

# STAFF SELECTION COMMISSION

Combined Higher Secondary Level (10 + 2) Examination, 2013

Southern Region

Held on 10-11-13 First Sitting (Fore Noon)

Paper Code: 222MI3

## PART I : GENERAL INTELLIGENCE

**Directions :** In questions no. 1 to 7, select the related word/letters/number from the given alternatives

- 175 : 13 :: 108 : ?  
(A) 9 (B) 6.  
(C) 7 (D) 8
- Flower : Petal :: Book : ?  
(A) Library (B) Page  
(C) Contents (D) Author
- Doctor : Hospital :: ?  
(A) Farmer : Village  
(B) Plumber : Wrench  
(C) Chef : Kitchen  
(D) Water : Reservoir
- Patient : Hospital :: Car : ?  
(A) Office (B) Hangar  
(C) House (D) Garage
- COMPREHENSION : NOISNEHERPMOC  
BEAUTY : ?  
(A) UTYBEA (B) EAUTYB  
(C) AUTYBE (D) YTUAEB
- BADC : XWZY :: QPSR : ?  
(A) NMPO (B) TUVW  
(C) GHIJ (D) LMOK
- 64 : 81 :: 8 : ?  
(A) 6 (B) 7  
(C) 8 (D) 9

**Directions :** In questions no. 8 to 11, find the odd words/letters/number pair from the given alternatives

- (A) KRLO (B) AABE  
(C) MMNO (D) GGHK
- (A) 24 - 76 (B) 12 - 39  
(C) 16 - 52 (D) 19 - 61
- (A) Newspaper : Reporter  
(B) University : Vice-Chancellor  
(C) College : Principal  
(D) Industry : Chairman-cum-Managing Director
- (A) Vanity (B) Humility  
(C) Modesty (D) Simplicity

12. Which one of the given responses would be a meaningful order of the following ?

1. Rain 2. Sunlight  
3. Vapour 4. Cloud  
(A) 2, 3, 4, 1 (B) 4, 1, 2, 3  
(C) 2, 3, 1, 4 (D) 3, 2, 4, 1
13. Arrange the following words as per order in the English dictionary :  
1. Activity 2. Attention  
3. Arise 4. Absent  
(A) 3, 2, 1, 4 (B) 4, 1, 3, 2  
(C) 4, 3, 2, 1 (D) 2, 3, 4, 1
14. Which one set of letters when sequentially placed at the gaps in the given letter series shall complete it ?

ba \_ abab \_ b \_ ba \_ aba

- (A) bbaa (B) abab  
(C) aabb (D) baab

15. In the following letter series, how many P Q S occur in such a way, Q is in the middle and P and S are on any one side ?

MDRPQGKPSLAPQS  
TGKPPGMDGPQSTU

- (A) 1 (B) 2  
(C) 3 (D) 4

16. Find out the set among the four sets which is like the given set.

Given set is (63, 54, 45)

- (A) (36, 45, 33) (B) (29, 20, 11)  
(C) (30, 21, 11) (D) (28, 17, 8)

**Directions :** In questions no. 17 to 19, a series is given, with one term missing. Choose the correct alternative from the given ones that will complete the series.

17. 0, 6, 20, 42, ?  
(A) 76 (B) 82  
(C) 81 (D) 72
18. ZIP, WIP, TIP, ?  
(A) SIP (B) PIP  
(C) RIP (D) QIP
19. 10, 18, 28, 40, 54, 70, ?  
(A) 88 (B) 85  
(C) 86 (D) 87

20. If INTERNET is written as 14325423 and DISTANCE is written as 61738492, then what will CENTRE be written as ?  
 (A) 291534 (B) 124576  
 (C) 924352 (D) 852431
21. If the day before yesterday was Sunday, when will Thursday be ?  
 (A) Two days after tomorrow  
 (B) Today  
 (C) Tomorrow  
 (D) Day after tomorrow
22. Mohan is older than Prabir. Suresh is younger than Prabir. Mihir is older than Suresh, but younger than Prabir. Who among the four is the youngest ?  
 (A) Suresh (B) Prabir  
 (C) Mihir (D) Mohan
23. A man is 24 years older than his son. In two years, his age will be twice the age of his son. The present age of his son is  
 (A) 18 years (B) 14 years  
 (C) 22 years (D) 20 years
24. If the seventh person from the front in a queue is the tenth person from behind, how many are there in the queue ?  
 (A) 16 (B) 17  
 (C) 15 (D) 14
25. 'X' and 'Y' are brothers. 'B' is the daughter of 'A'. 'A' is the wife of 'Y'. What is the relation of 'B' to 'X' ?  
 (A) Niece (B) Daughter  
 (C) Sister (D) Sister-in-law
26. If W = 23, STRONG = 93, then WEAK = ?  
 (A) 41 (B) 38  
 (C) 44 (D) 40
27. From the given alternatives select the word which can be formed using the letters given in the word.  
 PRONUNCIATION  
 (A) RATION  
 (B) NATURAL  
 (C) PRINTING  
 (D) PUNCTUATION
28. From the given alternatives select the word which *cannot* be formed using the letters of the given word.  
 APPEARANCE  
 (A) REAP (B) PANE  
 (C) NEAR (D) PEAS
29. If CIGARETTE is coded as GICERAETT, then DIRECTION will be coded as  
 (A) IRDCTIONE (B) RIDTCENOI  
 (C) NORTECDII (D) RIDTCEION
30. Some capital letters are given below in the first line and numbers are assigned to each of them in the second line. The numbers are the codes for the letters and vice-versa.  
 M O E A S J T Z  
 3 5 7 6 2 9 4 0  
 Choose the correct number code for the given set of letters.  
 JEZTMS  
 (A) 970432 (B) 970435  
 (C) 970345 (D) 970534
- Directions : In questions no. 31 and 32, select the missing number from the given responses.*
31. 3 15 5  
 5 35 7  
 9 ? 5  
 (A) 25 (B) 42  
 (C) 35 (D) 45
32. 15 11 20  
 2 3 1  
 5 6 7  
 35 39 ?  
 (A) 24 (B) 30  
 (C) 35 (D) 27

**Directions :** In questions no. 33 and 34, some equations are solved on the basis of a certain system. On the same basis, find out the correct answer for the unsolved equation.

