

NTSE - NOVEMBER, 2017

MENTAL ABILITY AND SCHOLASTIC APTITUDE TEST

Time : 180 Minutes	Mental Ability Test	:	50 Marks
	Language Comprehensive Test	:	50 Marks
	Aptitude Test	:	100 Marks
	Total	:	200 Marks

Instructions to Candidates

Read the following instructions carefully before you answer the questions. Answers are to be SHADED on a SEPARATE OMR Answer sheet given, with a **HB pencil**. Read the **Instructions printed on the OMR sheet carefully before answering the questions.**

1. Please write your Centre Code No. and Roll No. very clearly (only one digit in one block) on the OMR sheet as given in your admission card. Please see that no block is left unfilled and even Zeros appearing in the Centre Code No. are correctly transferred to the appropriate blocks on the OMR sheet as shown in the example given in the OMR sheet. For all the subsequent purposes, your Centre Code No. and Roll No. shall remain the same as given on the Admission Card.
2. The Test is in **THREE PARTS**. **Part-I** (Mental Ability) consists of **50 Questions** (Q. Nos. 1 to 50). **Part - II** (Language Comprehensive Test) consists of **50 Questions** (Q. Nos. 51 to 100) and **Part - III** (Aptitude Test) consists of **100 Questions** (Q. Nos. 101 to 200).
3. All questions carry **one** mark each.
4. Since **all** questions are **compulsory**, do not try to read through the whole question paper before beginning to answer it.
5. Begin with the first question and keep trying one question after another till you finish all three parts.

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6. If you do not know the answer to any question, do not spend much time on it and pass on to the next one. If time permits, you can come back to the questions which you have left in the first instance and try them again.
7. Since the time allotted to the question paper is very limited, you should make the best use of it by not spending too much time on any question.
8. A blank page is provided for rough work at the end of each part.
9. REMEMBER, YOU HAVE TO SHADE ANSWERS ON A SEPARATE OMR SHEET PROVIDED.
10. Answer to each question is to be indicated by SHADING the circle having the number of the correct alternative in the OMR sheet from among the ones given for the corresponding question in the booklet.
11. Now turn to the next page and start answering the questions.
12. After the examination, you should hand over the OMR sheet to the Invigilator of the room.
13. The candidate **need not return** this Question Paper booklet and can take it after completion of the examination. No candidate should leave the examination hall before the end of the examination.

PART - I

MENTAL ABILITY TEST

(Q. Nos. 1 to 50)

Max. Marks : 50

Note : SHADE the correct alternatives in the OMR Answer Sheet provided, from amongst the ones given against the corresponding questions in the Question Booklet. For shading the circles, use a **HB pencil**.

Directions :

(Question 1 to 5) : In the Number series given below, one number is missing. Each series is followed by five alternatives (1), (2), (3), (4) and (5). One of them is the right answer. Identify and indicate it as per the "Instructions".

1. 13, 74, 290, 650,

(1) 1248

(2) 1470

(3) 1346

(4) 1452

(5) 1625

2. 1, 11, 35, 79,

(1) 81

(2) 93

(3) 149

(4) 124

(5) 136

3. 1, 5, 15, 34,

(1) 50

(2) 48

(3) 37

(4) 65

(5) 72

4. 3, 13, 31, 57,

(1) 65

(2) 72

(3) 88

(4) 94

(5) 91

5. 2, 35, 104, 209,

(1) 350

(2) 248

(3) 256

(4) 311

(5) 413

(Questions 6 to 10) : In each of the following questions, a letter series is given, in which some letters are missing. The missing letters are given in the proper sequence as one of the alternative. Find the correct alternative.

6. A...BBC...AAB...CCA...BBCC

(1) BACB

(2) ABBA

(3) CABA

(4) AABC

(5) ACBA

7. BC...B...C...CB...CCB

(1) BBCB

(2) CBBC

(3) CBCB

(4) BCBC

(5) CCBB

8. C...ABBB...AABBBB...BABBB...B

(1) BACBB

(2) AABCB

(3) ABACB

(4) ABCCB

(5) ABBCC

9. ~~CDBCCD~~ ~~BCCDB~~ ~~CCDBCC~~ ~~PBC~~

- (1) DBCD
- (2) DBDD
- (3) BDAA
- (4) BDCD
- (5) DCBD

10. ~~BA~~ ~~A~~ ~~B~~ ~~BAAB~~ ~~BA~~ ~~A~~ ~~B~~

- (1) AABB
- (2) BABB
- (3) BAAB
- (4) ABBA
- (5) ABAA

Directions :

(Questions 11 to 15) : Questions have become wrong due to wrong order of signs. Choose the correct order of signs from the five alternatives given under each question, so that the equations becomes right. Write it in your answer sheet against the corresponding question number.

11. $6 + 3 = 4 \times 22$

- (1) $\times + =$
- (2) $+ - \times$
- (3) $= \times -$
- (4) $+ - =$
- (5) $+ \times -$

$6 \times 3 + 4 = 22$
18

12. $12 \div 3 = 4 \times 11$

- (1) $+ \div =$
- (2) $\times + =$
- (3) $+ - =$
- (4) $\times = -$
- (5) $\div = \times$

$12 \div 3 - 4 = 11$
 $31 \times 30 = 930$
 960
 $31 \times 32 = 992$
 $64 \times 32 = 2048$
 890

13. $16 \div 4 + 3 = 7$

- (1) $\div \times =$
- (2) $- + =$
- (3) $+ = -$
- (4) $+ - =$
- (5) $+ + =$

14. $7 + 3 = 8 - 13$

- (1) $\div + =$
- (2) $\times - =$
- (3) $+ = +$
- (4) $- + =$
- (5) $- \times =$

$7 + 3 = 8$
 $21 - 8$

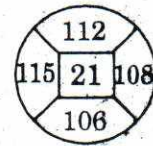
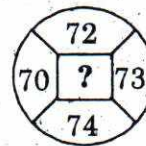
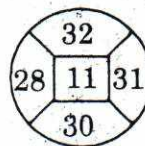
15. $15 - 3 \times 4 = 9$

- (1) $+ \times =$
- (2) $\times - =$
- (3) $+ - =$
- (4) $+ + =$
- (5) $+ + =$

Directions :

(Questions 16 to 20) : In these questions, numbers are placed in the figures on the basis of some rules. One place is vacant which is indicated as '?'. Find out the correct alternatives to replace the question mark '?'.

16.



- (1) 14
- (2) 15
- (3) 16
- (4) 17
- (5) 18

63
 $58 \quad 5$

$+6$

147
 102
 65
 $+7$

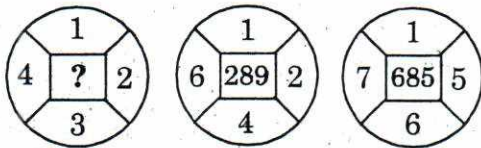
30
 28

540

227
 214
 13
 $+6$

32
 31
 32
 96
 992
 890

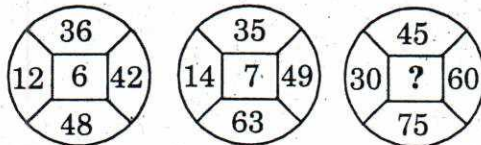
17.



