

**JHARKHAND ACADEMIC COUNCIL**  
**RANCHI, JHARKHAND**  
**NATIONAL TALENT SEARCH EXAMINATION (Stage-I), 2018-19**  
**Class X**  
**MENTAL ABILITY TEST**

*Time : 120 Minutes*

*Max. Marks : 100*

**INSTRUCTIONS TO CANDIDATES**

Read the following instructions carefully before you answer the questions. Answers are to be given on a separate **O.M.R.** Answer-Sheet.

- Please write your Roll No. very carefully (only one digit in one Box) as given on your admission card. Please see that no Box is left unfilled and even zeros appearing in the Roll N. are correctly transferred to the appropriate Box on the booklet and on the answer- sheet. For example, a student appearing from Ranchi and Roll Number ..... will make in the boxes as under:

Roll NO											
---------	--	--	--	--	--	--	--	--	--	--	--

For all subsequent purposes your Roll No. shall remain the same as given on the admission card.

- This Question Paper consists of 100 questions.
- All questions carry one mark each.
- A blank page has been provided for rough-work at the end of the booklet.
- Remember you have to mark your answers on a separate O.M.R. Answer-Sheet as per instructions given below
- Answer to each question is to be indicated by darkening the circle by blue or black ball pen only, the number of the correct alternative in the answer-sheet from amongst the ones given for the corresponding question in the test booklet. The use of pencil is not allowed.
- In case of any dispute arising out of the variation in translation, English version of the question paper will be considered as final.**

**N.B.:** *Do no write anything except the Roll Number in the Booklet.*

**MENTAL ABILITY TEST**

1. Complete the series.  
 Z1A, X2D, V6G, T21J, T21J, R88M, P445P,?  
 (1) N22676S                      (2) N2676T                      (3) T2670N                      (4) T2676N

2. Which of the following can replace the missing number in place of question mark ?

1	2	3
6	7	8
12	14	?

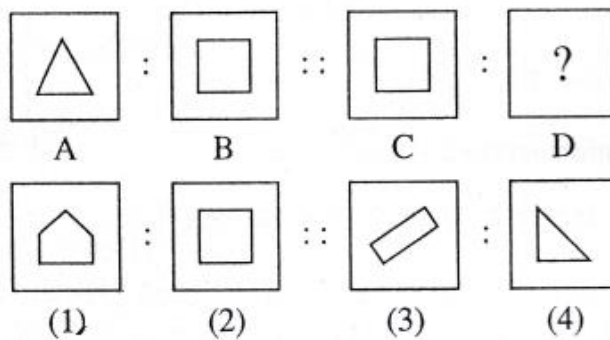
- (1) 12                      (2) 22                      (3) 23                      (4) 24

**Q(3-5)** Read the following information and answer the questions based on it.

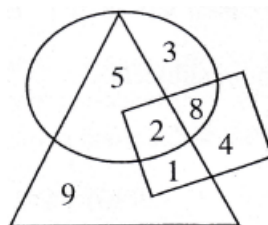
There were five teachers in a school. 'A' and 'B' taught Hindi and English both. 'C' and 'B' taught English and Geography both. 'D' and 'A' taught Math and Hindi both. 'E' and 'B' were the teachers of History and French.

3. Which teacher taught the maximum subjects.  
 (1) A                      (2) B                      (3) C                      (4) E
4. Which subject was taught by more than two teachers.  
 (1) French                      (2) Hindi                      (3) History                      (4) Geography
5. Among the teachers who taught less than two subjects.  
 (1) A                      (2) B                      (3) D                      (4) None
6. Shyam travel 5 km . in the East direction and then turns left and travels is 3 km . He again turns right and travels 4 km. After that he turns back direction. Now in which direction is he travelling.  
 (1) East                      (2) West                      (3) North                      (4) South

7. In the following Questions. There are four figures A, B, C and D called analogous figures. A and B are related in the same way as C and D are related. Which figure out of four given options will come in place of figure D ?