33. If  $8 - 3 + 4 = 348$ ,  $9 - 6 + 8 = 689$ , then  $5 - 9 + 6 = ?$

- (A) 956 (B) 659  
(C) 965 (D) 596

34. If  $882 = 20$   
and  $996 = 26$ , then  
 $729 = ?$

- (A) 21 (B) 24  
(C) 30 (D) 20

35. Aman starts walking from his college, walks 10 km towards North, then he turns to his left and walks 10 km. From there he takes a right turn and walks 10 km. In which direction is he facing now ?

- (A) West (B) South  
(C) North (D) East

36. Medha moves towards South-East for 7 km, then moves towards West for 14 km. Then she moves towards North-West for 7 km and finally moves a distance of 4 km East and stands there. How far is the starting point from where she stands now ?

- (A) 10 km (B) 3 km  
(C) 4 km (D) 7 km

37. Select the correct combination of mathematical signs to replace '\*' signs and to balance the given equation.

$$8 * 6 * 7 * 3 * 18$$

- (A)  $+-\div=$  (B)  $+-+=$   
(C)  $++-=$  (D)  $-++=$

38. If ' $\div$ ' means '-', ' $-$ ' means ' $\times$ ', ' $\times$ ' means '+' and '+' means ' $\div$ ', then

$$20 \times 60 \div 40 - 20 + 10 = ?$$

- (A) 80 (B) 0  
(C) 40 (D) 60

39. Manisha is sitting in between Kamini and Suvarna. Smita is right to Suvarna. Kamini is left to Manisha. Select the correct seating order.

- (A) Kamini, Manisha, Suvarna, Smita  
(B) Kamini, Suvarna, Smita, Manisha  
(C) Manisha, Suvarna, Smita, Kamini  
(D) Kamini, Manisha, Smita, Suvarna

40. Two statements are given followed by two conclusions I and II. You have to consider the statements to be true, even if they seem to be at variance from commonly known facts. You have to decide which of the given conclusions, if any, follow from the given statements. Indicate your answer.

**Statements :**

- Teachers are role models of the students.
- Teachers are responsible for developing scientific attitude in their students.

**Conclusions :**

- Students do not have scientific attitude.
- By and large teachers can influence scientific attitude of the students.

- (A) Neither conclusion I nor II follows  
(B) Only conclusion I follows  
(C) Only conclusion II follows  
(D) Both conclusions I and II follow

41. Which of the conclusions can be drawn from the given statement ?

**Statement :**

Many creative persons become artists.

- (A) Some artists are creative persons.  
(B) A creative person will certainly become an artist.  
(C) It is not possible to become an artist without creativity.  
(D) A high level of creativity is needed to become an artist.

42. The population of a city doubles every 6 years. If in 2005, the population is 10,562, by which year will the population increase to 42,248 ?

- (A) 2029 (B) 2011  
(C) 2023 (D) 2017

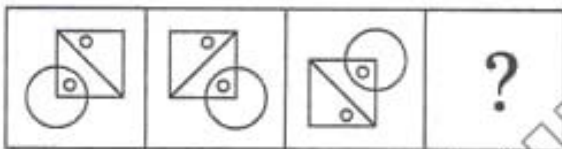
43. Select the figure which is different from the rest three.



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

44. Choose the correct alternative from the given ones that will complete the series.

Question figures :



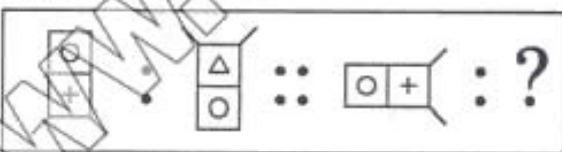
Answer figures :



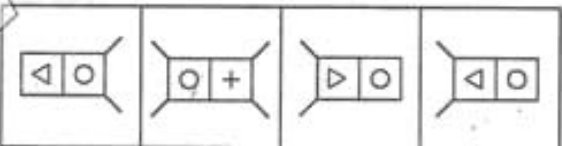
- (A) (B) (C) (D)

45. Select the related figure from the given alternatives.

Question figures :



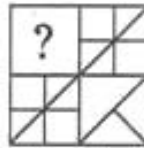
Answer figures :



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

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

Question figure :

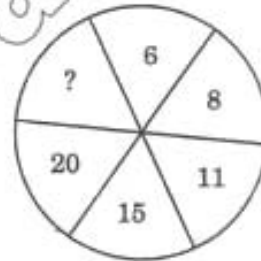


Answer figures :



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

47. Select the missing number from the given responses.



- (A) 30 (B) 24  
(C) 26 (D) 28

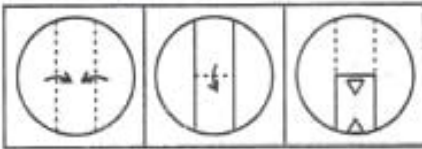
48. Identify the diagram that best represents the relationship among the classes given below :

Sparrow, Bird, Cat

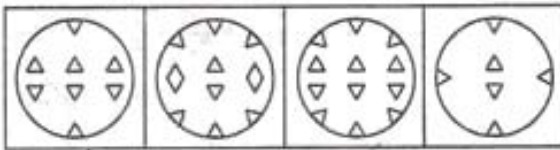
- (A) (B)   
(C) (D)

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

Question figures :



Answer figures :



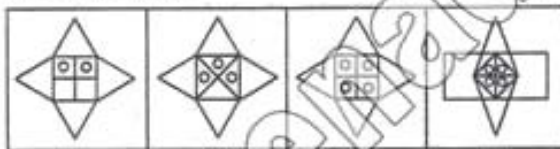
(A) (B) (C) (D)

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

Question figure :



Answer figures :



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

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43. If rain is called water, water is called air, air is called cloud, cloud is called sky, sky is called sea, sea is called road, where do the aeroplanes fly ?

(A) Cloud (B) Water  
(C) Road (D) Sea

44. Find the wrong number in the given number series.

852, 213, 53, 13, 3

(A) 213 (B) 852  
(C) 13 (D) 53

45. In a board exam, 40% students fail in Maths, 30% in Science and 15% in both. Find the passing percentage.

(A) 50% (B) 45%  
(C) 65% (D) 35%

46. If 'P' denotes '+', Q denotes '-', 'R' denotes '÷' and 'S' denotes '×', then what is the value of the following equation ?

$$18 S 36 R 12 Q 6 P 7 = ?$$

(A) 25 (B) 115  
(C) 55 (D) 648

47. A, B, C, D and E share some mangoes among themselves so that A gets one less than B, C gets 4 more than D, E gets 3 more than B, and D gets as many as B. Who gets the least number of mangoes ?

