printed in bold in the sentence below, keeping in mind the context—
   "The injection was given to the patient to alleviate the pain."
   (A) elevate
   (B) aggravate
   (C) sharpen
   (D) promote

83. Choose the word which is most similar in meaning to the word printed in bold in the sentence below, keeping in mind the context—
   "He was very upset at the ingratitude but decided not to put up a struggle as many of the men would be killed."
   (A) hardship
   (B) adversity
   (C) strife
   (D) fight

84. Choose the word which is most opposite in meaning to the word printed in bold in the sentence below, keeping in mind the context—
   "There is quite tenuous evidence for it."
   (A) substantial
   (B) enough
   (C) reasonable
   (D) ample

85. Since the culprit was caught, the search was called ________.
   Fill in the blanks using the most appropriate words from among the options given.
   (A) Out
   (B) Away
   (C) Off
   (D) Over

86. “He insisted ________ seeing the documents.”
   Fill in the blanks using the most appropriate words from among the options given.
   (A) of
   (B) to
   (C) on
   (D) for

87. Choose the word which is most opposite in meaning to the word printed in bold in the sentence below, keeping in mind the context—
   "The court jester was allowed to make derogatory remarks about the king."
   (A) humorous
   (B) emotional
   (C) commendable
   (D) complimentary

88. “On hearing this, Ram got ________ and swore to teach Shyam the lesson of his life.” Fill in the blanks using the most appropriate words from among the options given.
   (A) agitated
   (B) furious
   (C) inspired
   (D) defensive

89. Read the sentence given below to find out any grammatical error or idiomatic error in it. The error, if any, will be in one part of the sentence. The letter indicating that part is the answer (Ignore errors of punctuation, if any).
   “I had gone only a little way / down the street / when I realised / (A)
   (B) that / I had not lock the door”.
   (C)
   (D)

90. Read the sentence given below to find out any grammatical error or idiomatic error in it. The error, if any, will be in one part of the sentence. The letter indicating that part is the answer. (Ignore errors of punctuation if, any)
   “Hostility between the / two
   (A) groups have / increased in the / (B)
   (C) past few months”.
   (D)
91. Read the sentence given below to find out any grammatical error or idiomatic error in it. The error, if any, will be in one part of the sentence. The letter indicating that part is the answer. (Ignore errors of punctuation, if any)
“The sink is so / dirty that / one (A) (B) needs a very strong / abrasive to (C) (D) cleaning it.”

92. Choose the word which is most similar in meaning to the word printed in bold in the sentence below, keeping in mind the context—
“His rustic speech and clothes led us to think of him as an ignorant villager”. (A) Strange (B) Old-fashioned (C) Unsophisticated (D) Unconventional

93. Read the sentence given below to find out any grammatical error or idiomatic error in it. The error, if any, will be in one part of the sentence. The letter indicating that part is the answer. (Ignore errors of punctuation, if any.)
“It is difficult to / understand the (A) (B) problems / that the physically (C) (D) challenged people / encounters in their daily life.”

94. Choose the word which is most opposite in meaning to the word printed in bold in the sentence below, keeping in mind the context—
“The evidence Ram gave in support of his theory was quite (A) unsatisfactory (B) scanty (C) poor (D) unconvincing

95. “Some monkeys who were playing nearby the tree, got .......... and ran for shelter under the tree”. Fill in the blanks using the most appropriate word from among the options given.
(A) drenched (B) shocked (C) drowned (D) flooded

96. “You should......this paragraph in order to make your essay more ......”.

Fill in the blanks using the most appropriate words from among the options given.
(A) revise, discursive (B) enlarge, redundant (C) delete, succinct (D) excise, legible

97. Choose the word which is most similar in meaning to the word printed in bold in the sentence below, keeping in mind the context—
“Officers responsible for the abortive coup were punished”. (A) unsatisfying (B) unsuccessful (C) bloodless (D) chaotic

98. Choose the word which is most similar in meaning to the word printed in bold in the sentence below, keeping in mind the context—
“The poor man stood abashed by the display of wealth”. (A) humiliated (B) embarrassed (C) surprised (D) elevated

99. Choose the word which is most similar in meaning to the word printed on bold in the sentence below, keeping in mind the context—
“It is amazing how such a motley group could get along so well”. (A) promiscuous (B) assorted (C) heterogeneous (D) confused

100. Choose the word which is most opposite in meaning to the word printed in bold in the sentence below, keeping in mind the context—
“He then lifted him onto his back and carried him to the edge of the forest form where the forestier went on his merry way back to Benaras”. (A) blunt (B) interiors (C) indoors (D) beginning

