Total No. of Printed Pages : 16 **Session : MORNING** **NTSE(E)**

Medium : ENGLISH *Roll No.* 4 6 1 9 1 2 0 7

NTSE - NOVEMBER, 2018

MENTAL ABILITY TEST (MAT)

Time : 120 Minutes 100 Marks

MENTAL ABILITY TEST : Session-I

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. All questions carry **one** mark each.
3. Since **all** questions are **compulsory**, do not try to read through the whole question paper before beginning to answer it.
4. Begin with the first question and keep trying one question after another till you finish all three parts.
5. 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.
6. 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.

7. The blank pages are provided for rough work at the end of each part.

8. REMEMBER, YOU HAVE TO SHADE ANSWERS ON A SEPARATE OMR SHEET PROVIDED.

9. 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 one given for the corresponding question in the booklet.

10. Now turn to the next page and start answering the questions.

11. After the examination, you should hand over the OMR sheet to the Invigilator of the room.

12. 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.

MORNING SESSION

MENTAL ABILITY TEST (MAT)

(Q. Nos. 1 to 100)

Max. Marks : 100

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**.

(Space for Rough Work)

Directions :

Questions (1 to 10) :

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. 4, 18, 48, 100, ... 180

(1) 180
(2) 196
(3) 204
(4) 160
(5) 192

2. 8, 15, ... , 53, 102, 199

(1) 30
(2) 23
(3) 29
(4) 31
(5) 28

3. 4, 9, 25, 49, ..., 169, 289, 361

(1) 36
(2) 64
(3) 121
(4) 100
(5) 73

4. 430, 345, 270, 205, ...

(1) 155
(2) 150
(3) 175
(4) 155
(5) 120

5. 1, 1, 4, 8, 9, 27, ..., 64

(1) 36
(2) 16
(3) 25
(4) 49
(5) 32

6. 28, 25, 5, 21, 18, 5, 14, ...

(1) 11, 5
(2) 11, 8
(3) 10, 7
(4) 5, 10
(5) 10, 5

7. 13, 29, 15, 26, 17, 23, 19,

(1) 20, 21
(2) 21, 23
(3) 22, 20
(4) 20, 17
(5) 25, 27

8. 70, 71, 76, ..., 81, 86, 70, 91, ...

(1) 96
(2) 70
(3) 80
(4) 71
(5) 95

9. 1, 20, 58, ..., 191

(1) 116
(2) 115
(3) 105
(4) 111
(5) 110

10. 36, 34, 30, 28, 24, ...

(1) 26
(2) 22
(3) 20
(4) 25
(5) 23

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.

11. $5 - 0 \times 3 \div 5 = 20$

(1) $= \times + -$

(2) $- + \times =$ $5+0-3\times5=20$

(3) $+ - \times =$

(4) $\times + - =$ $5-0+3\times5=20$

(5) $\div + - =$

12. $3 - 3 \times 6 \div 6 + 2 = 12$

(1) $+ \div \times - =$

(2) $\times \div - + =$ $3\times3\div6-6+2=12$

(3) $+ \times - \div =$

(4) $\times + - \div =$ $3\times3+6-6\div2=12$

(5) $= \times + - \div$

13. $20 = 7 - 4 \times 8$

(1) $= \times -$ $20=$

(2) $- \times =$ $20-7=4\times8$

(3) $+ \times =$

(4) $- = \times$ $20=7\times4-8$

(5) $\times + =$

14. $20 = 4 + 6 \div 11$

(1) $\div = +$ $20\div4+6=11$

(2) $+ \div =$

(3) $+ = \div$

(4) $\div + =$

(5) $= + \div$

15. $6 = 5 \times 6 \div 36$

(1) $+ \times =$ $6+5\times6=36$

(2) $\times = +$

(3) $\times \div =$

(4) $\times = \div$

(5) $\times + =$

16. $7 \times 4 = 2 + 5$

(1) $- = \div$

(2) $\div - =$ $7=4\div2+5$

(3) $\div = -$

(4) $\times - =$

(5) $= \div +$

17 $8 + 4 = 7 - 5$

(1) $\div - =$

(2) $\times + -$ $8\div4=7-5$

(3) $- = \div$

(4) $- \div =$

(5) $\div = -$

18. $11 \times 2 - 10 = 9$

(1) $= - \times$

(2) $= \times -$ $11\times2-10$

(3) $\times + =$

(4) $\times - +$ $11=2\times10-9$

(5) $\times \div =$

19. $5 - 4 \times 7 = 13$

(1) $\times = -$ $5\times4-7=13$

(2) $+ - =$

(3) $\times - =$

(4) $+ = -$

(5) $- + =$

20. $16 \div 4 = 2 \div 8$

(1) $\div \times =$ $16\div4\times2=8$

(2) $\div = \times$ $16-4+2=8$

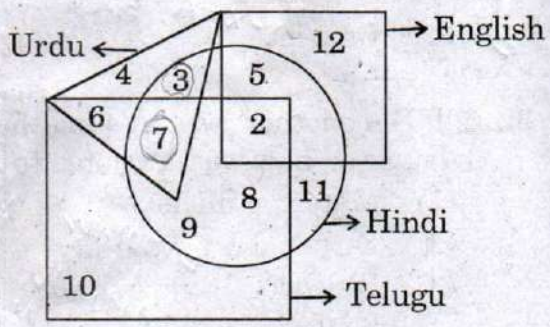
(3) $- = \times$ $16\div4=2\times8$

(4) $- + =$

(5) $+ = \times$

Directions :

Questions (21 to 25) : In the following figure, small square represents the persons who know English, Triangle to those who know Urdu, big square to those who know Telugu and circle to those who know Hindi.



21. How many persons can speak English and Hindi both, the languages only ?

(1) 2
(2) 5
(3) 13
(4) 19
(5) 8

22. How many persons can speak Urdu and Telugu both ?

(1) 13
(2) 10
(3) 11
(4) 9
(5) 17

23. How many persons can speak only Hindi ?

(1) 10
(2) 4
(3) 12
(4) 19
(5) 11

24. How many persons can speak English, Hindi and Telugu ?

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

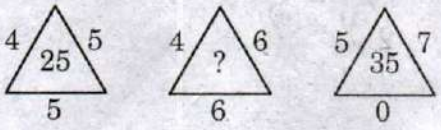
25. How many persons can speak Hindi and Urdu only ?