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

48. In a row of trees, one tree is the fifth from either end of the row. How many trees are there in the row ?

(A) 9 (B) 11  
(C) 8 (D) 10

49. If 'a' is greater than 'b' by 2 and 'b' is greater than 'c' by 10, and  $a + b + c = 130$ , then  $(b + c) - a = ?$

(A) 44 (B) 34  
(C) 42 (D) 38

50. How many 7's are there in the following number series which are preceded by an even number but *not* followed by any odd number ?

4 3 7 5 2 3 7 2 1 3 6 7 5 4  
2 7 4 2 7 1 2 2 7 6 5 7 2

(A) 4 (B) 1  
(C) 2 (D) 3

PART II : ENGLISH LANGUAGE

**Directions :** In questions no. 51 to 55, 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 error, blacken the oval corresponding to (D) in the Answer Sheet.

51. It being a rainy day / I will decide to skip work / and stay at home. / No error.  
(A) (B) (C) (D)
52. Another baffling change / that I noticed in him nowadays / is that he avoids speaking to me. / No error.  
(A) (B) (C) (D)
53. I had asked him / how he could go out / if it started raining. / No error.  
(A) (B) (C) (D)
54. Eighty-five thousand rupees / is a large sum of money / to earn in a month. / No error.  
(A) (B) (C) (D)
55. His voice shook with emotion, / and it was so funny to hear him, /  
(A) (B)  
that all we longed to laugh and to cry. / No error.  
(C) (D)

**Directions :** In questions no. 56 to 60, sentences are 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.

56. Guard \_\_\_\_\_ spelling mistakes.  
(A) at (B) against  
(C) after (D) above

57. Make hay while the sun \_\_\_\_\_.  
(A) has been shining (B) shines  
(C) is shining (D) was shining

58. The Prime Minister insisted fuel prices in the Cabinet meeting.  
(A) at raising (B) to raise  
(C) on raising (D) in raising

59. The \_\_\_\_\_ of puppies is fond of milk.  
(A) litre (B) gang  
(C) litter (D) group

60. He \_\_\_\_\_ his father.  
(A) takes out (B) takes back  
(C) takes after (D) takes off

**Directions :** In questions no. 61 and 62, out of the four alternatives, choose the one which best expresses the meaning of the given word and mark it in the Answer Sheet.

61. Impetuous  
(A) Disturbing (B) Impious  
(C) Impressive (D) Hasty
62. Evade  
(A) Avoid (B) Vacate  
(C) Cheat (D) Pretend

**Directions :** In questions no. 63 and 64, choose the word opposite in meaning to the given word and mark it in the Answer Sheet.

63. Indomitable  
(A) Cowardly (B) Adamant  
(C) Certain (D) Arrogant
64. Felicity  
(A) Infidelity (B) Innocence  
(C) Sorrow (D) Mimicry

**Directions :** In questions no. 65 and 66, 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.

65. (A) Acquaintance (B) Acquaintence  
(C) Acquaintance (D) Acquiantance
66. (A) Detiorrate (B) Deteriarate  
(C) Deteriorate (D) Detireorate

**Directions :** In questions no. 67 to 69, 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.

67. The member took exception to the secretary's remark about the current political situation in the State.  
(A) granted  
(B) accepted readily  
(C) laughed at  
(D) objected to
68. The die is cast and nothing can be done now.  
(A) The decision has been taken  
(B) The game has been played  
(C) There has been a failure  
(D) The effect has worn out
69. He is in the habit of picking holes in everything.  
(A) asking questions about  
(B) delving deep into  
(C) finding fault with  
(D) causing trouble to

**Directions :** In questions no. 70 to 72, out of the four alternatives, choose the one which can be substituted for the given words/sentence.

70. Detailed plan of journey.  
(A) Itinerary (B) Travelogue  
(C) Travel-kit (D) Schedule
71. One who lives/survives on others/other lives.  
(A) Refugee (B) Expatriate  
(C) Pesticide (D) Parasite
72. One who possesses many talents.  
(A) Attractive (B) Versatile  
(C) Unique (D) Dexterous

**Directions :** In questions no. 73 and 74, 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.

73. He argued endlessly with him on the subject.

- (A) argued continuously
- (B) argued all the time
- (C) argued on and on
- (D) No improvement

74. She sat on the tree to protect herself from the rain.

- (A) sat under
- (B) sat before
- (C) sat upon
- (D) No improvement

**Directions :** In questions no. 75 to 79, a sentence has been given in Active/Passive Voice. Out of the four alternatives suggested, select the one which best expresses the same sentence in Passive/Active Voice and mark your answer in the Answer Sheet.

75. A massive search operation has been launched to nab the suspects.

- (A) The police had been launched a massive search operation to nab the suspects.
- (B) The police had launched a massive search operation to nab the suspects.
- (C) The police have launched a massive search operation to nab the suspects.
- (D) The police launched a massive search operation to nab the suspects.

76. The driver was blowing the horn.

- (A) The horn is being blown by the driver.
- (B) The horn was blown by the driver.
- (C) The horn was being blown by the driver.
- (D) The horn has been blown by the driver.

77. They proposed to hold a meeting.

- (A) It was proposed to hold a meeting.
- (B) A meeting had to be proposed to be held by them.
- (C) It was proposed by them to hold a meeting.
- (D) A meeting should be proposed to be held.

78. Her manners pleased us very much.

- (A) We were very much pleased with her manners.
- (B) We were very much pleased on her manners.
- (C) We are very much pleased with her manners.
- (D) We pleased her very much with manners.

79. I shall post these letters tomorrow.

- (A) These letters have to be posted tomorrow.
- (B) These letters would be posted tomorrow.
- (C) These letters will be posted tomorrow.
- (D) These letters are to be posted tomorrow.

**Directions :** In questions no. 80 to 84, a sentence has been given in Direct/Indirect. Out of the four alternatives suggested, select the one which best expresses the same sentence in Indirect/Direct and mark your answer in the Answer Sheet.