- (1) 14
- (2) 15
- (3) 16
- (4) 17
- (5) 18

Handwritten notes: 29, 61, 12, 57, 17, 8, 14.

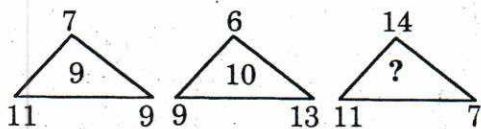
18.



- (1) 12
- (2) 15
- (3) 18
- (4) 21
- (5) 24

Handwritten note: 27, 6.

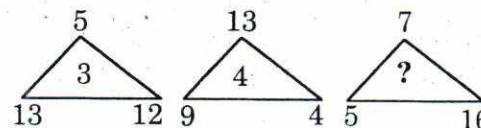
19.



- (1) 7
- (2) 9
- (3) 4
- (4) 5
- (5) 10

Handwritten calculations: 12, 81, 49, 121, 130, 196, 121, 49, 170, 196.

20.



- (1) 5
- (2) 4
- (3) 10
- (4) 8
- (5) 6

Handwritten calculations: 169, 144, 25, 4, 13, 13.

Directions :

(Questions 21 to 25) : Some letters are given in column I and, some digits are given in column II. Each digit of column II represents any letter of column I. Study the columns and write the alternative letter after choosing the correct alternative against the corresponding question.

Column - I	Column - II
ABLMS	24538
QRLBA	93526
PTQAB	52601 01
LRNPQ	93716 01
ATRNP	29071
MSPTQ	84106
QPNAR	16729
RABLS	29583
TSLBA	80325
PLQST	31860

21. The code for M is

- (1) 0
- (2) 8
- (3) 1
- (4) 6
- (5) 4

22. The code for N is

- (1) 9
- (2) 6
- (3) 1
- (4) 7
- (5) 2

23. The code for A is

- (1) 9
- (2) 5
- (3) 2
- (4) 8
- (5) 3

24. The code for S is

- (1) 3
- (2) 2
- (3) 5
- (4) 0
- (5) 8

25. The code for P is

- (1) 3
- (2) 8
- (3) 0
- ~~(4) 1~~
- (5) 6

Directions :

(Questions 26 to 30) : There are six persons in a family A, B, C, D, E and F.

- (i) C is the sister of F.
- (ii) A is the brother of the husband of E.
- (iii) D is the father of A and D is the grand father of F.
- (iv) There are two fathers, three brothers and a mother in the family.

On the basis of above details, choose the correct alternative.

26. What is the relationship between E and F ?

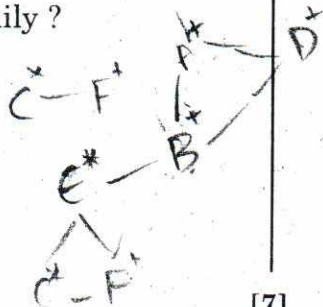
- (1) Daughter
- ~~(2) Son~~
- (3) Husband
- (4) Grandson
- (5) Father-in-law

27. Who is the mother ?

- ~~(1) E~~
- (2) D
- (3) C
- (4) B
- (5) A

28. How many male members are there in this family ?

- (1) One
- (2) Two
- (3) Three
- ~~(4) Four~~
- (5) Five



29. Who is the husband of E ?

- (1) F
- (2) D
- ~~(3) B~~
- (4) C
- (5) A

30. How many persons are there in the category of brothers ?

- (1) 1
- (2) 2
- (3) 4
- (4) 2
- ~~(5) 3~~

Directions :

(Questions 31 to 35) : There are four terms in each question. The term right to symbol :: have some relationship as the term of the left to symbol :: and out of the four, one term is missing, which is among one of the given five alternatives. Find the correct alternatives.

31. ^{1136 1228 18314} KMF : LLH :: RMS : ...?...

- (1) TVT
- (2) SUS
- (3) SLR
- (4) SSU
- ~~(5) SLU~~

19221
SL

32. ^{768 597} GFH : EGG :: ...?... : FSS

- (1) GHF
- ~~(2) HRT~~
- (3) HGF
- (4) HFG
- (5) GEF

HRT

33. UVST : WTUR :: ...?... : RILO

- (1) PKJQ
- (2) TSUV
- (3) UVTS
- (4) TSVU
- (5) SRUT

35. Smoke : Pollution :: War : ...?...

- (1) Victory
- (2) Death
- (3) Army
- (4) Enemy
- (5) Treaty

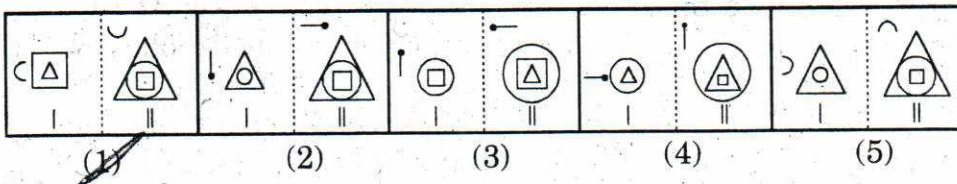
34. Newspaper : Editor :: Film : ...?...

- (1) Actor
- (2) Producer
- (3) Director
- (4) Musician
- (5) Audience

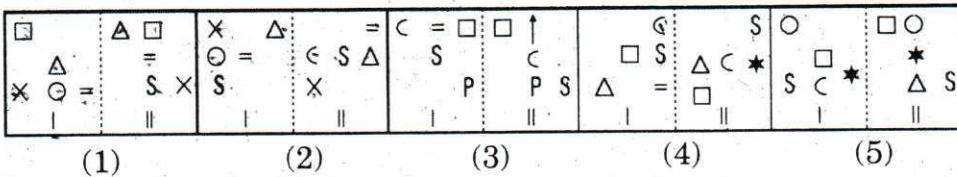
Directions :

(Questions 36 to 40) : In each of the following questions, in four out of the five figures of element I is related to element II in some particular way. Find out the figure in which the element is not related to element II.

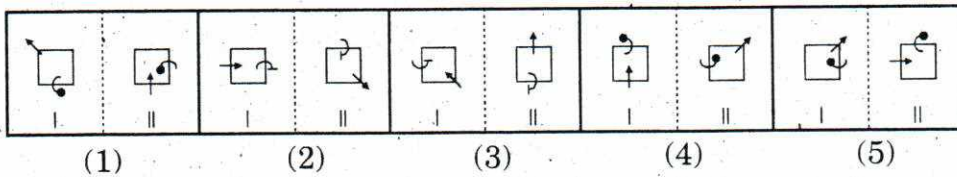
36.



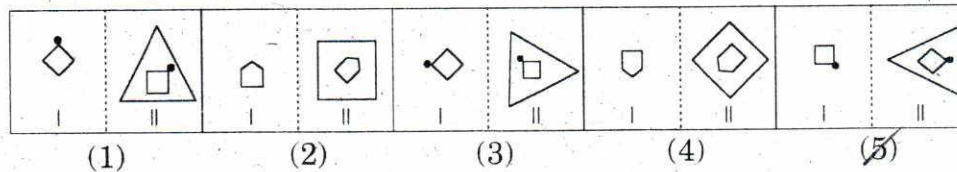
37.