(1) 4
(2) 6
(3) 7
(4) 3
(5) 10

Directions :

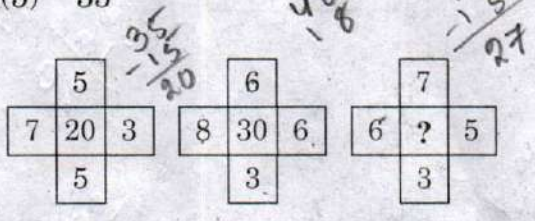
Questions (26 to 30) : In these questions, numbers are placed on the basis of some rules. One place is vacant which is indicated as **?**. Find out the correct alternative to replace the question mark.

26.



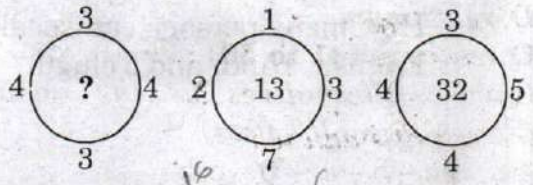
(1) 30
(2) 36
(3) 24
(4) 28
(5) 35

27.



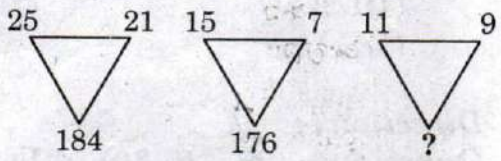
(1) 57
(2) 27
(3) 21
(4) 51
(5) 40

28.



(1) 24
(2) 17
(3) 25
(4) 22
(5) 16

29.



(1) 30
(2) 202
(3) 20
(4) 40
(5) 50

30.

6	4	2
4	3	7
9	?	3

(1) 6
(2) 12
(3) 7
(4) 10
(5) 5

Directions :
Questions (31 to 40) :
(Problem deals with is Relationship)

31. A and B is a married couple. X and Y are brothers. X is the brother of A. How is Y related to B ?
(1) Brother
(2) Brother-in-law
(3) Son
(4) Cousin

32. If B's mother was A's mother's daughter, how was A related to B ?
(1) Maternal uncle
(2) Father
(3) Brother
(4) Sister

33. A and B are brothers, C and D are sisters. A's son is D's brother. How is B related to C ?
(1) Father
(2) Mother
(3) Uncle
(4) Aunt

34. If A is the brother of the son of B's son. How is A related B ?
(1) Son
(2) Brother
(3) Cousin
(4) Grandson

35. B is the brother of C; A is sister of B; E is the brother of D; D is the daughter of C. Who are the cousins of B ?
(1) C and A
(2) A and E
(3) B and E
(4) D and E

36. If Ajit is the brother of the son of Sethi's son, what is the relationship between Ajit and Sethi ?

(1) Cousin
(2) Grandson
(3) Brother
(4) Nephew

37. Pointing to a man, Rohit said, "His son is my son's uncle". How is the man related to Rohit ?

(1) Brother
(2) Uncle
(3) Father
(4) Grand-father

38. Pointing to a lady, a man said, "The son of her only brother is the brother of my wife". How is the lady related to the man ?

(1) Maternal aunt
(2) Mother-in-law
(3) Mother's sister
(4) Sister of father-in-law

39. Q's mother is sister of P and daughter of M. S is daughter of P and sister of T. How is M related to T ?

(1) Father
(2) Grand mother
(3) Grand father
(4) Either Grand mother or Grand father.

40. Anu told Mani, "The girl met yesterday at the beach was the youngest daughter of the brother-in-law of my friend's mother." How is girl related to Anu's friend ?

(1) Cousin
(2) Niece
(3) Aunt
(4) Friend

Directions :

Questions (41 to 50) :

Choose alternatives as the answer (Series of small letters).

41. bc < b > c = b > ccb

(1) cbcb
(2) bbcb
(3) cbbc
(4) bcbc

42. a > d c abb = a > bc > bc = ab

(1) cbcaaa
(2) bcccab
(3) bccaac
(4) acbabc

43. a = ba = cbaac > aa = ba

(1) ccbb
(2) cabc
(3) cbcb
(4) bbcc

44. aaa > bb = aab > baaa > bb

(1) abab
(2) bbaa
(3) babb
(4) baab

45. m bam > amb = m > a m bam

(1) mbabm
(2) abmab
(3) mabma
(4) ambbm

46. b > abb = abba > ba

(1) bbaab
(2) abbba
(3) baaaa
(4) babab

47. a b b a | b b a a | b a a b | a b b a

(1) ababab

(2) baabba

(3) bbaabb

(4) bababa

48. b b b a a a b b b a a a b b a

(1) ababab

(2) bababa

(3) baabab

(4) abbaba

49. b a a b b a b a a b b a b a a b

(1) abbaba

(2) aabbbb

(3) bbabba

(4) baaaab

50. a b b a a b b b a a b b b a a

(1) abaaba

(2) ababab

(3) babbab

(4) bbaabb

Directions :

I. Questions (51 to 60) :

51. If Z = 2197 and R = 729. How would J be written in that code ?

(1) 216

(2) 124

(3) 512

(4) 125

52. If PRIVATE is coded as 1234567 and RISK is coded as 2398, how is RIVETS coded ?

(1) 234679

(2) 243769

(3) 234769

(4) 234976

53. In a certain code, LAKSHMI is coded as 32. How can SHIVA be coded ?

(1) 18

(2) 16

(3) 19

(4) 20

54. If in a certain language, MADRAS is coded as NBESBT, how is BOMBAY coded in that code ?

(1) CPNCBX

(2) CPNCBZ

(3) CPOCBZ

(4) CQOCBZ

55. If VICTORY is coded as YLFWRUB, how can SUCCESS be coded ?

(1) VXEEIVV

(2) VXFFHVV

(3) VYEEHVV

(4) VYFFIVV

56. If ENGLAND is written as 1234526 and FRANCE is written as 785291, how is GREECE coded ?

(1) 381171

(2) 381191

(3) 832252

(4) 835545

II. Questions (57 to 60)

The number in each question below is to be codified in the following code.