80. He said, "Alas ! The little puppy is run over by the car."

- (A) He exclaimed sadly that the little puppy is run over by the car.
- (B) He exclaimed. alas, the little puppy was run over by the car.
- (C) He exclaimed sadly that the little puppy was run over by the car.
- (D) He exclaimed sadly that the little puppy had been run over by the car.



81. He said, "He took tea in the morning."  
(A) He said that he would take tea in the morning.  
(B) He said that he did take tea in the morning.  
(C) He said that he had taken tea in the morning.  
(D) He said that he took tea in the morning.
82. He requested the boss to let him go on with his project.  
(A) He told the boss, "Go on with my project please."  
(B) He said to the boss, "You better let me go on with my project."  
(C) He told the boss, "Please go on with my project."  
(D) He said to the boss, "Let me go on with my project please."
83. I told her, "It was raining last night when you left."  
(A) I told her that it had been raining last night when she had left.  
(B) I told her that it had been raining the previous night when she had left.  
(C) I told her that it was raining last night when she left.  
(D) I told her that it has been raining the night before when she left.
84. She said, "I shall try to bring you the books tomorrow."  
(A) She said that she should try to bring me the books tomorrow.  
(B) She said that she should try to bring me the books the next day.  
(C) She said that she would try to bring me the books the next day.  
(D) She said that she would try to bring me the books tomorrow.

*Directions : In questions no. 85 to 90, the 1<sup>st</sup> and the last sentences of the passage/parts of the sentence are numbered 1 and 6. The rest of the passage/sentence is split into four parts and named P, Q, R and S. These four parts are not given in their proper order. Read the passage/sentence and find out which of the four combinations is correct. Then find the correct answer and indicate it by blackening the appropriate oval [●] in the Answer Sheet.*

85. 1. Sappho was one of the greatest and earliest of women poets.  
P. Whatever we know about her poetry today is from the quotations found in the works of others.  
Q. She lived on the island of Lesbos in the late 600's BC.  
R. Most of Sappho's works — about 10 books of verse have been destroyed.  
S. Only one of her poems has survived in its complete form.
6. Without doubt, she was one of the best lyric poets of Ancient Greece.  
(A) QRSP (B) PRQS  
(C) PQSR (D) QSPR
86. 1. Most men spend most of their lives looking after and waiting upon machines.  
P. They must be fed well and kept at right temperatures.  
Q. They might burst with rage and blow up causing ruin.  
R. If they do not get their meals they refuse to work.  
S. Machines are very stern masters.
6. So, men need to wait upon machines attentively.  
(A) RPQS (B) SPRQ  
(C) PQRS (D) QSPR

87. 1. Many people drive  
 P. hopelessly jammed  
 Q. their own cars to work  
 R. the roads would become  
 S. but if everyone did this  
 6. especially during rush-hours.  
 (A) QSPR (B) QSRP  
 (C) PRQS (D) RPSQ

88. 1. I realize that peace and  
 P. security are rightful aims,  
 Q. violent adventure is probably  
 R. and that my own desire for  
 S. merely an adaptation to the  
 6. age in which I live.  
 (A) SPQR (B) PQRS  
 (C) SRQP (D) PRQS

89. 1. Books have been present since the time  
 the first scripts were formed — about  
 5000 years ago.  
 P. The books of that time looked  
 different from the ones available  
 today.  
 Q. Then an important invention, letter  
 press printing, also known as 'black  
 art' changed the world.  
 R. Later, the books came in the form of  
 rollers or texts were stapled  
 together and covered with a wooden  
 book cover.  
 S. Initially, people bound the small  
 clay tablets together with leather  
 bands.  
 6. There was no longer the need to write  
 text by hand; instead copies of text could  
 be made with the help of a printing  
 press.  
 (A) SRQP (B) PRQS  
 (C) PSRQ (D) SPRQ

90. 1. The harnessing of our rivers  
 P. is a great national problem  
 Q. the waters of which  
 R. which must be considered  
 S. now mostly run to waste  
 6. and dealt with on national lines.  
 (A) RPSQ (B) RPQS  
 (C) QSPR (D) QSRP

*Directions : In questions no. 91 to 95, 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.*

Meeting old school friends can be a strange experience. Some have changed so much that you can 91 recognize them : they speak with a different 92, are interested in different things, and all you can do is make 93 talk and hope they'll go soon. Others, though you might have been out of 94 with them for years, are just the same as they always were; it's 95 if you saw them yesterday.

91. (A) easily (B) nearly  
 (C) almost (D) hardly  
 92. (A) tongue (B) language  
 (C) accent (D) way  
 93. (A) gossip (B) small  
 (C) little (D) silly  
 94. (A) feel (B) sight  
 (C) touch (D) sound  
 95. (A) as (B) just  
 (C) like (D) so

**Directions :** In questions no. 96 to 100, you have a brief passage with 5 questions following the passage. Read the passage carefully and choose the best answer to each question out of the four alternatives and mark it by blackening the appropriate oval (●) in the Answer Sheet.

Earth is the only planet so far known with the suitable environment for sustaining life. Land, water, air, plants and animals are the major components of the global environment. Population, food and energy are the three fundamental problems facing mankind. Unemployment, inflation, crowding, dwindling resources and pollution are all due to the factors like increasing population, high standard of living, deforestation, etc.

Man has been tampering with the Ecosphere for a very long time and is forced to recognize that environmental resources are scarce. Environmental problems are really social problems. They begin with people as cause and end with people as victims. Unplanned use of resources has resulted in the depletion of fossils, fuels, pollution of air and water, deforestation which has resulted in ecological imbalance and draining away of national wealth through heavy expenditure on oil and power generation.