**Q 8-10** Study the following diagram to answer the following questions.

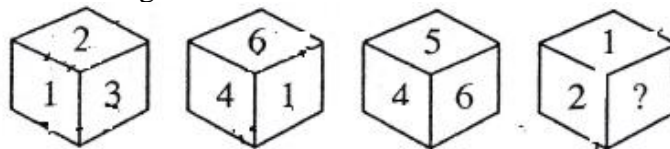


8. Find out the number that lies inside all the figure.  
 (1) 2 (2) 5 (3) 9 (4) None
9. What are the numbers that lies inside any two figures ?  
 (1) 2,1 (2) 5,1 (3) 5,9 (4) 9,1
10. Find out the number that lies only inside the triangle figure.  
 (1) 1 (2) 2 (3) 5 (4) 9
11. Which letters replaces the Question mark ?  
 AZ, GT, MN, ?, YB  
 (1) JH (2) SH (3) SK (4) TS

**Q 12-13** Identify the missing number in the following sequence?

12. 13, 32, 24, 43, 35, ?, 46, 65, 57, 76  
 (1) 45 (2) 52 (3) 54 (4) 55
13. 2, 8, 18, 32, 50  
 (1) 72, (2) 100 (3) 98 (4) 96
14. If Handker CHIEF is coded as FEIHCRRHANDKE then PERMEABILITY is coded as ?  
 (1) BILITYPERMEA (2) YTLIBAEEMREP (3) BILITYAEMERP (4) YTLIBPERMEA
15. 'O' is smaller than 'P' but bigger than 'Q'. 'R' is smaller than 'S' but bigger than 'T'. 'Q' is bigger than 'S'. Who is the biggest among thme?  
 (1) Q (2) T (3) P (4) R
16. 'x+y' means 'x' is the mother of 'y', 'x-y' is the brother of 'y', 'x÷y' means 'x' is the father of 'y', 'x×y' means 'x' is the sister of 'y'. Then which of the following given options means 'A' is the uncle of 'B'  
 (1)  $A-M+N÷B$  (2)  $B÷M+N×A$  (3)  $A+M-N×B$  (4)  $A-M×N÷B$

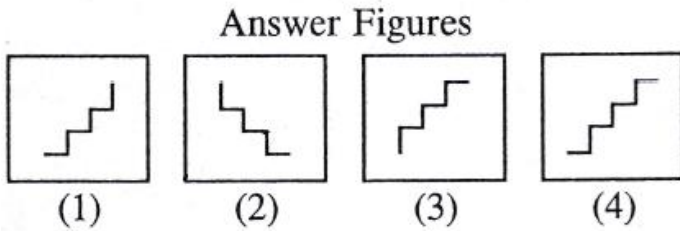
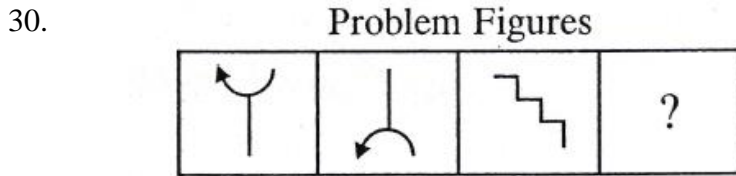
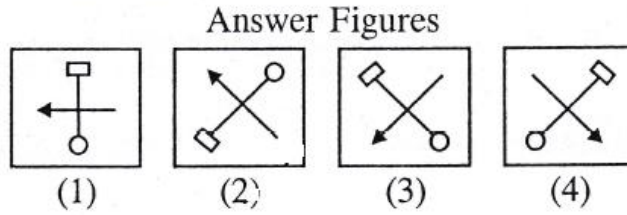
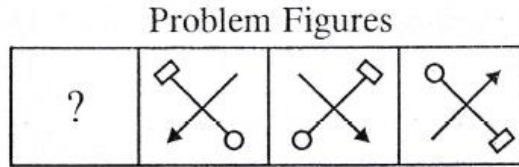
17. Find the missing number of the dice given below.



- (1) 4 (2) 6 (3) 5 (4) None of these
18. If  $841 = 3$ ,  $633 = 5$ ,  $425 = 7$ , then  $217 = ?$   
 (1) 6 (2) 7 (3) 8 (D) 9
19. Three words are given in this question which have something in common among themselves. Out of the four given alternatives, choose the most appropriate description about these three words.  
 DELHI: AGRA: MATHHTURA  
 (1) They have been the Capitals of the Country.  
 (2) They have exquisite temples.  
 (3) They have religious background.  
 (4) They are situated on the bank of river Jamuna.