Digit	7	2	1	5	3	9	8	6	4
Letter	W	L	M	S	I	N	D	J	B

57. 184632

(1) MDJBSI

(2) MDJBIL

(3) MDJBWL

(4) MDBJIL

58. 879341

(1) DWNIBS

(2) DWNBIM

(3) DWNIBM

(4) NDWBIM

59. 64928

(1) JBNLD

(2) JBLND

(3) BJNLD

(4) DBNLS

60. 23549

(1) LISBJ

(2) LISBN

(3) LSINB

(4) LSIMW

Directions :

Questions (61 to 70) :

Find the correct alternatives.

61. AG : IO :: EK : ...

(1) LR

(2) MS

(3) PV

(4) SY

62. ACE : FHJ :: OQS : ...

(1) PRT

(2) RTU

(3) TVX

(4) UWY

63. ACEG : DFHJ :: QSUW : ...

(1) KMND

(2) MNPR

(3) TQST

(4) TVXZ

64. EGIK : FILO :: FHJL : ...

(1) GHMP

(2) GMJP

(3) GJMP

(4) JGPM

65. CAT : DDY :: BIG : ...

(1) CLL

(2) CLM

(3) CML

(4) CEP

66. ODOMETER : MILEAGE :: COMPASS : ...

(1) SPEED
(2) HIKING
(3) NEEDLE
(4) DIRECTION

67. MARATHON : RACE :: HIBERNATION : ...

(1) WINTER
(2) BEAR
(3) DREAM
(4) SLEEP

68. CUP : COFFEE :: BOWL : ...

(1) DISH
(2) SOUP
(3) SPOON
(4) FOOD

69. REPTILE : LIZARD :: FLOWER : ...

(1) PETAL
(2) STEM
(3) DAISY
(4) ALLIGATOR

70. PLAY : ACTOR :: CONCERT : ...

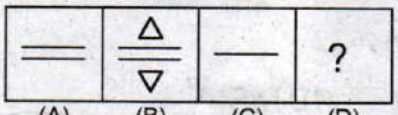
(1) SYMPHONY
(2) MUSICIAN
(3) PIANO
(4) PERCUSSION

Directions :

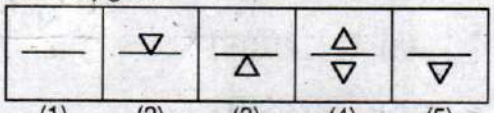
Questions (71 to 80) :

In each of the following questions, figures (A) and (B) have a definite relationship, find out from (1), (2), (3), (4) and (5). The figure that has a similar relationship with figure (C)

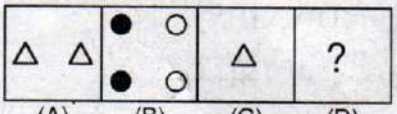
71. *Problem figures*



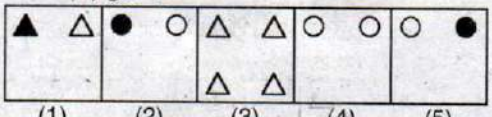
Answer figures



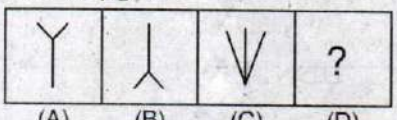
72. *Problem figures*



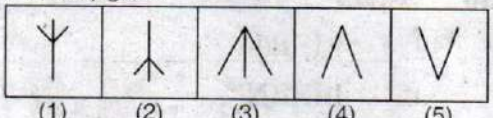
Answer figures



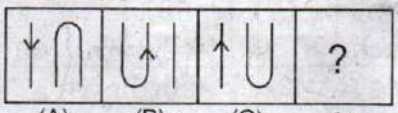
73. *Problem figures*



Answer figures

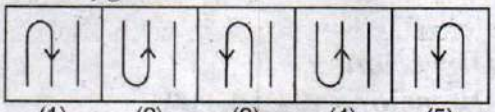


74. *Problem figures*



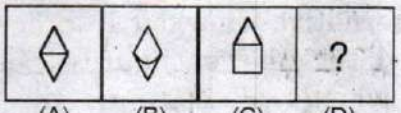
(A) (B) (C) (D)

Answer figures



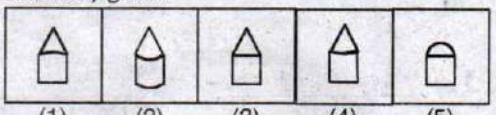
(1) (2) (3) (4) (5)

75. *Problem figures*



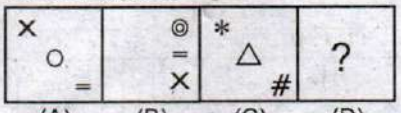
(A) (B) (C) (D)

Answer figures



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

76. *Problem figures*



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

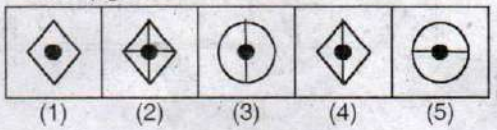
Answer figures

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

77. *Problem figures*

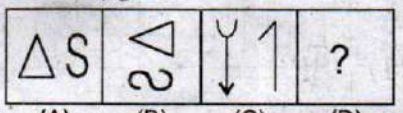
(A) (B) (C) (D)

Answer figures



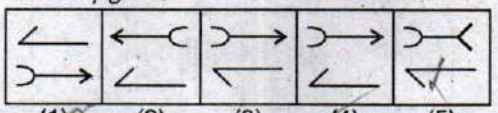
(1) (2) (3) (4) (5)

78. *Problem figures*



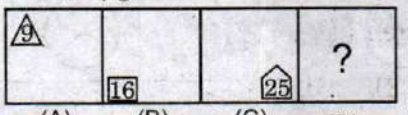
(A) (B) (C) (D)

Answer figures



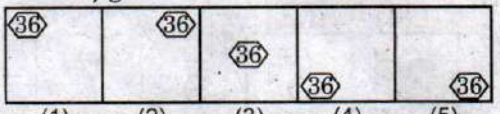
(1) (2) (3) (4) (5)

79. *Problem figures*



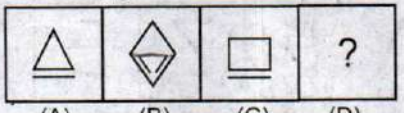
(A) (B) (C) (D)

Answer figures



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

80. *Problem figures*



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

Answer figures

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

Directions :

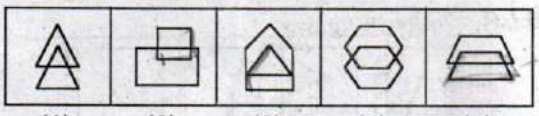
Questions (81 to 90) :

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

81.