96. Depletion of fossils and fuels, pollution of air and water and deforestation will never occur in case of
- (A) over use of resources
  - (B) improper use of resources
  - (C) planned use of resources
  - (D) unplanned use of resources
97. We face the three fundamental problems that are
- (A) population, food and energy
  - (B) inflation, deforestation and unemployment
  - (C) population, deforestation and energy
  - (D) population, inflation and food
98. Increasing population causes
- (A) unemployment, inflation, crowding, dwindling resources and pollution
  - (B) unemployment and crowding
  - (C) inflation and pollution
  - (D) dwindling resources
99. National wealth is drained away by spending heavily on
- (A) oil and power generation
  - (B) power generation
  - (C) fuels
  - (D) water and power generation
100. The three major components of the global environment are
- (A) plants, animals and mankind
  - (B) food, energy and population
  - (C) high standard of living, crowding and inflation
  - (D) land, water and air

PART III : QUANTITATIVE APTITUDE

101. If  $\left[ 4 - \frac{5}{1 + \frac{1}{3 + \frac{1}{2 + \frac{1}{4}}}} \right]$  <sup>th</sup> part of a journey

takes 10 minutes, then to complete  $\frac{3}{5}$  <sup>th</sup> of that journey, it will take

- (A) 36 minutes (B) 40 minutes  
(C) 45 minutes (D) 48 minutes

102. When n is divided by 6, the remainder is 4. When 2n is divided by 6, the remainder is

- (A) 1 (B) 2  
(C) 0 (D) 4

103. The value of

$$\frac{1}{20} + \frac{1}{30} + \frac{1}{42} + \frac{1}{56} + \frac{1}{72} + \frac{1}{90}$$
 is

- (A)  $\frac{7}{20}$  (B)  $\frac{1}{10}$   
(C)  $\frac{3}{5}$  (D)  $\frac{3}{20}$

104. Let  $a = \frac{1}{2-\sqrt{3}} + \frac{1}{3-\sqrt{8}} + \frac{1}{4-\sqrt{15}}$ . Then

we have

- (A)  $a = 9$   
(B)  $a < 18$  but  $a \neq 9$   
(C)  $a > 18$   
(D)  $a = 18$

105. The smallest among the numbers

- $2^{200}, 3^{150}, 5^{100}$  and  $4^{200}$  is  
(A)  $2^{250}$  (B)  $4^{200}$   
(C)  $5^{100}$  (D)  $3^{150}$

106. The greatest of the following numbers

- $0.16, \sqrt{0.16}, (0.16)^2, 0.04$  is  
(A)  $(0.16)^2$  (B)  $0.16$   
(C)  $\sqrt{0.16}$  (D)  $0.04$

107. If  $A : B = 3 : 4$  and  $B : C = 6 : 5$ , then  $C : A$  is

- (A) 9 : 8 (B) 10 : 9  
(C) 9 : 10 (D) 8 : 9

108. If a, b are rationals and  $a\sqrt{2} + b\sqrt{3} = \sqrt{98} + \sqrt{108} - \sqrt{48} - \sqrt{72}$ , then the values of a, b are respectively

- (A) 2, 3 (B) 1, 2  
(C) 1, 3 (D) 2, 1

109. The ratio of boys and girls in a college is 5 : 3. If 50 boys leave the college and 50 girls join the college, the ratio becomes 9 : 7. The number of boys in the college is

- (A) 600 (B) 300  
(C) 400 (D) 500

110. If a number is increased by 25% and the resulting number is decreased by 25%, then the percentage increase or decrease finally is

- (A) increased by 6%  
(B) no change  
(C) decreased by  $6\frac{1}{4}\%$   
(D) increased by  $6\frac{1}{4}\%$

111. A reduction of 20% in the price of rice enables a customer to purchase 12.5 kg more for ₹ 800. The original price of rice per kg is

- (A) ₹ 15 (B) ₹ 14  
(C) ₹ 16 (D) ₹ 12

112. In two alloys A and B, the ratio of zinc to tin is 5 : 2 and 3 : 4 respectively. Seven kg of the alloy A and 21 kg of the alloy B are mixed together to form a new alloy. What will be the ratio of zinc and tin in the new alloy?

- (A) 1 : 1 (B) 2 : 1  
(C) 1 : 2 (D) 2 : 3

113. If  $\frac{1}{a} - \frac{1}{b} = \frac{1}{a-b}$ , then the value of  $a^3 + b^3$  is  
 (A) 2 (B) 0  
 (C) -1 (D) 1
114. If  $a^2 + b^2 + c^2 = ab + bc + ca$ , then  $\frac{a+c}{b}$  is equal to  
 (A) 4 (B) 1  
 (C) 2 (D) 3
115. If the graphs of the equations  $x + y = 0$  and  $5y + 7x = 24$  intersect at  $(m, n)$ , then the value of  $m + n$  is  
 (A) -1 (B) 2  
 (C) 1 (D) 0
116. The average age of a class of 35 students is 15 years. If the teacher's age is also included the average age increases by one year. Furthermore, if the average age of the teacher's family having a wife and a son is 40 years and the son's age is 80% less than his mother's age, then the age of the teacher's wife is  
 (A) 55.5 years (B) 57.5 years  
 (C) 50 years (D) 47.5 years
117. If the amount is  $3\frac{3}{5}$  times the sum after 3 years at compound interest compounded annually, then the rate of interest per annum is  
 (A)  $33\frac{1}{3}\%$  (B) 25%  
 (C) 50% (D)  $16\frac{2}{3}\%$
118. A shopkeeper sells an article at 15% gain. Had he sold it for ₹ 18 more, he would have gained 18%. The cost price (in ₹) of the article is  
 (A) 350 (B) 540  
 (C) 318 (D) 600
119. A cloth merchant on selling 33 metres of cloth obtains a profit equal to the selling price of 11 metres of cloth. The profit is  
 (A) 11% (B) 40%  
 (C) 22% (D) 50%
120. A single discount equivalent to successive discounts of 20%, 10% and 5% is  
 (A) 36.1% (B) 35%  
 (C) 35.6% (D) 31.6%
121. A, B and C started a business with their investments in the ratio 2 : 2 : 4. After 6 months A increased his capital by 50% and B invested twice the amount as before, while C withdrew  $\frac{1}{4}$  of his own investment. The ratio of their profits at the end of the year was  
 (A) 5 : 12 : 16 (B) 10 : 5 : 9  
 (C) 5 : 12 : 14 (D) 6 : 9 : 17
122. Two trains 180 metres and 120 metres in length are running towards each other on parallel tracks, one at the rate 65 km/hour and another at 55 km/hour. In how many seconds will they be clear of each other from the moment they meet?  
 (A) 15 (B) 6  
 (C) 9 (D) 12
123. Three men can complete a piece of work in 6 days. Two days after they started the work, 3 more men joined them. How many days will they take to complete the remaining work?  
 (A) 4 days (B) 1 day  
 (C) 2 days (D) 3 days
124. If  $x + \frac{1}{x+1} = 1$ , then  $(x+1)^5 + \frac{1}{(x+1)^5}$  equals  
 (A) 8 (B) 1  
 (C) 2 (D) 4