Answers with Hints
1. (A) : \[ \log_{10} 2 = 0.3010 \]
   \[ \therefore \log_{10} 5 = \log_{10} \left( \frac{10}{2} \right) \]
   \[ = \log_{10} 10 - \log_{10} 2 \]
   \[ = 1 - 0.3010 \]
   \[ = 0.699 \]

2. (B) 3. (C)

4. (B) Relative speed of both the buses

\[ = (75 - 57) \text{ km/hr} \]
\[ = 18 \text{ km/hr} \]

\[ \text{Time} = 3 \text{ hrs} 25 \text{ min} \]
\[ = \left( \frac{3 + \frac{25}{60}}{12} \right) \text{ hrs} \]
\[ = 41 \text{ hrs} \]

\[ \text{Required distance} \]
\[ = \text{Relative speed} \times \text{time} \]
\[ = 18 \times 41 \text{ km} \]
\[ = 615 \text{ km} \]

5. (A) 6. (C) 7. (C)

8. (C) One side of the square-shaped waste land

\[ = \frac{208}{4} = 52 \text{ m} \]

One side of the square-shaped land including the path of 2m width

\[ = 52 + 4 \]
\[ = 56 \text{ m} \]

\[ \text{Total cost of fencing around the path} \]
\[ = 4 \times 56 \times 12.5 \]
\[ = \text{Rs. 2800} \]

9. (D) 10. (B) 11. (C)

12. (A) As per question.

\[ \therefore \text{Amit : Biplab} = 2 : 3 \]
\[ = 8 : 12 \]

Biplab : Chandra

\[ = 4 : 3 \]
\[ = 12 : 9 \]

\[ \therefore \text{Amit : Biplab} = 8 : 12 : 9 \]

Sum of the ratio

\[ = 8 + 12 + 9 = 29 \]

\[ \therefore \text{The amount that Amit obtained} \]

\[ = \frac{8}{29} \times 1655-90 = \text{Rs. 456-80} \]

13. (B) 14. (A)
15. (A) Let the radius of the required circle be R. Then
\[ \pi R^2 = \pi (5)^2 + \pi (12)^2 \]
\[ = \pi (25 + 144) \]
\[ = \pi (169) \]
\[ R = 13 \text{ m} \]
\[ \therefore \text{Required time} = \frac{750 \times 3}{50} = 45 \text{ sec} \]

16. (A) 17. (C)
18. (D) :: Speed of the train
\[ = 60 \text{ km/hr} \]
\[ = 60 \times 18 \text{ m/s} \]
\[ = 54 \text{ m/s} \]
\[ \therefore \text{Required time} = \frac{750}{54} \approx 14 \text{ sec} \]

19. (B) Let the cost price of the article for A = Rs. x
\[ \therefore \text{Cost price of the article for B} = \frac{122.5}{100} \times x \]
\[ \text{Cost price of the article for C} = \frac{107.5}{100} \times \frac{122.5}{100} \times x \]
\[ = \frac{107.5 \times 122.5}{100} \times x = \frac{5267.5}{100} \times x \]
\[ \therefore x = \frac{5267.5}{107.5 \times 12.25} \times 100 \]
\[ = \text{Rs. 4000} \]

20. (D)
21. (C) :: Time interval between 4 : 56 p.m. and 5 : 32 p.m.
\[ = (36 + 32) \text{ min} = 68 \text{ min} \]
\[ \therefore \text{Required fraction} = \frac{68}{60} = \frac{17}{15} \text{ hr} \]

(B) 23. (D) 24. (A) 25. (B) 26. (C)
27. (D) :: Birthday of my sister
\[ = \text{Tuesday} \]
\[ \therefore \text{My sister is elder than my brother by 75 weeks.} \]

28. (C)
29. (B) As per question,
\[ \therefore \text{Height of C} < \text{Height of A} \]
\[ < \text{Height of B} \]
\[ \text{Height of C} < \text{Height of D} \]
\[ < \text{Height of A} \]
\[ \text{Height of A} < \text{Height of E} \]
\[ < \text{Height of B} \]
\[ \therefore \text{Consequently, Height of C} < \text{Height of D} < \text{Height of A} < \text{Height of E} < \text{Height of B} \]
\[ \therefore \text{Hence, C is of the least height} \]

30. (A)
31. (A) Carrot develops beneath the ground while rest three develop above ground
32. (A) As,
\[ EF = 1 \text{ cm} \]
\[ \therefore \text{Similarity, } \text{PSVY} \text{ is related to } \text{ORUX} \]
33. (B) :: 4744 \times 31 = 147064 < 149250
and 4744 \times 32 = 151808 > 149250
\[ \therefore \text{The least required amount} = 151808 - 149250 = \text{Rs. 2558} \]