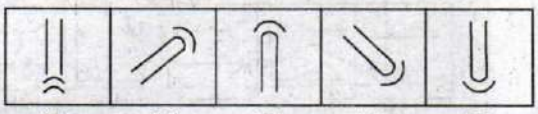
(1) (2) (3) (4) (5)

82.



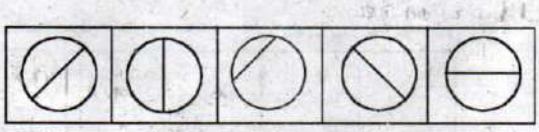
(1) (2) (3) (4) (5)

83.



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

84.



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

85.

23	3	5	7	9

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

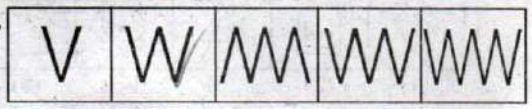
1 6 26 5 14

86.

A	F	Z	E	N

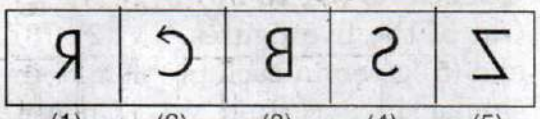
(1) (2) (3) (4) (5)

87.



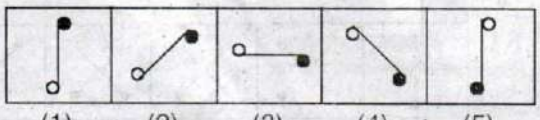
(1) (2) (3) (4) (5)

88.



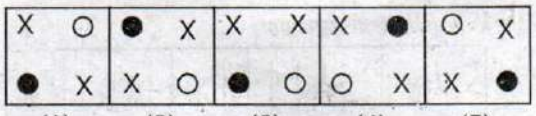
(1) (2) (3) (4) (5)

89.



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

90.



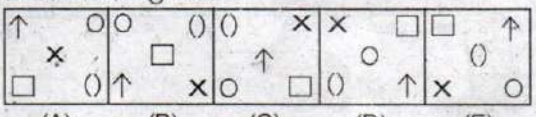
(1) (2) (3) (4) (5)

Directions :

Questions (91 to 100) :

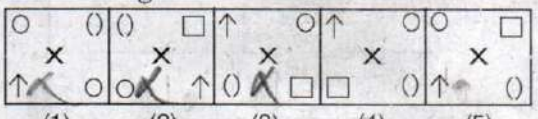
Each of the following questions consists of five figures marked A, B, C, D and E called the problem figures; followed by five alternatives marked 1, 2, 3, 4 and 5 called the answer figures. Select a figure which will continue the same series established by the five problem figures.

91. *Problem Figures*



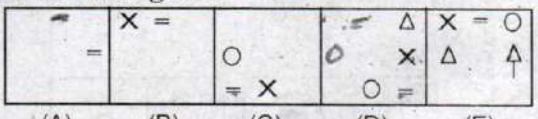
(A) (B) (C) (D) (E)

Answer Figures



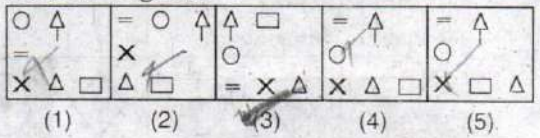
(1) (2) (3) (4) (5)

92. *Problem Figures*



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

Answer Figures



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

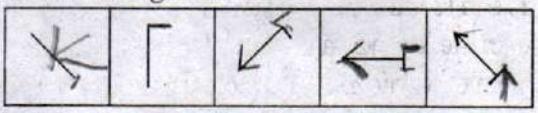
93. *Problem Figures*

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

Answer Figures

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

94. *Problem Figures*



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

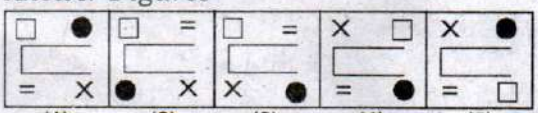
Answer Figures

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

95. *Problem Figures*

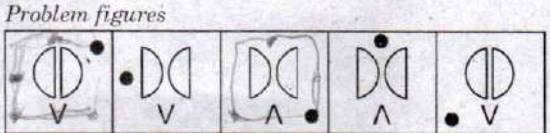
(A) (B) (C) (D) (E)

Answer Figures



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

96. *Problem figures*

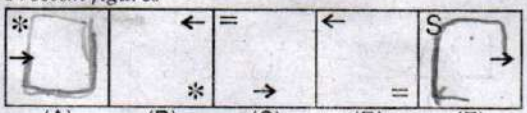


(A) (B) (C) (D) (E)

Answer figures

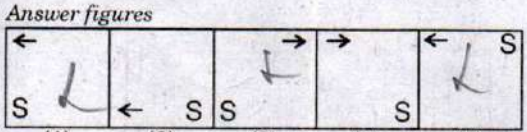
(1) (2) (3) (4) (5)

97. *Problem figures*



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

Answer figures



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

98. *Problem figures*

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

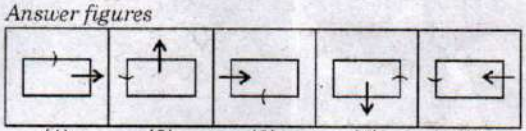
Answer figures

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

99. *Problem figures*

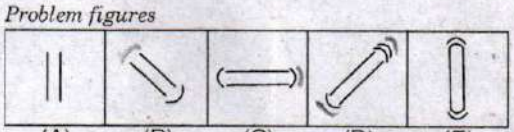
(A) (B) (C) (D) (E)