125. A quadrilateral ABCD circumscribes a circle and  $AB = 6$  cm,  $CD = 5$  cm and  $AD = 7$  cm. The length of side BC is
- (A) 6 cm (B) 4 cm  
(C) 5 cm (D) 3 cm
126. If  $x = 5 - \sqrt{21}$ , then the value of  $\frac{\sqrt{x}}{\sqrt{32-2x} - \sqrt{21}}$  is
- (A)  $\frac{1}{\sqrt{2}}(7 - \sqrt{3})$  (B)  $\frac{1}{\sqrt{2}}(\sqrt{3} - \sqrt{7})$   
(C)  $\frac{1}{\sqrt{2}}(\sqrt{7} - \sqrt{3})$  (D)  $\frac{1}{\sqrt{2}}(\sqrt{7} + \sqrt{3})$
127. In  $\Delta ABC$ , the internal bisectors of  $\angle ABC$  and  $\angle ACB$  meet at I and  $\angle BAC = 50^\circ$ . The measure of  $\angle BIC$  is
- (A)  $130^\circ$  (B)  $105^\circ$   
(C)  $115^\circ$  (D)  $125^\circ$
128. BL and CM are medians of  $\Delta ABC$  right-angled at A and  $BC = 5$  cm. If  $BL = \frac{3\sqrt{5}}{2}$  cm, then the length of CM is
- (A)  $4\sqrt{5}$  cm (B)  $2\sqrt{5}$  cm  
(C)  $5\sqrt{2}$  cm (D)  $10\sqrt{2}$  cm
129. In  $\Delta ABC$ , D and E are the points of sides AB and BC, respectively such that  $DE \parallel AC$  and  $AD : DB = 3 : 2$ . The ratio of area of trapezium ACED to that of  $\Delta BED$  is
- (A) 21 : 4 (B) 4 : 15  
(C) 15 : 4 (D) 4 : 21
130. The perimeter of an isosceles triangle is 544 cm and each of the equal sides is  $\frac{5}{6}$  times the base. What is the area (in  $\text{cm}^2$ ) of the triangle?
- (A) 13872 (B) 38172  
(C) 18372 (D) 31872
131. A metallic sphere of radius 10.5 cm is melted and then recast into small cones each of radius 3.5 cm and height 3 cm. The number of cones thus formed is
- (A) 126 (B) 140  
(C) 132 (D) 112
132. If the ratio of the diameters of two right circular cones of equal height be 3 : 4, then the ratio of their volumes will be
- (A) 27 : 64 (B) 3 : 4  
(C) 9 : 16 (D) 16 : 9
133. A right pyramid stands on a square base of diagonal  $10\sqrt{2}$  cm. If the height of the pyramid is 12 cm, the area (in  $\text{cm}^2$ ) of its slant surface is
- (A) 260 (B) 520  
(C) 420 (D) 360
134. P and Q are centres of two circles with radii 9 cm and 2 cm respectively, where  $PQ = 17$  cm. R is the centre of another circle of radius x cm, which touches each of the above two circles externally. If  $\angle PRQ = 90^\circ$ , then the value of x is
- (A) 8 cm (B) 4 cm  
(C) 6 cm (D) 7 cm
135. The area of a rhombus is  $216 \text{ cm}^2$  and the length of its one diagonal is 24 cm. The perimeter (in cm) of the rhombus is
- (A) 100 (B) 52  
(C) 60 (D) 120

136. The minimum value of  $4 \tan^2 \theta + 9 \cot^2 \theta$  is equal to  
 (A) 13 (B) 0  
 (C) 5 (D) 12
137. If  $\sin 7x = \cos 11x$ , then the value of  $\tan 9x + \cot 9x$  is  
 (A) 4 (B) 1  
 (C) 2 (D) 3
138. If  $\tan^2 \alpha = 1 + 2 \tan^2 \beta$  ( $\alpha, \beta$  are positive acute angles), then  $\sqrt{2} \cos \alpha - \cos \beta$  is equal to  
 (A) -1 (B) 0  
 (C)  $\sqrt{2}$  (D) 1
139. From a tower 125 metres high, the angles of depression of two objects, which are in horizontal line through the base of the tower, are  $45^\circ$  and  $30^\circ$  and they are on the same side of the tower. The distance (in metres) between the objects is  
 (A)  $125(\sqrt{3} + 1)$  (B)  $125\sqrt{3}$   
 (C)  $125(\sqrt{3} - 1)$  (D)  $125/\sqrt{3} - 1$
140. If each interior angle of a regular polygon is  $150^\circ$ , the number of sides of the polygon is  
 (A) 15 (B) 10  
 (C) 8 (D) None of these
141. If the altitude of a right prism is 10 cm and its base is an equilateral triangle of side 12 cm, then its total surface area (in  $\text{cm}^2$ ) is  
 (A)  $72(5 + \sqrt{3})$  (B)  $(5 + 3\sqrt{3})$   
 (C)  $36\sqrt{3}$  (D) 360
142. The value of  $\tan 10^\circ \tan 15^\circ \tan 75^\circ \tan 80^\circ$  is  
 (A) 2 (B) 0  
 (C) 1 (D) -1
143. Two pipes X and Y can fill a cistern in 24 minutes and 32 minutes respectively. If both the pipes are opened together, then after how much time (in minutes) should Y be closed so that the tank is full in 18 minutes?  
 (A) 5 (B) 10  
 (C) 8 (D) 6
144. The length and breadth of a rectangular field are in the ratio 7 : 4. A path 4 m wide running all round outside has an area of  $416 \text{ m}^2$ . The breadth (in m) of the field is  
 (A) 16 (B) 28  
 (C) 24 (D) 15
145. If  $a + b + c = 0$ , then  $a^3 + b^3 + c^3$  is equal to  
 (A)  $3abc$  (B)  $a + b + c$   
 (C)  $abc$  (D)  $2abc$
146. Two numbers 11284 and 7655, when divided by a certain number of three digits, leaves the same remainder. The sum of digits of such a three-digit number is  
 (A) 11 (B) 8  
 (C) 9 (D) 10

Directions : Study the table and answer questions no. 147 and 148.