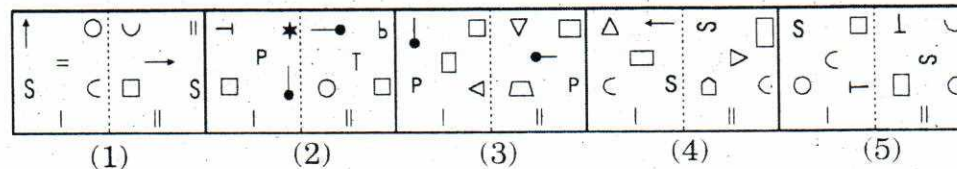
38.



39.

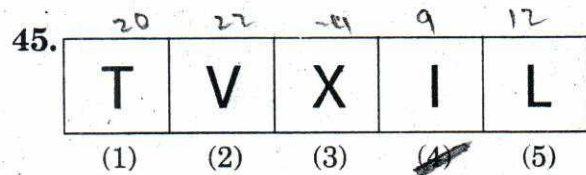
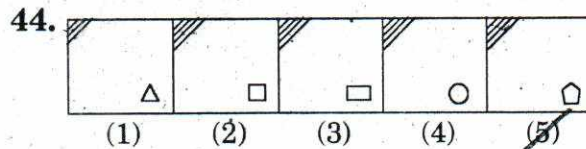
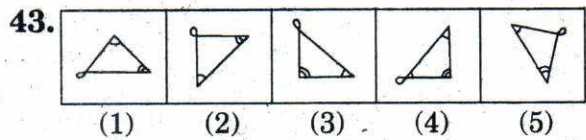
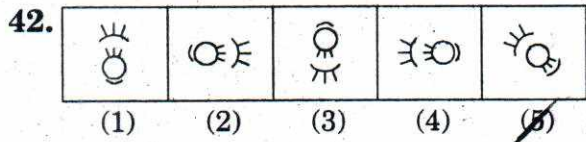
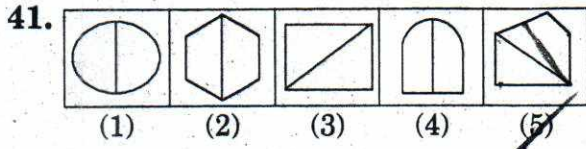


40.



Directions :

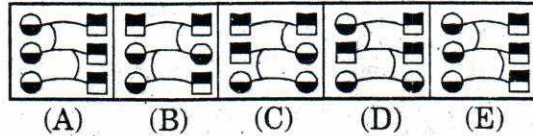
(Questions 41 to 45) : Out of the five figures (1), (2), (3), (4), (5) given in each problem, four are similar in a certain way. Choose the figure which is different from the other figures.



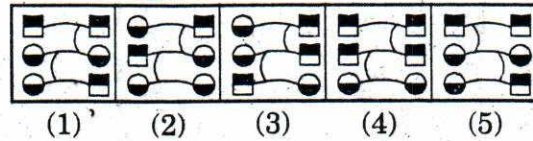
Directions :

(Questions 46 to 50) : Each of the following questions consists of the five figures marked A, B, C, D and E called the problem figures followed by five alternatives marked 1, 2, 3, 4 and 5 called the answer figures. Select a figure which will continue the same series established by the five problem figures.

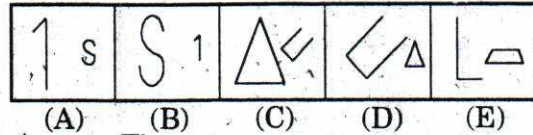
46. Problem Figures



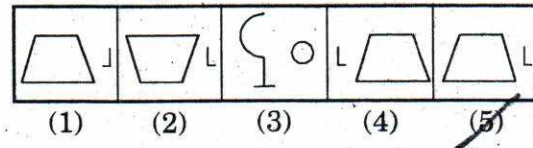
Answer Figures



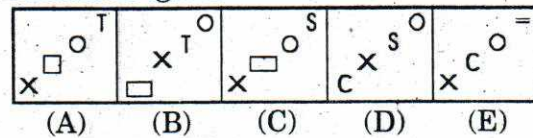
47. Problem Figures



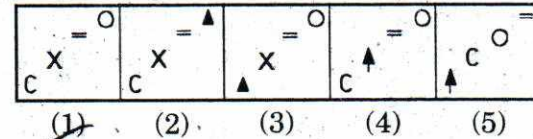
Answer Figures



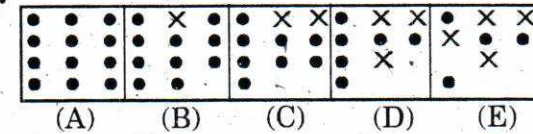
48. Problem Figures



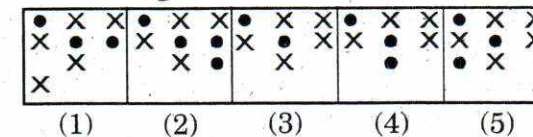
Answer Figures



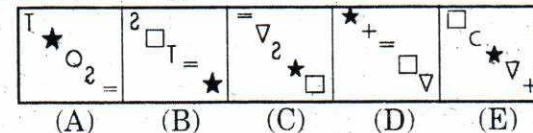
49. Problem Figures



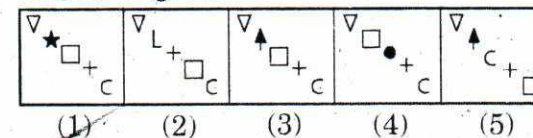
Answer Figures



50. Problem Figures



Answer Figures



[Space for Rough Work]

PART - II

LANGUAGE COMPREHENSIVE TEST

(Q. Nos. 51 to 100)

Max. Marks : 50

Note :

- (i) **SHADE** the correct alternatives in the OMR Answer Sheet provided, from amongst the ones given against the corresponding questions in the Question Booklet. For shading the circles, use a **HB pencil**.
- (ii) Q. No. 51 to 100 of Language Comprehensive Test contains **English** Language.

[Space for Rough Work]

Direction :

(Questions 51 to 55) : Read the following passage and answer the questions given after it.

At this stage of civilization, when many nations are brought into close and vital contact for good and evil, it is essential, as never before, that their gross ignorance of one another should be diminished, that they should begin to understand a little of one another's historical experience and resulting mentality. It is the fault of the English to expect the people of other countries to react as they do, to political and international situations. Our genuine goodwill and good intentions are often brought to nothing, because we expect other people to be like us. This would be corrected if we knew the history, not necessarily in detail but in broad outlines, of the social and political conditions which have given to each nation its present character.

51. According to the author, "mentality" of a nation is mainly the product of its

- (1) present character.
- (2) international position.
- (3) history.
- (4) politics.

52. The character of a nation is the result of its

- (1) mentality.
- (2) gross ignorance.
- (3) cultural heritage.
- (4) socio-political conditions.