20. In the given question, four pairs of words are given out of which three pairs of words bears a certain relationship. Choose the pair in which the words are differently related?  
(1) Shoe : Leather (2) Iron : Axe  
(3) Table : Wood (4) Shirt : Fabric
- 21-23 In each of the following questions, four group of words/letters are given. Three of them are alike in some manner, while one is different. Find the odd-one-out and mark it on your answer-sheet as directed.
21. (1) Medium (2) Average (3) Mediocre (4) Terrible
22. (1) ZGPKU (2) FRGSP (3) NEXFL (4) LANCP
23. (1) FLRXD (2) ECGSY (3) JPVBH (4) NTZFL
- 24-28 Read the following information carefully and answer the question given below,  
(i) A, B, C, D, E, F and G are sitting around a circle and facing at the centre.  
(ii) 'G' is second to the left of 'C', who is to the immediate left of 'F'  
(iii) 'A' is third to the left of 'E'  
(iv) 'B' is between 'D' and 'E'
24. Which of the following is false?  
(1) 'A' is fourth to the right of 'E'  
(2) 'G' is to the immediate right of 'D'.  
(3) 'F' is fourth to the right of 'D'.  
(4) 'B' is to the immediate left of 'D'.
25. Which of the following is true?  
(1) 'C' is fourth to the right of 'B'.  
(2) 'A' is to the immediate right of 'G'.  
(3) 'D' is second to the left of 'E'.  
(4) 'B' is to the immediate left of 'D'
26. Which of the following pairs is the first person sitting to the immediate left of the second person?  
(1) BE (2) CA (3) GD (4) DG
27. Which of the following has the middle person sitting between the remaining two?  
(1) FCE (2) EFB (3) DEB (4) None of these
28. Which of the following is the position of 'F' ?  
(1) Fourth to the right of 'D'  
(2) To the immediate left of 'C'  
(3) Between 'A' and 'E'  
(4) None of these

29-30. Select a suitable figure from the answer figure that would replace the question mark (?)



31. There are 39 students in a class. In sitting arrangement, the position of Suresh is Seventh position before Ashok. If position of Ashok is 17<sup>th</sup> from the last. Then what is the position of Suresh from the beginning.

- (1) 14<sup>th</sup>                                      (2) 15<sup>th</sup>                                      (3) 16<sup>th</sup>                                      (4) 24<sup>th</sup>

32. Five years ago a man was seven times as old as his son. Five years hence, the father will be three times as old as his son. Find their present ages.

- (1) 10 yrs., 45yrs.                      (2) 10yrs., 40yrs.                      (3) 12yrs., 40yrs                      (4) 12yrs., 45yrs.

33-38 in the following questions, arrange the given in the sequence in which they occur in the dictionary and then choose sequence and mark it on your answer sheet as directed.

33. A Cresentic                                      B Creeper  
 C Credulous                                      D Crepuscular  
 (1) CBDEA                                      (2) AEDBC                                      (3) EADBC                                      (4) DBCAE

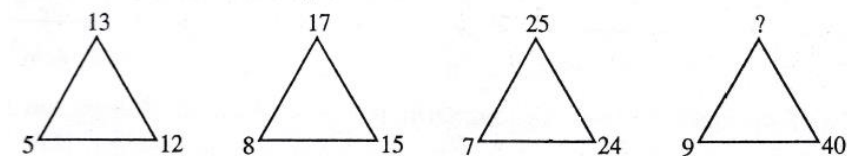
34. A Genitive                                      B Geneticist  
 C Gemini                                      D Gendrame  
 E Geniality  
 (1) ADBCE                                      (2) DBCEA                                      (3) BCDAE                                      (4) AEBCD

35. A Intransitive                                      B Intolerable  
 C Intramundane                                      D Intramural  
 E Introvert  
 (1) BCCEA                                      (2) EADCB                                      (3) BCDAE                                      (4) AEBCD

36. A Louver  
C Lumpish  
E Luculent  
(1) ABDEC (2) EDBAC (3) DEBAC (4) BAECD
37. A Misadvantage  
C Misbegotten  
E Misdemeanor  
(1) ADCBE (2) ACDBE (3) ABCDE (4) CDABE
38. A Genuine  
C Gender  
E General  
(1) DECBA (2) BFCAD (3) CEBDA (4) AEDCB
39. If 'R' means 'T', 'U' means 'R', 'E' means 'T', 'S' means 'P', 'P' means 'U', 'T' means 'S' and 'I' means 'E'. Then how would you write 'PERSUIT'?
- (1) UITPRES (2) UTIPRES (3) UTPPERS (4) UIIPRES
40. Choose the correct water- image of the given words from amongst the alternatives  
UNITED  
(1) UNILED (2) UNILED (3) UNITED (4) UNITED
41. REFLECTION  
(1) REFLECTION (2) REFLECTION (3) REFLECTION (4) REFLECTION
42. A geometrical design has been drawn below. Find out the total number of triangle
- 
- (1) 12 (2) 18 (3) 22 (4) 26
- 43-52 Complete the series
43. Q, N, K, ?, E  
(1) H (2) I (3) J (4) D
44. CG, DI, ?, IP, MU  
(1) HS (2) IK (3) FL (4) EL
45. 1725, 15X4, 13VR, ?, 9RI  
(1) 12SR (2) 11T2 (3) 12TQ (4) 14EL
46. AB, BA, ABD, DBA, PQRS, ?  
(1) SRTQ (2) SRQP (3) TQRS (4) ELGC