Height (in cm)	Number of girls
less than 140	4
less than 145	11
less than 150	29
less than 155	40
less than 160	46
less than 165	51

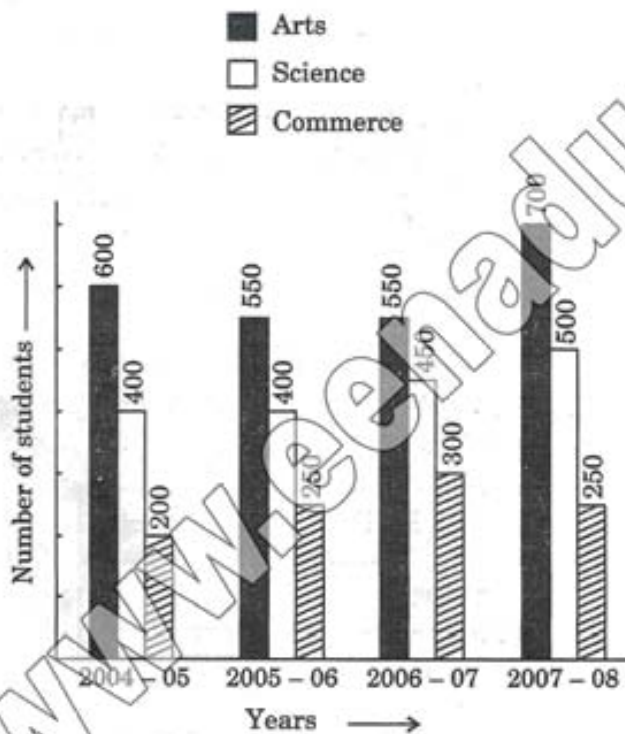
147. The number of girls whose height is above 150 cm is

- (A) 97 (B) 22  
(C) 29 (D) 86

148. Average height (in cm) of the girls whose heights are 155 cm and above is about

- (A) 162.6 (B) 158.7  
(C) 159.8 (D) 160.4

Directions : Student's strength of a college in Arts, Science and Commerce from 2004 - 05 to 2007 - 08 sessions are shown in the following bar graph. Study the graph and answer questions no. 149 and 150.



149. The ratio of average number of students in Arts to the average number of students in Commerce is

- (A) 48 : 35 (B) 12 : 5  
(C) 10 : 7 (D) 7 : 4

150. The increase in Science students in 2007 - 08 over 2006 - 07 was

- (A) 18.2% (B) 10.1%  
(C) 11.1% (D) 16.7%

FOR VISUALLY HANDICAPPED CANDIDATES ONLY

147. If  $2x = a + \frac{4b^3 - a^2}{8a}$  and

$2y = a - \frac{4b^3 - a^2}{8a}$ , then the value of

$x^3 - y^3$  is

- (A)  $\frac{b^3}{a^2}$  (B) a  
(C) b (D)  $a^3$

148. If  $(x + \frac{1}{x})^2 = 3$ , then the value of

$x^{72} + x^{60} + x^{48} + x^{36}$  is

- (A) 8 (B) 0  
(C) 2 (D) 4

149. If  $a^x = b$ ,  $b^y = c$ ,  $c^z = a$ , then the value of  $xyz = ?$

- (A)  $\frac{1}{abc}$  (B) 0  
(C) 1 (D) abc

150. Let  $a = \sqrt[3]{2} + \sqrt[3]{3} + 1$ , then the value of  $\frac{[(a-1)^3 - 5]^3}{(a-1)^3}$  is

- (A) 164 (B) 165  
(C) 162 (D) 163



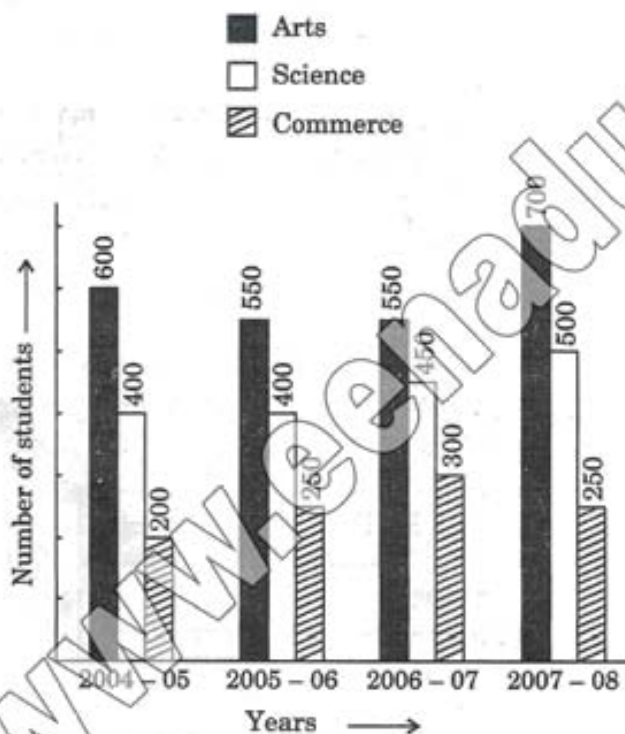
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$x^3 - y^3$  is