34. (D) :: Birds fly \[ \Rightarrow \text{Air} \text{ is called blue} \]
\[ \therefore \text{Birds fly} \text{ in blue} \]
35. (C) Following is the sequence and formation-process of the given number-series—
\[ 3 \quad 8 \quad 15 \quad 24 \quad 34 \quad 48 \quad 63 \]
\[ \swarrow \swarrow \swarrow \swarrow \swarrow \swarrow \swarrow \]
\[ \longleftarrow + \quad + \quad + \quad + \quad + \quad + \quad + \]
\[ \therefore \text{Perpendicular-distance between the parallel lines} = \text{CF} = \text{DE} = 12 \text{ cm} \]

36. (B) Let the digit of unit is y and that of ten is x in the two-digit number.
\[ \therefore \text{Given number} = 10x + y \]
\[ \text{As per question} \]
\[ x + y = 14 \quad \text{(1)} \]
\[ \text{and } 10x + y = 36 \]
\[ \Rightarrow y - x = 36 \quad \text{(2)} \]
\[ \therefore \text{On solving equations (1) and (2),} \]
\[ x = 5 \]
\[ y = 9 \]
\[ \therefore \text{Required number} = 10 \times 5 + 9 = 59 \]
\[ \therefore \text{The smaller digit among the two digits is 5} \]
EFCD is a rectangle 
∴ Area of the trapezium 
\[ \frac{1}{2} (25 + 11) \times 12 \]
\[ = 18 \times 12 \]
\[ = 216 \text{ cm}^2 \]
40. (C) \[ 3^{x-y} = 27 = 3^3 \]
\Rightarrow \quad x - y = 3 \quad \ldots \quad (1)

and \[ 3^{x+y} = 243 = 3^6 \]
\Rightarrow \quad x + y = 5 \quad \ldots \quad (2)

On adding eqs. (1) and (2),
\[ 2x = 3 + 5 = 8 \]
\[ \therefore \quad x = 4 \]

41. (C) 42. (B)
43. (C) Given expression
\[ = \left[ \frac{3 \sqrt{2}}{\sqrt{6} + \sqrt{3}} \right] - \left[ \frac{2 \sqrt{6}}{\sqrt{3} + 1} \right]
\[ + \left[ \frac{2 \sqrt{3}}{\sqrt{6} + 2} \right]
\[ = 3 \sqrt{2} \times (\sqrt{6} - \sqrt{3})
\[ = \frac{2 \sqrt{6} \times (\sqrt{3} - 1)}{\sqrt{3} + 1}
\[ + \frac{2 \sqrt{3} \times (\sqrt{6} - 2)}{\sqrt{6} + 2}
\[ = 6 \sqrt{3} - 3 \sqrt{6} - 6 \sqrt{2} + 2 \sqrt{6}
\[ = 6 \sqrt{3} - 3 \sqrt{6} - (\sqrt{6} - 2)
\[ = 2 \sqrt{3} - 6 \sqrt{2} + 2 \sqrt{6}
\[ = 2 \sqrt{3} - 6 \sqrt{2} + 2 \sqrt{6}
\[ = 3 \sqrt{2} - 3 \sqrt{3}
\[ = 0 \]

44. (D)
45. (B) \[ \therefore \quad A \neq B \]
\[ B \neq C \]
\[ C \neq D \]
and \[ D = 3A = B + C \]

Option (A) \[ \therefore \quad D = B + C \]
B and D are not equal
Option (C) \[ \therefore \quad D = 3A \]
A and D are not equal
Option (D) \[ \therefore \quad B = C \]
B and C are not equal
\[ \therefore \quad \text{Only option (B), namely, A and C are equal.} \]

46. (D) 47. (C)
48. (C) Let the labourer was absent for x days.

Then as per question
\[ \therefore \quad (20 - x) \times 75 - 15 \times x = 1140 \]
\[ \Rightarrow 1500 - 90 \times x = 1140 \]
\[ \therefore \quad \frac{1500 - 1140}{90} \quad = 4 \text{ days} \]

49. (B) 50. (A)
51. (C) \[ \therefore \quad \text{Students who study mathematics} \]
\[ = 35 \]

Students who study mathematics and chemistry both
\[ = 20 \]
\[ \therefore \quad \text{Students who study only mathematics} \]
\[ = 35 - 20 = 15 \]

Let x students study only chemistry.
Then, \[ 60 = 15 + 20 + x \]
\[ \therefore \quad x = 25 \]

\begin{align*}
\text{Short method} \\
\begin{array}{ccc}
\text{Maths.} & 15 & 20 \\
\text{Chem.} & 25 &
\end{array}
\end{align*}

\[ \therefore \quad n(M \cup C) = n(M) + n(C) - n(M \cap C) \]
\[ \Rightarrow \quad n(M \cup C) = 60 \quad = 35 + n(C) - 20 \]
\[ \therefore \quad n(C) = 60 - 15 \]
\[ = 45 \]

\[ \therefore \quad \text{Students who study only chemistry} \]
\[ = 45 - 20 \]
\[ = 25 \]

52. (B) \[ R = 1 \quad \text{and} \quad D = 6 \]
\[ A = 2 \quad I = 7 \]
\[ M = 3 \quad N = 5 \]
\[ A = 2 \quad E = 4 \]
\[ N = 5 \quad S = 8 \]
\[ H = 9 \]
\[ M = 3 \]

Hence, HAMAM will be written as 92323.