53. The need for a greater understanding between nations

.....

- (1) is more than ever before.
- (2) is no longer there.
- (3) is always there.
- (4) will always be there.

54. Englishmen like others to react to political situations like

- (1) us
- (2) others
- (3) each other
- (4) themselves

55. According to the author, his countrymen should

- (1) not react to other nations.
- (2) have a better understanding of other nations.
- (3) read the stories of other nations.
- (4) have vital contacts with other nations.

Direction :

(Questions 56 to 60) : Read the following passage and answer the questions given after it.

Mahatma Gandhi, father of our nation, was of the opinion that villages are the backbone of our country. He advocated that strengthening of villages leads to strengthening of India. He believed that industrialisation was no answer to the problems that plague the mass of India's poor and that villagers should be taught to be self sufficient in food, weave their own cloth from cotton and eschew the glittering prizes that the 20th century so temptingly offers. 'Prosperous Indian Villages' was his dream. He

suggested several ways of developing villages in all aspects. He wanted Indian villages to be self sufficient. Such an idyllic and rural paradise did not appear to those who inherited the reins of political power.

56. The meaning of "glittering prizes that the 20th century so temptingly offers" is
- (1) pursuit of commercialised material culture.
 - (2) replacement of rural by urban interests.
 - (3) complete removal of poverty.
 - (4) absence of violence and corruption.
57. Mahatma Gandhi's views opposed industrialisation of villages because
- (1) it would help the poor and not the rich.
 - (2) it would affect the culture of the Indians.
 - (3) it would take away the skill of the villagers.
 - (4) it would undermine self sufficiency and destroy the beauty of life of the villagers.
58. The basis of "an idyllic and rural paradise" is
- (1) self sufficiency in food and clothes and simplicity of the lifestyle.
 - (2) rapid industrialisation of villages.
 - (3) bringing the glittering prizes of the 20th century to the villages.
 - (4) supporting those holding powerful political positions.

59. Which one of the following best illustrates the relationship between the phrases :

- (i) eschew the glittering prizes, and
- (ii) idyllic and rural paradise.

- (1) Unless you do (i), you cannot have (ii).
- (2) (i) and (ii) are identical in meaning.
- (3) First of all you must have (ii) in order to do (i).
- (4) The meaning of (i) is directly opposite to (ii).

60. Mahatma Gandhi's dream of 'an idyllic and rural paradise' was not shared by

- (1) those who called him the 'Father of Nation'.
- (2) those who inherited political powers after independence.
- (3) those who did not believe in the industrialisation of the country.
- (4) those who believed that villages should be self sufficient in food and cloth.

Direction :

(Questions 61 to 65) : Read the following passage and answer the questions given after it.

What needs to be set right is our approach to work. It is a common sight in our country of employees reporting for duty on time and at the same time doing little work. If an assessment is made of time, they spent in gossiping, drinking tea, eating 'pan' and smoking cigarettes. It will be shocking to know that the time devoted to actual work is

negligible. The problem is the standard which the leadership in administration sets for the staff. Forget the ministers because they mix politics and administration. What do top bureaucrats do? What do the below down officials do? The administration set up remains weak because the employees do not have the right example to follow and they are more concerned about being in the good books of the bosses than doing work.

61. The employees in our country

- (1) are quite punctual but not duty conscious.
- (2) are not punctual, but somehow manage to complete their work.
- (3) are somewhat lazy but good natured.
- (4) are not very highly qualified.

62. According to the writer, the administration in India

- (1) is by and large effective.
- (2) is very strict and firm.
- (3) is affected by red tape.
- (4) is more or less ineffective.

63. The word 'assessment' in the passage means

- (1) enquiry
- (2) evaluation
- (3) report
- (4) summary

64. The leadership in administration

- (1) sets a fine example to the employees.
- (2) is of a reasonably high standard.
- (3) is of a very poor standard.
- (4) is composed of idealists.

65. The central idea of passage could be best expressed by the following.

- (1) The employees outlook towards work is justified.
- (2) The employees must change their outlook towards work.
- (3) The employees would never change their work culture.
- (4) The employer-employee relationship is far from healthy.

Direction :

(Questions 66 to 71) : In the following passage, there are some numbered blanks. Fill in the blanks by selecting the most appropriate word for each blank from the given options.

Well, it was done and the debt was paid. But I began to feel so sorry for myself that I could not (66) it, I made up my mind never to steal again. I also made up my mind to tell (67) to my father. But I did not have the (68) to speak to him. It was not that (69) was afraid that my father would beat me, I (70) not remember any time when he beat any of us. I was afraid that my confession would cause him great pain. But I (71) felt that I had to take this risk. I would never be happy again unless I told him everything.

66. ~~(1)~~ accept
 (2) bear
 (3) like
~~(4)~~ understand
67. ~~(1)~~ something
 (2) anything
 (3) everything
 (4) nothing
68. (1) gallantry
 (2) bravery
 (3) courage
 (4) fortitude
69. ~~(1)~~ I
 (2) he
 (3) she
 (4) me
70. (1) should
 (2) would
 (3) did
 (4) do
71. (1) again
~~(2)~~ soon
 (3) once
 (4) since

Direction :

(Questions 72 and 73) : The following sentences are from a paragraph. The first and the last sentences/parts are given. Choose the order in which the four sentences/parts (PQRS) should appear to complete the paragraph.

72. S₁: It was a dark moonless night.

S₂:

S₃:

S₄:

S₅:

S₆: They all seemed to him to be poor and ordinary mere childish words.

P : He turned over the pages, reading passages here and there.

Q : He heard them on the floor last night.

R : The poet took down his books of poems from his shelves.

S : Some of them contained his earliest writings which he had almost forgotten.

Choose the correct sequence from the options given below.

- (1) RPQS
 (2) RQSP
 (3) RSPQ
 (4) RPSQ

73. S₁: I usually sleep quite well in the train, but this time I slept only a little.

S₂:

S₃:

S₄:

S₅:

S₆: It was shut all night, as usual.

P: Most people wanted it shut and I wanted it open.

Q: As usual, I got angry about the window.

R: The quarrel left me completely upset.

S: There were too many people, too much huge luggage all around.

Choose the correct sequence from the options given below.

- (1) RSQP
- (2) SQRP
- (3) SQPR
- (4) RSPQ

Direction :

(Questions 74 to 77) : For each of the following groups of four words, find the incorrectly spelt word.

74. (1) teaser
(2) teething
(3) tedious
(4) teatotaller

75. (1) passion
(2) fashion
(3) ration
(4) tution

76. (1) quarrelled
(2) rebellions
(3) commission
(4) miraculous

77. (1) inflammable
(2) musician
(3) righteousness
(4) negotiate

Direction :

(Questions 78 to 85) : Select the most appropriate option to fill in the blanks from the given alternatives.

78. The Mediterranean Sea, which means 'in the midst of lands' in Latin, is the world's inland sea and surrounded by Europe, Asia and Africa.