- (A)  $\frac{b^3}{a^2}$  (B) a  
(C) b (D)  $a^3$

148. If  $(x + \frac{1}{x})^2 = 3$ , then the value of

$x^{72} + x^{60} + x^{48} + x^{36}$  is

- (A) 8 (B) 0  
(C) 2 (D) 4

149. If  $a^x = b$ ,  $b^y = c$ ,  $c^z = a$ , then the value of  $xyz = ?$

- (A)  $\frac{1}{abc}$  (B) 0  
(C) 1 (D) abc

150. Let  $a = \sqrt[3]{2} + \sqrt[3]{3} + 1$ , then the value of  $\frac{[(a-1)^3 - 5]^3}{(a-1)^3}$  is

- (A) 164 (B) 165  
(C) 162 (D) 163

163. The cool temperate grasslands of South America are known as  
(A) Savannah  
(B) Pampas  
(C) Prairies  
(D) Veld
164. Which was the earliest settlement of the Dutch in India ?  
(A) Ahmedabad  
(B) Masulipatnam  
(C) Pulicat  
(D) Surat
165. During British rule, who was instrumental for the introduction of the Ryotwari system in the then Madras Presidency ?  
(A) John Lawrence  
(B) Macartney  
(C) Elphinstone  
(D) Thomas Munro
166. Who amongst the following was not associated with the Unification of Italy ?  
(A) Mazzini  
(B) Cavour  
(C) Garibaldi  
(D) Mussolini
167. The Greater Himalayas is otherwise called as  
(A) Siwaliks  
(B) Himadri  
(C) Sahyadri  
(D) Assam Himalayas
168. The cup-shaped mouth of the volcano is  
(A) Cinder cone (B) Focus  
(C) Epicentre (D) Crater
169. Lactogenic hormone is secreted by  
(A) Pituitary  
(B) Mammary glands  
(C) Placenta  
(D) Ovary
170. An organism which can monitor air pollution is  
(A) Fungi (B) Bacteria  
(C) Lichen (D) Algae
171. In the human body, which of the following organs is responsible for water balance ?  
(A) Lungs (B) Heart  
(C) Liver (D) Kidneys
172. Chlorophyll containing autotrophic thallophytes is called as  
(A) Bryophytes  
(B) Algae  
(C) Lichens  
(D) Fungi
173. Which of the biomes is called the "Bread Basket" of the world ?  
(A) Tropical Savanna  
(B) Mid-latitude grasslands  
(C) Taiga  
(D) Mediterranean
174. Asia and North America are separated by  
(A) Cook Strait  
(B) Bass Strait  
(C) Strait of Dover  
(D) Bering Strait
175. Phototropic movement is controlled by  
(A) Ethylene  
(B) Auxin  
(C) Gibberellin  
(D) Cytokinin

176. The mass of a body measured by a physical balance in a lift at rest is found to be  $m$ . If the lift is going up with an acceleration  $a$ , its mass will be measured as

- (A) zero (B)  $m\left(1 - \frac{a}{g}\right)$   
 (C)  $m\left(1 + \frac{a}{g}\right)$  (D)  $m$

177. Match correctly the insect vectors in List I with the diseases transmitted by them given in List II :

<i>List I</i>	<i>List II</i>
a. Anopheles (female)	1. Kala-azar
b. Culex	2. Sleeping sickness
c. Sand fly	3. Filariasis
d. Tse-tse fly	4. Malaria

- (A) a-4, b-3, c-1, d-2  
 (B) a-1, b-4, c-2, d-2  
 (C) a-2, b-1, c-4, d-3  
 (D) a-3, b-2, c-1, d-4

178. A white and smooth surface is

- (A) bad absorber and bad reflector of heat  
 (B) good absorber and good reflector of heat  
 (C) bad absorber and good reflector of heat  
 (D) good absorber and bad reflector of heat

179. When a body is immersed in a liquid, the force acting on it is

- (A) Upthrust  
 (B) Weight  
 (C) Mass  
 (D) Both (A) and (B)

180. When two semiconductors of p- and n-type are brought in contact, they form p-n junction which acts like a/an

- (A) Amplifier (B) Conductor  
 (C) Oscillator (D) Rectifier

181. 'Table sugar' is which type of sugar ?

- (A) Sucrose (B) Fructose  
 (C) Galactose (D) Glucose

182. An alloy used in making heating elements for electric heating device is

- (A) German Silver (B) Solder  
 (C) Alloy Steel (D) Nichrome

183. The degree of dissociation of an electrolyte depends on

- (A) method of dissolution  
 (B) dilution  
 (C) impurities  
 (D) atmospheric pressure

184. Chlorophyll contains

- (A) Zinc (B) Iron  
 (C) Magnesium (D) Cobalt

185. The gas causing acid rain in an industrial area is

- (A) Methane  
 (B) Carbon dioxide  
 (C) Carbon monoxide  
 (D) Sulphur dioxide

186. A computer programming language often used by children is

- (A) JAVA (B) LOGO  
 (C) PILOT (D) BASIC

187. A portable, personal computer small enough to fit on your lap is called a

- (A) Workstation  
 (B) Note-book computer  
 (C) PDA  
 (D) Mainframe computer

188. Assembler is a program that translates the program from

- (A) low-level to high-level  
 (B) high-level to assembly  
 (C) assembly to machine  
 (D) machine to low-level

189. Where is Taksim Square, which witnessed in 2013 prolonged massive protests against the redevelopment of Gezi Park ?  
(A) Teheran (B) Ankara  
(C) Cairo (D) Istanbul
190. The famous three P's of environmental awareness are  
(A) Population, Poverty, Pollution  
(B) People, Poverty, Politics  
(C) Power, Production, Pollution  
(D) Population, Politics, Price
191. The stagnant water at the bottom of a lake is called  
(A) Hypolimnion  
(B) Epilimnion  
(C) Mesolimnion  
(D) Metalimnion
192. Shri Jyotiraditya Madhavarao Scindia is the Minister of State with independent charge of the Ministry of  
(A) Information and Broadcasting  
(B) Tourism  
(C) Chemicals and Fertilizers  
(D) Power
193. Who won the Wimbledon Men's Singles in 2013 ?  
(A) Fernando Verdasco  
(B) Andy Murray  
(C) Novak Djokovic  
(D) Juan Martin Del Potro
194. Who won the Silver Medal for the Women's 400 metre race in the Asian Athletic Championships 2013 ?  
(A) Mayookha Johny  
(B) Zhao Yanmin  
(C) M.R. Poovamma  
(D) Tintu Luka
195. Which one of the following novels was a source of inspiration for the freedom fighters in India ?  
(A) Padmarag  
(B) Pariksha Guru  
(C) Anandmath  
(D) Rangbhoomi
196. Which prestigious award was given in 2013 to Aparajita Datta for her outstanding contribution for the conservation of hornbills ?  
(A) Rajiv Gandhi Ecology Award  
(B) Magway Award  
(C) Right Livelihood Award  
(D) Whitley Award
197. Which presently serving State Chief Minister has been in office continuously for the longest period ?  
(A) Manik Sarkar  
(B) Sheila Dikshit  
(C) Narendra Modi  
(D) Bhupinder Singh Hooda
198. Which one of the following monuments is the first inhabited World Heritage Monument ?  
(A) Amber Fort (B) Agra Fort  
(C) Red Fort (D) Jaisalmer Fort
199. Among the following political leaders of South India, who has *not* acted in any film ?  
(A) M.G. Ramachandran  
(B) C.N. Annadurai  
(C) Jayalalitha  
(D) N.T. Rama Rao
200. Which one of the following days is *not* observed on a fixed date every year ?  
(A) World Habitat Day  
(B) World Environment Day  
(C) International Women's Day  
(D) International Friendship Day