Answer figures



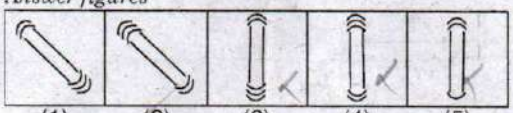
(1) (2) (3) (4) (5)

100. *Problem figures*



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

Answer figures



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

(Space For Rough Work)

Total No. of Printed Pages : 24 **Session : EVENING** **NTSE(E)**

Medium : ENGLISH *Roll No.* 4 6 1 9 1 2 0 7 0 3 3

NTSE - NOVEMBER, 2018

SCHOLASTIC APTITUDE TEST (SAT)

Time : 120 Minutes 100 Marks

SCHOLASTIC APTITUDE TEST : Session-II

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. All questions carry **one** mark each.

3. Since **all** questions are **compulsory**, do not try to read through the whole question paper before beginning to answer it.

4. Begin with the first question and keep trying one question after another till you finish all three parts.

5. 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.

6. 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.

7. The blank pages are provided for rough work at the end of each part.

8. REMEMBER, YOU HAVE TO SHADE ANSWERS ON A SEPARATE OMR SHEET PROVIDED.

9. 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 one given for the corresponding question in the booklet.

10. Now turn to the next page and start answering the questions.

11. After the examination, you should hand over the OMR sheet to the Invigilator of the room.

12. 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.

EVENING SESSION

SCHOLASTIC APTITUDE TEST (SAT)

(Q. Nos. 1 to 100)

Max. Marks : 100

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

(1)	Physics	1 to 13 Questions	13 Marks
(2	Chemistry	14 to 26 Questions	13 Marks
(3)	Biology	27 to 40 Questions	14 Marks
(4)	Mathematics	41 to 60 Questions	20 Marks
(5)	History	61 to 75 Questions	15 Marks
(6)	Geography	76 to 90 Questions	15 Marks
(7)	Political Science	91 to 95 Questions	05 Marks
(8)	Economics	96 to 100 Questions	05 Marks

PHYSICS

1. The radius of curvature of a spherical mirror is 20 cm. What is its focal length ?
   (1) 10 cm
   (2) 15 cm
   (3) 25 cm
   (4) None

2. There is an object infront of convex mirror at a distance of 5 cm. If its focal length is 10 cm, then its magnification is .....
   (1) 0.44 cm
   (2) 0.66 cm
   (3) 0.88 cm
   (4) None

3. The mirror used by dentists is ....
   (1) Convex
   (2) Plane
   (3) Concave
   (4) None

4. The lens maker's formula is ...
   (1) $\frac{1}{n} = (f-1)\left[\frac{1}{R_1} - \frac{1}{R_2}\right]$
   (2) $\frac{1}{R} = (n-1)\left[\frac{1}{f_1} - \frac{1}{f_2}\right]$
   (3) $\frac{1}{f} = (n-1)\left[\frac{1}{R_1} - \frac{1}{R_2}\right]$
   (4) None

5. Focal length of the plano-convex lens is ...., when its radius of curvature of the surface is R and n is the refractive index of the lens.
   (1) $f = R$
   (2) $f = \frac{R}{2}$
   (3) $f = \frac{R}{(n-1)}$
   (4) $f = \frac{(n-1)}{R}$

6. The ray passing through the ..... of the lens is not deviated.
   (1) Focus
   (2) Optic centre
   (3) Centre of curvature.
   (4) None

7. The size of an object as perceived by an eye depends primarily on ...
   (1) actual size of the object.
   (2) distance of the object from the eye.
   (3) aperture of the pupil.
   (4) size of the image formed on the retina.

8. The process of re-emission of absorbed light in all directions with different intensities by the atom or molecule is called ...
   (1) Scattering of light.
   (2) Dispersion of light.
   (3) Reflection of light.
   (4) Refraction of light.

9. The value of 1 KWH in Joules is ...
   (1) 2.6×10^6 Joules.
   (2) 1.6×10^6 Joules.
   (3) 3.6×10^6 Joules.
   (4) None

10. If the resistance of your body is 100000 Ω, what would be the current that flows in your body when you touch the terminals of a 12V battery ?
   (1) 10×10^{-5} A
   (2) 14×10^{-5} A
   (3) 12×10^{-5} A
   (4) None

11. Which of the following converts electrical energy into mechanical energy ?
   (1) Motor
   (2) Battery
   (3) Generator
   (4) Switch

12. The S.I. unit of magnetic field induction is .....
   (1) Weber/m^2
   (2) Tesla
   (3) Weber - m^2
   (4) Weber

13. If an object is moving with constant velocity, then the motion is ....
   (1) Speed.
   (2) Uniform acceleration.
   (3) Uniform motion.
   (4) Non-uniform motion.

CHEMISTRY

14. Change of solid into vapour without changing into liquid is known as ...
    (1) Evaporation
    (2) Vapourisation
    (3) Sublimation
    (4) Boiling

15. If water turns into ice at a pressure of atmosphere at 0°C, then the temperature of this system in this process.
    (1) Decreases.
    (2) Increases.
    (3) Remains same.
    (4) None

16. The physical mixtures of two substances is called ...
    (1) Mixture
    (2) Compound
    (3) Colloid
    (4) Suspension

17. The phenomenon of scattering of a visible light by the particle of a colloid is known as ...
    (1) Tyndall effect
    (2) Chromatography
    (3) Sublimation
    (4) Reflection

18. Chemical formula of Aluminium Sulphate is ...
    (1) Al_2SO_4
    (2) $(Al_2)_2(SO_4)_3$
    (3) $Al_2(SO_4)_3$
    (4) $AlSO_4$

19. The other name of Tungsten ...
    (1) Natrium
    (2) Kalium
    (3) Wolfram
    (4) Cuprum

20. Hydraulic Jack works on the principle of ...
    (1) Archimedes principle.
    (2) Buoyancy.
    (3) Pascal's principle.
    (4) Air pressure.