- (1) larger
- (2) as large
- (3) largest
- (4) the largest

79. As traffic means traffic accidents people should use public transportation more.

- (1) fewer / fewer
- (2) less / fewer
- (3) more / less
- (4) few / less

80. The current in fashion indicates that printed designs will be in style this year.

- (1) potential
- (2) vindication
- (3) trend
- (4) hamlet

81. If you approach the job with, you should be able to finish it more quickly.

- (1) eagerness
- (2) reluctance
- (3) vulgarity
- (4) wholesomeness

82. A : Did you believe Srinu's story ?
B : No, I'm afraid it water.

- (1) will hold
- (2) held
- (3) doesn't hold
- (4) is holding

83. I hope you're going to stand your promise ?

- ~~(1)~~ in
- (2) by
- (3) of
- (4) to

84. I'm really tired of him complain all the time.

- (1) hearing
- (2) crying
- (3) telling
- (4) saying

85. The pigeons were sitting on the of the building.

- (1) lark
- (2) ledge
- (3) lurk
- (4) ladle

Direction :

(Questions 86 to 90) : Choose the one which best expresses the meaning of the given phrase.

86. apple pie order

- (1) in random order.
- (2) related to fruits packing.
- (3) related to dry fruit packing.
- (4) in perfect order.

87. at sea

- (1) baffled
- (2) very happy
- (3) very excited
- (4) very sad

88. around the clock

- (1) early morning
- (2) day and night
- (3) at different timings
- (4) throughout the afternoon

89. wild goose chase

- (1) timely action
- (2) useless search
- (3) delayed action
- (4) wise decision

90. come to light

- (1) ignited
- (2) flared up
- (3) brightened
- (4) been revealed

Direction :

(Questions 91 to 95) : Select the word which means the same as given words.

91. accord

- (1) refusal
- (2) confer
- (3) oppose
- (4) dissent

92. propel

- (1) drive
- (2) modify
- (3) burst
- (4) acclimatize

93. massive

- (1) huge
- (2) strong
- (3) little
- (4) gaping

94. defer

- (1) indifferent
- (2) defy
- (3) differ
- (4) postpone

95. scowled

- (1) shouted
- (2) beamed
- (3) frowned
- (4) paid

Direction :

(Questions 96 to 100) : Select the word which means the opposite of the given word.

96. reckless

- (1) forthright
- (2) rash
- (3) careful
- (4) gallant

97. vanity

- (1) pride
- (2) humility
- (3) conceit
- (4) ostentatious

98. hostility

- (1) courtesy
- (2) hospitality
- (3) relationship
- (4) friendliness

99. crowded

- (1) busy
- (2) congested
- (3) quiet
- (4) deserted

100. benign

- (1) malevolent
- (2) soft
- (3) friendly
- (4) unwise

(Space for Rough Work)

PART - III

APTITUDE TEST

(Q. Nos. 101 to 200)

Max. Marks : 100

Note :

(i) Subjects, Question Sr. Nos. and Marks allotted :-

(1)	Physics	101 to 113 Questions	13 Marks
(2)	Chemistry	114 to 126 Questions	13 Marks
(3)	Biology	127 to 140 Questions	14 Marks
(4)	Mathematics	141 to 160 Questions	20 Marks
(5)	History	161 to 175 Questions	15 Marks
(6)	Geography	176 to 190 Questions	15 Marks
(7)	Political Science	191 to 195 Questions	05 Marks
(8)	Economics	196 to 200 Questions	05 Marks

(ii) **SHADE** the circle having the correct alternative in the OMR Sheet provided, from amongst the ones given against the corresponding question in the Question Paper Booklet. For shading the circles, use a **HB Pencil**.

Space for Rough Work

50
~~150~~
300 \times 5 = 1.66
FR
93 16.645

PHYSICS

101. A train of length 50 m is moving with a constant speed of 10 m/s. Calculate the time taken by the train to cross an electric pole and a bridge of length 250 m.

- (1) 25 sec.
- (2) 30 sec. S
- (3) 45 sec. 25
- (4) 15 sec.

102. A car travels at a speed of 80 km/h during the first half of its running time and at 40 km/h during the other half, then the average speed of the car

- (1) 50 km/hr
- (2) 75 km/hr
- (3) 60 km/hr
- (4) 40 km/hr

103. The distance travelled by an object in a specified direction is

- (1) Speed
- (2) Displacement
- (3) Velocity
- (4) Acceleration

1871256
9) 628 (6)

N-51

104. What is the acceleration of the race car that moves at constant velocity of 300 km/hr ?

- (1) 73.32 m/sec.
- (2) 83.33 m/sec. 300 x 1000 / 3600
- (3) 63.33 m/sec.
- (4) 53.33 m/sec.

105. A car travels from rest with a constant acceleration 'a' for t seconds. What is the average speed of the car for its journey, if the car moves along a straight road ?

- (1) $v = \frac{at^2}{2}$
- (2) $v = 2at^2$
- (3) $v = \frac{at}{2}$ 450) 314 (1)
- (4) None 45

106. A table clock has its minutes hand 4 cm long. Find the average velocity of the tip of the minute hand between 6.00 am to 6.30 am.

- (1) 0.04 cm/sec
- (2) 0.004 cm/sec
- (3) 0.0044 cm/sec
- (4) None 30

[23]

Handwritten calculations for question 106:
 30 min = 1800 s
 0.125 64512.56
 225 1800
 271.4
 30 x 8 = 240
 240 x 8 = 1920
 1920 / 8 = 240

107. Two people push a car for 3 sec, with a combined net force of 200 N. The impulse provided to the car

- (1) 400 N-sec.
- (2) 500 N-sec.
- (3) 600 N-sec.
- (4) 300 N-sec.

108. A man of mass 30 kg uses a rope to climb which bears only 450 N. The maximum acceleration with which he can climb safely

- (1) 10 m/sec²
- (2) 15 m/sec²
- (3) 20 m/sec²
- (4) 25 m/sec²

F = 450 N
 $\frac{450}{30} = 15$
 $30 \times 10 = 300$
 $\frac{350}{30} = 11.67$

109. The value of least distance of clear vision is about

- (1) 55 cm
- (2) 40 cm
- (3) 20 cm
- (4) 25 cm

110. The unit of power of a lens (P) is

- (1) cm
- (2) mm
- (3) diapter
- (4) hertz

111. A wire of length 1 m and of radius 0.1 mm has a resistance of 100Ω. The resistivity of the material

- (1) 0.0214 Ω-m
- (2) 0.00314 Ω-m
- (3) 0.000314 Ω-m
- (4) 0.00214 Ω-m

112. The S.I. unit of potential difference is

- (1) ohm
- (2) ampere
- (3) ohm-meter
- (4) volt

π × 10⁻²
 $100 \times \pi \times 10^{-6}$
 $\frac{3.14}{100000000}$
 $0. \frac{3.14}{1000}$

113. The value of magnetic field induction, which is uniform, is 2T. What is the flux passing through a surface of area 1.5 m^2 perpendicular to the field