53. (B) J. Mertin-del-Potro of Argentina beat Roger Federer of Switzerland and clinched the U.S. Open Men's Singles title 2009.

54. (B) As per question,
\[ \therefore \quad \text{Work of 4 days of A alone + work of 5 days of B alone} \]
\[ = 4 + 5 \]
\[ = 10 + 15 \]
\[ = 11 \]
\[ = 15 \]

Rest work = \[ \frac{1 - 11}{15} \]
\[ = 4 \]
\[ = 15 \]

C completed the rest work alone in 8 days
\[ \therefore \quad \text{Work of 1 day of C alone} \]
\[ = \frac{1}{15} \]
\[ = \frac{1}{30} \]
\[ = \frac{1}{5} \]
Hence, \[ (A + B + C) \] will jointly complete the work in 5 days

55. (A) 56. (D)
57. (A) The highest peak of Andaman Nicobar island is Saddle Peak. Its height is 730 metres (2395 feet).

58. (B) Let the present age of A is \[ 4x \]
and that of B is \[ 5x \]
\[ \therefore \quad (4x + 5) = 5 \]
\[ (5x + 5) = 6 \]
\[ \Rightarrow \quad 25x + 25 = 24x + 30 \]
\[ \Rightarrow \quad (25 - 24) \times x = 30 - 25 \]
\[ \therefore \quad x = 5 \]
\[ \therefore \quad \text{Present age of A} = 4x \]
\[ = 4 \times 5 \]
\[ = 20 \text{ yrs} \]

59. (D)

60. (D) Given expression
\[ = 8x^2 - 18x + 9 \]
\[ = 8x^2 - 12x - 6x + 9 \]
\[ = 4x(2x - 3) - 3(2x - 3) \]
\[ = (2x - 3)(4x - 3) \]

61. (B)

62. (D) Time interval since mid-day till midnight = 12 hrs
\[ \therefore \quad \text{Within every hour the pointer of minute forms right angles twice with the pointer of hour.} \]
\[ \therefore \quad \text{Total circumstances of formation of right angles} \]
\[ = 12 \times 2 \]
\[ = 24 \text{ times} \]
63. (C) As per question, 
Part of the tank filled up by first 
pipe in an hour 
\[ \frac{1}{3} \]
Part of the tank filled up by 
second pipe in an hour 
\[ \frac{1}{15} = \frac{4}{15} \]
Third pipe can empty the whole 
tank in an hour. 
Let 3 O’clock the whole tank is 
emptied in \( x \) hrs. Then,

\[ \frac{(2 + x)}{3} + \left( \frac{15}{4} \right) (1 + x) - \frac{x}{1} = 0 \]
\[ \Rightarrow \frac{(2 + x)}{3} + \frac{4 (1 + x)}{15} - \frac{x}{1} = 0 \]
\[ \Rightarrow 5 \left( \frac{2 + x}{3} + \frac{4 (1 + x)}{15} - \frac{15x}{15} \right) = 0 \]
\[ \Rightarrow 10 + 4 + 5x + 4x - 15x = 0 \]
\[ \Rightarrow x = \frac{14}{6} = \frac{7}{3} \]
\[ = 2 \frac{1}{3} \text{ hrs} \]
\[ = 2 \text{ hrs} 20 \text{ min.} \]
Hence, the whole tank will be 
emptied starting from 3 p.m. 
\[ = 3 \text{ p.m.} + 2 \text{ hrs} 20 \text{ min} \]
\[ = \text{At 5:20 p.m.} \]

64. (B) 65. (D)

66. (*) 5% of the total project cost will 
be paid to Sikkim Government as 
a compensation for the loss 
accrued due to deforestation. 
Hence all the alternatives are 
wrong.

67. (A) 68. (D) 69. (A) 70. (A) 71. (A)
72. (D) 73. (B) 74. (B) 75. (B) 76. (C)
77. (C) 78. (A) 79. (A) 80. (A) 81. (C)
82. (B) 83. (D) 84. (A) 85. (C) 86. (C)
87. (D) 88. (B) 89. (D) 90. (B) 91. (D)
92. (C) 93. (D) 94. (B) 95. (A) 96. (C)
97. (B) 98. (A) 99. (B) 100. (D)