21. The electronic configuration of Sodium is ...
    (1) 2, 8
    (2) 8, 2, 1
    (3) 2, 1, 8
    (4) 2, 8, 1

22. Deuterium and Tritium are the isotopes of ....
    (1) Nitrogen
    (2) Oxygen
    (3) Hydrogen
    (4) Helium

23. Colour of Silver bromide is ...

(1) Red

(2) Silver

(3) Light yellow

(4) Blue

24. Which one of the following types of medicines is used for treating indigestion ?

(1) Antibiotic

(2) Analgesic

(3) Antacid

(4) Antiseptic

25. Acid rain occurs, when pH value of rain water is less than ...

(1) 6.5

(2) 5.6

(3) 7.2

(4) 2.7

26. Formula of Bleaching powder ...

(1) $CaSO_4$

(2) Na_2CO_3

(3) $NaHCO_3$

(4) $CaOCl_2$

BIOLOGY

27. During the Cellular respiration, one molecule of Glucose is first broken down into two molecules of ....
(1) Acetic acid
(2) Pyruvic acid
(3) Lactic acid
(4) Sulphuric acid

28. When two individuals are similar in external appearance but different in their genetic makeup, these are called ...
(1) Allele
(2) Dominant
(3) Homozygous
(4) Heterozygous

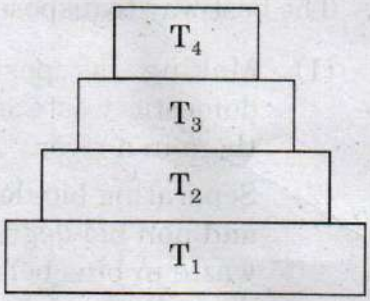
29. Villi present on the inner lining of the intestinal wall ...
(1) secretes enzymes for digestion.
(2) secretes hormones.
(3) decreases the surface area for absorption.
(4) increases the surface area for absorption.

30. Which of the following are not examples of analogous structures ?
(1) Wings of bat and butterfly.
(2) Wings of bat and forelimbs of cattle.
(3) Thorn and spine.
(4) Tendril of Lathyranthus and tendril of Gloriosa.

31. What will be the genotypic ratio of the cross between Rr and Rr ?
(1) 1 : 1
(2) 3 : 1
(3) 1 : 2 : 1
(4) 1 : 1 : 1

32. Which is the key intermediate compound linking glycolysis to Kreb's cycle ?
(1) Mallic acid
(2) Acetyl-CoA
(3) Pyruvic acid
(4) Citric acid

33. In the given figure, various tropic levels are shown in a pyramid. At which tropic level is maximum energy available ?



(1) T_4
(2) T_2
(3) T_1
(4) T_3

34. The part of the human body which is called as Second Brain, is ...
(1) Small intestine
(2) Large intestine
(3) Stomach
(4) Mouth

35. Stock and Scion are attached, which type of characters will come into the offspring ?

(1) Characters of Scion.

(2) Characters of Stock.

(3) Special desired characters.

(4) Cannot expect.

36. Which of the following is not a part of female reproductive system in human beings ?

(1) Ovary

(2) Uterus

(3) Vas deferens

(4) Fallopian Tube

37. The best way to dispose waste is ...

(1) Making a paste of all domestic waste and putting them in a river.

(2) Separating bio-degradable and non bio-degradable waste in bins before disposing.

(3) Throw the waste on roadside.

(4) Dumping all domestic waste in litter bin.

38. Which of the following is the correct sequence of events of sexual reproduction in a flower ?

(1) Pollination, Fertilization, Seedling, Embryo.

(2) Seedling, Embryo, Fertilization, Pollination.

(3) Pollination, Fertilization, Embryo, Seedling.

(4) Embryo, Seedling, Pollination, Fertilization.

39. Conservation of wildlife includes ...

(1) Preventing poaching of animals.

(2) Construction of National Parks, Sanctuaries.

(3) Ban on trading endangered species.

(4) All of the above.

40. What is the breath rate in human beings ?

(1) 5 - 6 times / minute.

(2) 15 - 18 times / minute.

(3) 40 - 45 times / minute.

(4) 70 - 80 times / minute.

MATHEMATICS

41. Let x be real number such that $x^3 + 4x = 8$, then the value of $x^7 + 64x^2$ is ...

(1) 136

(2) 146

(3) 128

(4) 156

42. If $10^{2017} - 2017$ is expressed as integer, what is the sum of its digits?

(1) 18,144

(2) 17,468

(3) 16,466

(4) 18,564

43. If $P(x) = x^4 + ax^3 + bx^2 + cx + d$, $a, b, c, d \in z$ and $P(1) = P(2) = P(3) = 0$, then the value of $P(4) + P(0)$ will be ....

(1) – 12

(2) 24

(3) 16

(4) 18

44. If $3^9 + 3^{12} + 3^{15} + 3^n$ is a perfect cube (of an integer) where $n \in N$, then find the value of n.

(1) 18

(2) 14

(3) 16

(4) 17

45. If $a + b + c = 1$, $a^2 + b^2 + c^2 = 9$ and $a^3 + b^3 + c^3 = 1$, then the value of $\frac{1}{a} + \frac{1}{b} + \frac{1}{c}$ is ....

(1) 4

(2) $\frac{1}{2}$

(3) 1

(4) $\frac{1}{4}$

46. A finite sequence of 16 numbers such that ....

(i) it reads the same from left to right as right to left.

(ii) the sum of any 7 consecutive terms is –1.

(iii) the sum of any 11 consecutive terms is +1, then the sum of 16 numbers in the sequence is ....