- (1) 3 Tesla
- (2) 1 Wb/m^2
- (3) 2 Tesla
- (4) None

$\frac{2}{1.5}$

CHEMISTRY

114. Precipitate in a reaction is indicated by which arrow mark ?
- (1) \rightarrow
 - (2) \uparrow
 - ~~(3)~~ \downarrow
 - (4) \leftarrow
115. What colour would Hydrochloric acid (pH=1) turn universal indicator ?
- (1) Orange
 - (2) Purple
 - (3) Yellow
 - ~~(4)~~ Red
116. The pain due to honey-bee sting can be relieved by using
- (1) Washing soda
 - (2) Salt
 - ~~(3)~~ Acid
 - (4) Baking soda
117. The quantum number which explains about size and energy of the orbit or shell is
- ~~(1)~~ n
 - (2) l
 - (3) m_l
 - (4) m_s
118. The maximum number of electrons in any shell is given by rule.
- (1) $2n$
 - (2) n^2
 - ~~(3)~~ $2n^2$
 - (4) $4n^2$
119. Example of Dobereiner's triad is
- (1) Li, Al, Ca
 - ~~(2)~~ Li, Na, K
 - (3) Li, K, Na
 - (4) K, Al, Ca
120. Unit of Ionization energy
- (1) J/m \times
 - (2) K.J. mol
 - (3) J. mol \leftarrow
 - ~~(4)~~ KJ. mol⁻¹
121. The concept hybridisation of orbits of an atom was introduced by
- (1) Linus Pauling
 - (2) Moseley
 - ~~(3)~~ Lewis
 - (4) Kossel
122. Which one of the following is available in three states
- (1) Petrol
 - ~~(2)~~ Water
 - (3) Milk
 - (4) Kerosene

123. The gas that diffuses from blood to lungs is

- (1) Oxygen
- (2) Carbon dioxide
- (3) Hydrogen
- (4) Helium

124. If 100 gm of salt solution contains 20g of salt dissolved in it, the percentage of mass of the solution is

- (1) 10%
- (2) 20%
- (3) 15%
- (4) 25%

125. Miscible liquids can be separated by

- (1) Distillation process
- (2) Fractional distillation
- (3) Chromatography
- (4) Separating funnel

126. Molecular mass of water

- (1) 18 u
- (2) 16 u
- (3) 15 u
- (4) 10 u

20

23 39

3

BIOLOGY

127. According to the compatibility of Antigen and Antibody, select the correct pair.
- (1) Antigen B and Antibody b.
 - (2) Antigen A and Antibody b.
 - (3) Antibody a and Antigen B.
 - (4) Both (2) and (3)
128. In atmosphere, Ozone hole refers to
- (1) A hole in Ozone layer.
 - (2) Decrease in Ozone layer thickness in troposphere.
 - ~~(3) Decrease in thickness of Ozone layer in stratosphere.~~
 - (4) Increase in the thickness of Ozone layer in troposphere.
129. The function of enzyme Trypsin is to
- (1) breakdown fats.
 - ~~(2) breakdown proteins.~~
 - (3) synthesise proteins.
 - (4) breakdown carbohydrates.
130. The offspring resulting from a cross between two pure homozygous recessives would be
- (1) 50% homozygous recessive and 50% homozygous dominant.
 - (2) 75% homozygous recessive and 25% heterozygous dominant.
 - (3) 75% homozygous recessive and 25% homozygous dominant.
 - (4) 100% homozygous recessive.
131. Match the following pairs correctly.
- | | |
|-------------|--------------------------------------|
| (i) Fish | (a) Three chambered heart. |
| (ii) Lizard | (b) Incomplete four chambered heart. |
| (iii) Man | (c) Two chambered heart. |
| (iv) Frog | (d) Complete four chambered heart. |
- (1) (i)-b, (ii)-c, (iii)-a, (iv)-d
 - (2) (i)-c, (ii)-b, (iii)-d, (iv)-a
 - (3) (i)-a, (ii)-c, (iii)-d, (iv)-b
 - ~~(4) (i)-c, (ii)-a, (iii)-d, (iv)-b~~
132. The significance of Greenhouse gases in earth's atmosphere is
- (1) They maintain a warm temperature on earth by absorbing short wave-length radiations.
 - (2) They do not allow earth's temperature to drop very low by absorbing long wavelength radiations.
 - (3) They reflect Sun's heat back to atmosphere.
 - (4) Both (1) and (2).
133. Which of the below given statements stands true ?
- (1) A person can contract AIDS due to unprotected sexual intercourse with an infected person.
 - (2) A person can contract AIDS while getting permanent tattooing with an infected needle.
 - (3) A person cannot contract AIDS by donating blood to a HIV infected person.
 - (4) All the statements are true.

134. Among the vertebrates, which organism exhibits maximum power of re-generation ?

- (1) Dog
- (2) Lizard
- (3) Pigeon
- (4) Man

135. What will happen if the deer is missing in the food chain given below :

Grass → Deer → Tiger

- (1) The population of tiger increases.
- (2) The population of grass decreases.
- (3) Tiger will start eating grass.
- (4) The population of tiger decreases and the population of grass increases.

136. One gram mole of Glucose on complete oxidation to CO_2 and H_2O produces about

- (1) 6,86,000 Cal
- (2) 6,860 Cal
- (3) 68,600 Cal
- (4) 68,60,000 Cal

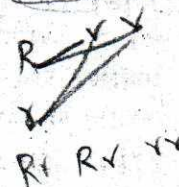
68.6 kcal
686000

137. The transport of soluble products of photosynthesis is called Translocation, which occurs in the part of vascular tissue called

- (1) Xylem
- (2) Sclerenchyma
- (3) Phloem
- (4) Collenchyma

138. What will be the genotypic ratio of the cross between Rr and rr ?

- (1) 1 : 2 : 1
- (2) 3 : 1
- (3) 1 : 1
- (4) 1 : 1 : 1



139. By studying analogous structures, we look for

- (1) Similarities in appearance and function but difference in structure.
- (2) Similarities in appearance but difference in function.
- (3) Similarities in organ structure.
- (4) Similarities in cell make up.

140. Placenta is the structure formed

- (1) by fusion of germ layers.
- (2) by foetus only.
- (3) by the union of foetal and uterine tissue.
- (4) by uterus only.