(1) 142

(2) 56

(3) 24

(4) 8

47. Compute

$$\frac{\text{L.C.M. of } (1, 2, 3, \ldots\ldots, 200)}{\text{L.C.M. of } (102, 103, 104, \ldots\ldots, 200)}$$

(1) 101

(2) 106

(3) 184

(4) 176

48. If $x + \frac{1}{x} = 5$, then $\frac{2x}{3x^2 - 5x + 3}$ is equal to .....

(1) 5

(2) $\frac{1}{5}$

(3) 3

(4) $\frac{1}{3}$

49. If every side of a triangle is doubled, then increase in the area of the triangle is .....

(1) $100\sqrt{2}\%$

(2) 200%

(3) 300%

(4) 400%

50. When $x^3 + 3x^2 - kx + 4$ is divided by $x - 2$, the remainder is $2k$, then the value of k is .....

(1) 6

(2) -6

(3) 2

(4) -2

51. Numbers 50, 42, 35, $2x+10$, $2x - 8$, 12, 11, 8 are written in descending order and their median is 25 find x.

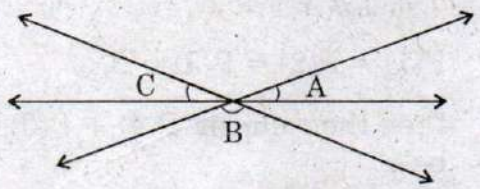
(1) 20

(2) 25

(3) 12

(4) 11

52. The value of angle B will be in the given figure, if $\angle A = 50°$, $\angle C = 60°$.



(1) 60°

(2) 50°

(3) 70°

(4) 80°

53. If $\sin^3\theta + \cos^3\theta = 0$,

then θ will be .....

(1) $60°$

(2) $45°$

(3) 0

(4) $-45°$

54. The measures of the perpendiculars drawn from a point situated inside an equilateral triangles are 6 cm, 8 cm and 10 cm. The area of the triangle will be .....

(1) $256\sqrt{3}$

(2) $192\sqrt{3}$

(3) $64\sqrt{3}$

(4) $3\sqrt{3}$

55. There is a rhombus of one side 17 cm and one diagonal 30 cm. The area of the rhombus will be ...

(1) $60\ cm^2$

(2) $240\ cm^2$

(3) $305\ cm^2$

(4) $750\ cm^2$

56. The points A, B and C be on a circle in such a way that $\angle ABC = 52°$ and $\angle ACB = 78°$. The measure of the angle subtended at the centre by the arc BC will be ...

(1) $26°$

(2) $50°$

(3) $100°$

(4) $115°$

57. If $x = 7 - 4\sqrt{3}$, the value of $x^2 + \frac{1}{x^2}$ will be .....

(1) 146

(2) 148

(3) 194

(4) 196

58. If θ is in the first Quadrant and $\cos\theta = \frac{3}{5}$, then the value of $\frac{5\tan\theta - 4\,\text{cosec}\,\theta}{5\sec\theta - 4\cot\theta}$ will be .....

(1) $\frac{5}{16}$

(2) $\frac{5}{34}$

(3) $-\frac{5}{34}$

(4) $-\frac{5}{16}$

59. If $\log_4 7 = x$, then the value of $\log_7 16$ will be ....

(1) x^2

(2) $2x$

(3) x

(4) $\frac{2}{x}$

60. The sum of the integers from 1 to 100 that are divisible by 2 or 5 is ...,

(1) 2550

(2) 3050

(3) 3550

(4) 3600

HISTORY

61. Find the wrong one about hockey.

(1) Modern hockey evolved from traditional games once current in Britain.

(2) The first hockey club in India was started in Calcutta in 1885-1886.

(3) Between 1928 and 1956, India won gold medals in six consecutive Olympic Games.

(4) None of the above.

62. In which princely state, women of the shanar caste were attacked by upper caste nairs for wearing a cloth across their upper bodies ?

(1) Jammu & Kashmir

(2) Rajaputana

(3) Mysore

(4) Travancore

63. Which U.S. president called upon farmers "plant more wheat, wheat will win the war" ?

(1) Woodrow Wilson

(2) Franklin Roosevelt

(3) James Munroe

(4) Harry S. Truman

64. Match the following.

	Pastoralists	*State*
(1)	Monpas	*(i)* Gujarat
(2)	Dhangars	*(ii)* Rajasthan
(3)	Raikas	*(iii)* Maharashtra
(4)	Maldharis	*(iv)* Arunachal Pradesh.

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

65. Which treaty recognised the independence of thirteen colonies ?

(1) Treaty of Paris, 1783.

(2) Treaty of Philadelphia, 1788.

(3) Treaty of Rome, 1791.

(4) Treaty of Vienna, 1803.

66. Find out the incident that is not related to the unification of Germany.

(1) Formation of Zollverein.

(2) The Schleswig-Holstein question.

(3) Civil war

(4) Ems Telegram

67. Who are known as "Boers" ?

(1) Dutch farmers settled in South Africa.

(2) Norwegian farmers settled in China.

(3) Spanish farmers settled in Chile.

(4) Portuguese farmers settled in Mexico.

68. "That Smallpox signalled God's blessings for the colonist, the natives were near all dead of small pox, so as the lord had cleared our tittle to what we possess." Which Massachusetts Bay colony Governor wrote this to the England Government ?

(1) George Popham

(2) Ralegh Gilbert

(3) John Winthorp

(4) William Bradfort

69. The main reason for Gandhiji calling off Disobedience Movement is ...

(1) Chauri chaura incident.

(2) Poona pact.

(3) Gandhi - Irwin pact.

(4) Arrival of Simon Commission.

70. Which among the following is a main draw back in formation of Simon Commission ?

(1) The Commission did not have a single Indian member.

(2) The Commission constituted of Military officers.

(3) It was more expensive.

(4) All the above.

71. The Royal Indian Navy Revolt took place in the year ...

(1) 1942

(2) 1944

(3) 1946

(4) 1940

72. We consider it natural that these two worlds remain distinct what the man gives in courage on the battle field, the gives in eternal self sacrifice, in eternal pain and suffering. Every child that women bring to the world is a battle, a battle waged for the existence of her people." Who said this addressing women ?

(1) Otto von Bismarck

(2) Adolf Hitler

(3) Benito Mussolini

(4) General Franco

73. Who founded the Vietnamese Communist party ?

(1) Chinh Phu Ngam

(2) Gia Huan Ca

(3) Ho Chi Minh

(4) Bao Dai

74. Name the England poet, who organised funds and later went to fight the war for the independence of Greece, which was a part of Ottoman empire ?

(1) Emily Bronte

(2) Lord Byron

(3) John Clare

(4) Rudyard Kipling

75. Match the following.

	(A)		(B)
(1)	Mechanical Repair	*(i)*	James Hargreaves
(2)	Spinning Jenney	*(ii)*	Cyrus Mc Cormick
(3)	First modern Roads	*(iii)*	Brindley
(4)	Modern Canals	*(iv)*	John Loudon Mc Adam

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

GEOGRAPHY

76. In which island of Lakshadweep, a bird sanctuary is located ?
(1) Androtт island
(2) Pitti island
(3) Minicoy island
(4) Agatti island

77. In which plain region, Dudhwa National Park is located ?
(1) Bhabar
(2) Bhangar
(3) Khader
(4) Terai

78. Match the following.

	A	B
(a)	Lake Sambhar	*(i)* Largest fresh water lake in India.
(b)	Lake Wular	*(ii)* Back waters of Bhakra Nangal Project
(c)	Guru Gobind Sagar	*(iii)* Water is used for producing salt
(d)	Ox-bow Lakes	*(iv)* Formed by Meandering river.

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

79. Arrange the onset of south west monsoons in an order, where they appear first ?
(1) Mangalore, Daman, Surat, Vadodara.
(2) Daman, Surat, Mangalore, Vadodara.
(3) Mangalore, Surat, Daman, Vadodara.
(4) Vadodara, Daman, Mangalore, Surat.

80. The roots of which plants are submerged under water ?
(1) Tropical evergreen forests.
(2) Deciduous forests.
(3) Thorny forests.
(4) Mangroove forests.

81. In India, most migrations have been from rural to urban areas because of the push factor in rural areas. Which among these is not a push factor ?
(1) Unemployment.
(2) Adverse conditions of poverty.
(3) Seasonal employment.
(4) Better living conditions.

82. Consider the following statements about population.
(a) Internal migration does not change the size of the population.
(b) Migration among women is mainly due to marriages.
(c) The government of India initiated the comprehensive family planning programme in 1952.
(d) The highest annual growth rate was recorded in the decade 1981.

Which of the statements given above is / are correct.
(1) *a* only.
(2) *a* and *b*.
(3) *a*, *b*, *c*.
(4) *a*, *b*, *c*, *d*.

83. Coriolis force is maximum at ...
(1) the Equator.
(2) the Tropics.
(3) the Arctic and Antarctic Circles.
(4) the Poles.

84. North South Corridor Project does not pass through ...
(1) Jhansi
(2) Nizamabad
(3) Bangalore
(4) Indore

85. Which of these minerals is used in hardening of steel ?
(1) Cooking coal
(2) Lime stone
(3) Manganese
(4) Mica

86. Find the wrong one about maize crop.
(1) Maize is a Kharif crop but some states like Bihar grow it in Rabi also.
(2) It is used both as food and fodder.
(3) Major maize producing states are Karnataka and Uttar Pradesh.
(4) Maize is the third most important food crop with respect to area and production.

87. Salal project is located on river ...
(1) Chenab
(2) Jhelum
(3) Beas
(4) Ghagra

88. In which of the following states is / are black soil found ?
(1) Maharashtra
(2) Madhya Pradesh
(3) Telangana
(4) All of the above.

89. Find out the writings which is not related to conservation of resources.
(1) Small is beautiful.
(2) Our common future.
(3) The silent spring.
(4) None of the above.

90. Find out the wrong one about Tiger Reserves of India.
(1) Manas
Tiger Reserve - Assam
(2) Bandhavgarh
National Park - Maharashtra
(3) Periyar
National Park - Kerala
(4) Corbett
National Park - Uttaranchal.

POLITICAL SCIENCE

91. Which of the following statements is wrong about today's world ?

(1) The relationship between different countries has become more democratic than ever before.

(2) In more and more countries, rulers are being elected by the people.

(3) There are no military rulers in the world.

(4) None of the above.

92. Which of the following statements is not a character of democratic elections ?

(1) Everyone should have one vote and every vote should have equal value.

(2) Elections must be held regularly after every few years.

(3) The candidate preferred by the people should get elected.

(4) The contestant can canvas on the grounds of caste.

93. Match the following.

A		B	
(a)	Founder of Republican party of India.	*(i)*	Shyam Prasad Mukherjee.
(b)	Founder president of Bharatiya Jana Sangh.	*(ii)*	Jaipal Singh
(c)	Founder of the Swatantra party.	*(iii)*	B.R. Ambedkar
(d)	Founder of Jharkhand party.	*(iv)*	K.M. Munshi

Codes

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

94. Who was the president of the Constituent Assembly ?

(1) Pt. Jawaharlal Nehru
(2) Dr. Rajendra Prasad
(3) Dr. BR Ambedkar
(4) K.M. Munshi

95. The Rajya Sabha can have a maximum strength of ...

(1) 250
(2) 275
(3) 300
(4) 325

ECONOMICS

96. Largest income under indirect taxes is obtained from .....

(1) Sales Tax

(2) Excise Tax

(3) Customs Duty

(4) Service Tax

97. Which of the following statements is wrong about food grains in India ?

(1) The production of the food grains has increased five times over the last five decades.

(2) Today a farmer is able to produce nearly 800 kgs of food grains per acre of cultivable land.

(3) A large stock of food grains has also built up with the government through Central Warehousing Corporation.

(4) None of the above.

98. A person is said to be over weight if the body mass index is more than ...

(1) 18

(2) 22

(3) 16

(4) 25

99. Which of the following neighbouring countries has better performance in terms of expected years of schooling than India ?

(1) Bangladesh

(2) Srilanka

(3) Pakistan

(4) All the above

100. Find out the wrong statement.

(1) Employment in the service sector has not increased to the same extent as production.

(2) Most of the workers in the organised sector enjoy the job security.

(3) The activities in primary, secondary and tertiary sectors are interdependent.

(4) None of the above.

(Space for Rough Work)

(Space for Rough Work)

(Space for Rough Work)