MATHEMATICS

141. When 31513 and 34369 are divided by a certain three digit number, the remainders are equal, then the remainder is

- (1) 86
- (2) 97
- (3) 374
- (4) 113

Handwritten work for Q141:

$$\begin{array}{r} 9763 \\ 33 \overline{) 31513} \\ \underline{33000} \\ 513 \\ \underline{531} \\ 23 \end{array}$$

142. The greatest number of four digits which when divided by 3, 5, 7, 9 leaves the remainders 1, 3, 5, 7 respectively, is

- (1) 9763
- (2) 9673
- (3) 9367
- (4) 9969

Handwritten work for Q142:

$$\begin{array}{r} 9763 \\ 3 \overline{) 9763} \\ \underline{9000} \\ 763 \\ \underline{750} \\ 13 \\ \underline{12} \\ 1 \end{array}$$

143. $efgh$ is a four digit number. One hundredth of $efgh$ is the mean of ef and gh , then the four digit number is

- (1) 3648
- (2) 4950
- (3) 4590
- (4) 3468

Handwritten work for Q143:

$$\begin{array}{r} 9673 \\ 100 \overline{) 9673} \\ \underline{9600} \\ 73 \\ \underline{73} \\ 0 \end{array}$$

144. If $x^2 + xy + x = 12$ and $y^2 + xy + y = 18$, then the value of $x + y$ is

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

Handwritten work for Q144:

$$\begin{array}{r} 9673 \\ 33 \overline{) 9673} \\ \underline{33000} \\ 513 \\ \underline{531} \\ 23 \end{array}$$

145. If $217x + 131y = 913$ and $131x + 217y = 827$, then the value of $x + y$ is

- (1) 8
- (2) 5
- (3) 7
- (4) 6

Handwritten work for Q145:

$$\begin{array}{l} 217x + 131y = 913 \\ 131x + 217y = 827 \end{array}$$

146. If $x = \frac{1}{2 - \frac{1}{2 - \frac{1}{2 - x}}}$, ($x \neq 2$), then the value of x is

- (1) 1
- (2) 3
- (3) 2
- (4) 5

Handwritten work for Q146:

$$\begin{array}{r} 217 \\ 33 \overline{) 217} \\ \underline{330} \\ 13 \\ \underline{12} \\ 1 \end{array}$$

147. x_1, x_2, x_3, \dots are in A.P.

If $x_1 + x_7 + x_{10} = -6$ and

$x_3 + x_8 + x_{12} = -11$,

then $x_3 + x_8 + x_{22} = \dots$

- (1) -21
- (2) -15
- (3) -18
- (4) -31

Handwritten work for Q147:

$$\begin{array}{l} 3a + 15d = -6 \\ 3a + 20d = -11 \end{array}$$

148. If $\frac{2+5+8+\dots+n \text{ terms}}{7+11+15+\dots+n \text{ terms}} = \frac{23}{35}$,

then n value is

- (1) 17
- (2) 15
- (3) 18
- (4) 23

Handwritten work for Q148:

$$\begin{array}{l} 3a + 20d = -11 \\ 3a + 15d = -6 \end{array}$$

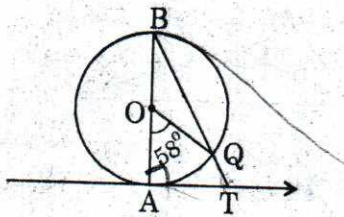
Handwritten work for Q148:

$$\begin{array}{l} 3a + 20d = -11 \\ 3a + 15d = -6 \\ \hline 5d = -5 \\ d = -1 \\ 3a - 15 = -6 \\ 3a = 9 \\ a = 3 \end{array}$$

155. In an equilateral triangle ABC, the side BC is trisected at D, then $9AD^2$ is

- (1) $7AB^2$
- (2) $8BC^2$
- (3) $4AC^2$
- (4) $\frac{3}{2} AB^2$

156. In the given figure, AB is the diameter of a circle with O and AT is a tangent. If $\angle AOQ = 58^\circ$, then the value of $\angle ATQ$ is



- (1) 52°
- (2) 61°
- (3) 46°
- (4) 75°

157. The radii of two cylinders are in the ratio 2 : 3 and their heights are in the ratio 5 : 3, then the ratio of their volumes is

- (1) 15 : 16
- (2) 14 : 17
- (3) 20 : 27
- (4) 4 : 9

Handwritten calculations for Q157:
 $\frac{2 \times 3}{27} \times \frac{5 \times 3}{15} = \frac{20}{27}$

158. If the area of three adjacent faces of a cuboid are x, y and z respectively, then the volume of a cuboid is

- (1) \sqrt{xyz}
- (2) $x+y+z$
- (3) x^2yz
- (4) $xy+z$

159. If $\tan \theta + \cot \theta = 2$, then the value of $\tan^2 \theta + \cot^2 \theta$ is

- (1) 4
- (2) 2
- (3) $\frac{3}{2}$
- (4) 5

Handwritten calculation for Q159:
 $\sec^2 \theta - 1 + \operatorname{cosec}^2 \theta - 1 = 2$

160. A bag contains 15 balls of which x are black and remaining are red. If the number of red balls are increased by 5, the probability of drawing the red balls doubles, then the probability of drawing red ball is

- (1) $\frac{1}{5}$
- (2) $\frac{4}{5}$
- (3) $\frac{3}{5}$
- (4) $\frac{2}{5}$

Handwritten calculations for Q160:
 $\frac{15-x}{15} = 2 \times \frac{15-x}{15+5}$
 $15-x = 2(15-x)$
 $15-x = 30-2x$
 $x = 15$
 Probability = $\frac{15-15}{15} = 0$

HISTORY

161. "On the basis of iron, coal and textiles, Britain built up a type of civilisation which has been copied all round the world." Who said these words praising Britain?
- (1) Fisher
 - (2) James Watt
 - (3) Henry Fort
 - (4) Friedrich Engels
162. "Which no European power would be allowed to build colonies in the American continents and US will not interfere in the affairs of Europe or colonies in other continents." Name the American President who declared this.
- (1) James Monroe
 - (2) Franklin Roosevelt
 - (3) Harry S. Truman
 - (4) George W. Bush
163. Find the wrong statement about Cricket.
- (1) The first written laws of Cricket were drawn up in 1744.
 - (2) The stumps must be 22 inches high and the bail across them six inches.
 - (3) The world's first Cricket Club was formed in Hambledon in the 1760's.
 - (4) The Sikhs founded the first Indian Cricket Club, the Punjab Club in Amritsar in 1820.
164. What is the reason for increase in industrialisation in Germany after 1870?
- (1) Invention of 'Dynamo' by Werner Siemens.
 - (2) Unification of Germany.
 - (3) Capturing of Loraine from France by Germany.
 - (4) All the above.
165. Find out the one, which is not related to French Revolution.
- (1) Estate General Meeting in 1789.
 - (2) Destroy of Bastille Fort.
 - (3) Tennis Court Oath.
 - (4) Glorious Revolution.
166. Which of the following is not the result of the Treaty of Vienna of 1815?
- (1) France lost the territories it had annexed under Napoleon.
 - (2) Poland was given to Russia.
 - (3) Prussia was handed over to England.
 - (4) None of the above.
167. Hearing about this incident, Mahatma Gandhi called a halt to the Non-Cooperation movement.
- (1) Chauri Chaura incident.
 - (2) Jalian Wala Bagh incident.
 - (3) Awadh incident.
 - (4) Forest Revolt in Kumaon.

168. Name the Viceroy of India during Civil Disobedience Movement.

- (1) Lord Linlithgow
- ~~(2) Lord Irwin~~
- (3) Lord Reading
- (4) Lord Chelmsford

169. In which year, did Gandhiji relaunch Civil Disobedience Movement ?

- (1) 1931
- ~~(2) 1932~~
- (3) 1933
- (4) 1934

170. Which of these is not a demand of Vladimir Lenin in April Theses ?

- (1) Land to be transferred to the peasants.
- (2) Nationalisation of factories and banks.
- (3) War be brought to a close.
- (4) Transfer of political power to middle class.

171. Who wrote about the injustices of the Caste system in his "Gulamgiri" ?

- (1) E.V. Ramaswamy Naikar
- ~~(2) Kashi baba~~
- (3) Jyotiba Phule
- (4) B.R. Ambedkar

172. Who is the author of the novel "The Jungle Book" ?

- (1) R.L. Stevenson
- (2) Charles Dickens
- (3) Thomas Hardy
- ~~(4) Rudyard Kipling~~

173. In which Congress session, the resolution of Purna Swaraj was passed ?

- ~~(1) Lahore session~~
- (2) Karachi session
- (3) Nagpur session
- (4) Wardha session

174. On 15th August 1947, in which place was Gandhiji trying to bring peace to reduce the riots ?

- (1) Noakhali
- (2) Satara
- (3) Nawadwip
- (4) Jalandhar

175. Which party gave its support to the Britishers during Second World War ?

- ~~(1) Congress.~~
- (2) Muslim League.
- (3) Communist Party of India.
- (4) All the above.

GEOGRAPHY

176. Match list A with B and select the correct answers using the codes given below the list.

A	B
(a) Kankar	(i) Small streams disappear.
(b) Khader	(ii) Contains calcareous deposits.
(c) Bhabar	(iii) Ideal for intensive agriculture.
(d) Terai	(iv) Thickly forested region full of wild life.

- (1) i-a, iii-b, iv-c, ii-d
 (2) ii-a, iv-b, iii-c, i-d
 (3) ii-a, iii-b, i-c, iv-d
 (4) iii-a, ii-b, i-c, iv-d

177. The time at 20° West longitude is 2.00 AM. Then what is the time at 90° East longitude ?

- (1) 6.40 AM
 (2) 9.20 AM
 (3) 8.40 AM
 (4) 10.20 AM

178. Which of the following Indus tributaries, does not join Kashmir region ?

- (1) Zaskar
 (2) Jhelum
 (3) Shyok
 (4) Nubra

179. Consider the following statements.

- (a) The amount of annual rainfall in the northern plains of India decreases from east to west.
 (b) The Coromandel Coast receives winter rainfall.
 (c) The delta region of the eastern coast is frequently struck with cyclones.
 (d) The speed of jet streams increases during winter.

Which of the statements given above is/are correct ?

- (1) a only
 (2) a, b, c
 (3) b, c, d
 (4) a, b, c, d

180. Name the Indian forests containing upper canopy.

- (1) Tropical deciduous forests.
 (2) Mangrove forests.
 (3) Tropical evergreen forests.
 (4) Thorny forests.

181. Identify the pull factor that is not related to migrations.

- (1) Better living conditions.
 (2) Employment opportunities.
 (3) Medical facilities.
 (4) None of the above.

182. The famous hill station Udagamandalam, popularly known as Ooty, is located in the

- (1) Nilgiris.
 (2) Palani hills.
 (3) Anaimalai hills.
 (4) Cardamom hills.

183. What is the reason for the Troposphere to be at a greater height at the Equator ?

- (1) Conventional currents.
- (2) Conduction.
- (3) Terrestrial radiation.
- (4) All the above.

184. Name the Planetary winds that meet the Inter Tropical Convergence Zone.

- (1) Westerlies and Easterlies.
- (2) North east trade winds, South east trade winds.
- (3) South east trade winds, Westerlies.
- (4) Trade winds, Easterlies.

185. East, west corridor does not pass through

- (1) Udaipur
- (2) Jhansi
- (3) Guwahati
- (4) Gurgaon

186. Magnetite is the

- (1) Highest quality coal.
- (2) Finest iron ore.
- (3) Finest copper ore.
- (4) Highest quality limestone.

187. Which of the following is not correctly related to Jowar ?

- (1) Jowar is a kharif crop.
- (2) Jowar is the third most important food crop with respect to area and production.
- (3) Maharashtra is the largest producer of Jowar.
- (4) None of the above.

188. North eastern states are mostly covered with these soils.

- (1) Red and yellow soils.
- (2) Alluvial soils.
- (3) Forest and mountainous soils.
- (4) Laterite soils.

189. Find out the wrong one about National Parks.

- (1) Gir National Park - Gujarat.
- (2) Simlipal National Park - Odisha.
- (3) Sanjay Gandhi National Park - Uttar Pradesh.
- (4) Guindi National Park - Tamilnadu.

190. Name the longest range in Himachal ranges ?

- (1) Mahabharath range
- (2) Pir Panjal range
- (3) Dhaula Dhar range
- (4) Nagatiba range

POLITICAL SCIENCE

191. Which of the following freedom is not available to Indian citizen ?

- (1) Freedom to assemble peacefully without arms.
- (2) Freedom to move freely.
- (3) Freedom to reside and settle in any part of the territory of India.
- (4) None of the above.

192. Find the wrong statement.

- (1) There was unanimity of opinions on all provisions during Constitution Assembly.
- (2) The makers of Constitution represented all regions of the country.
- (3) Constitution provides certain provisions to amend articles in it.
- (4) Supreme Court of India has said that basic features of Constitution may also be amended.

193. As per Census 2001, what is the percentage of people with Hindi as their mother tongue ?

- ~~(1)~~ 41.03%
- (2) 52.02%
- (3) 32.14%
- (4) 64.91%

194. Which Lok Sabha elections recorded heavy votings ? (S)

- (1) 10th Lok Sabha election.
- (2) 12th Lok Sabha election.
- (3) 14th Lok Sabha election.
- (4) 16th Lok Sabha election.

195. Which of the following subjects is not under concurrent list ?

- (1) Adoption
- (2) Trade Unions
- (3) Commerce
- (4) Succession

ECONOMICS

196. Largest income under direct taxes is obtained from

- (1) Income Tax
- (2) Corporation Tax
- (3) Gift Tax
- (4) Custom Duty

197. Which of the following statement is wrong about organised sector ?

- (1) People who work in the government or with companies or large establishment are all in organised sector.
- (2) They get paid leave, payment during holidays, provident fund, etc.
- (3) Workers in the organised sector enjoy security of employment.
- (4) 92% of workers in India are found in organised sector.

198. Find out the wrong statement about Ford Motors.

- (1) Ford Motors is a largest automobile manufacturer which belongs to America.
- (2) It came to India in 1995 and established a plant near Chennai.
- (3) The plant near Chennai was established in collaboration with Ashok Leyland.
- (4) None of the above.

199. Find out the correct statements regarding Mid Day Meal scheme.

- (a) This is the largest school feeding programme in the world.
 - (b) About 14 crore children studying in schools, eat mid-day meal today.
 - (c) The Supreme Court ruled that preference be given to dalit cooks, widows and destitute women.
 - (d) The scheme was first implemented in Tamilnadu.
- (1) a, b, c
 - (2) b, c, d
 - (3) a, c, d
 - (4) a, b, c, d

200. The most common route for investments by MNC's in countries around the world, is to ...

- (1) Establish new factories.
- (2) Buy existing local companies.
- (3) Form partnership with local companies.
- (4) Giving loans to the Governments.

(Space for Rough Work)

(b)

(c)

(Space for Rough Work)