47. FLP, INS, LPV, ?  
 (1) ORY (2) QPS (3) QRS (4) PGC

48. Find the number in the position of '?'



- (1) 40 (2) 45 (3) 41 (4) 54

49. Find the next number in the sequence 6, 24, 60, 120,.....

- (1) 140 (2) 210 (3) 240 (4) 180

50. Find the missing number in the series 2, 10, 26, .....,242

- (1) 80 (2) 81 (3) 82 (4) 83

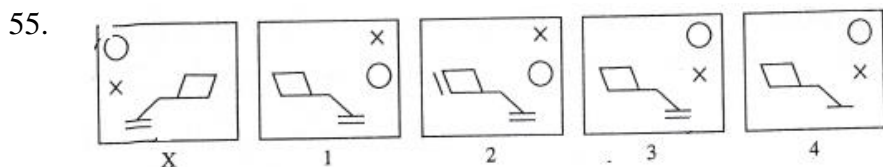
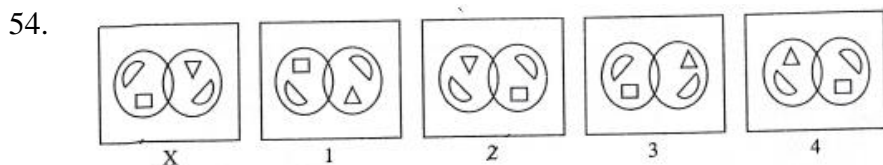
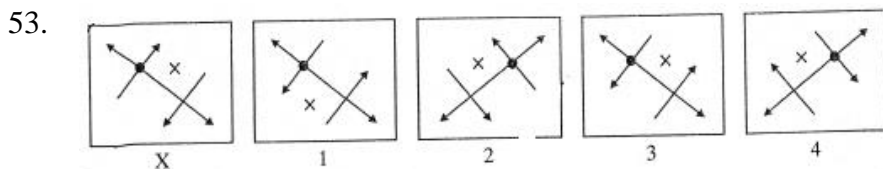
51. 3, 6, 24, 30, 63, 72, ?, 132

- (1) 120 (2) 110 (3) 105 (4) 115

52. 25, 49, 89, 145, 217, ?

- (1) 310 (2) 240 (3) 305 (4) 311

53-55 In each of the following questions, choose the correct mirror- image of the figure (x) from amongst the alternatives 1, 2, 3 & 4 given along with it.



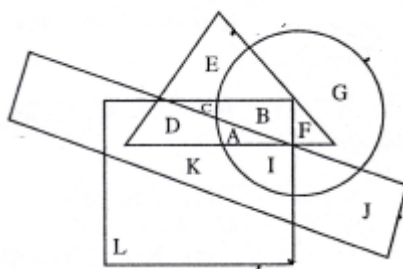
56. In a class Rani ranks 7<sup>th</sup> from the top, Sarita is 7 ranks ahead of Mohena and 3 ranks behind Rani. Vidisha who is 4<sup>th</sup> from the bottom, is 32 ranks behind Mohena. How many students are there in the class?  
 (1) 52 (2) 49 (3) 50 (4) 54

57-63 Read the following information carefully and answer the questions given below:

- (i) In a class of boys and girls, Amar's rank is 12<sup>th</sup> and Meeta's rank is 8<sup>th</sup>.
- (ii) Amar's rank among the boys is 6<sup>th</sup> and Meeta's rank among girls is 3<sup>rd</sup>.
- (iii) In the class Meeta's rank is 52<sup>nd</sup> from the other end.
- (iv) From the other end, Amar's rank among the boys is 26<sup>th</sup>.

57. How many boys are there in the class?  
 (1) 31 (2) 28 (3) 29 (4) 30
58. Which of the following is Meeta's rank among the girls from the other end?  
 (1) 23<sup>rd</sup> (2) 28<sup>th</sup> (3) 26<sup>th</sup> (4) 22<sup>nd</sup>
59. How many boys are there before Meeta?  
 (1) 4 (2) 5 (3) 3 (4) 6
60. How many boys are there between Amar and last rank, (assuming it is a girl) in the class?  
 (1) 25 (2) 47 (3) 22 (4) 35
61. How many boys are there between Amar and Meeta?  
 (1) 1 (2) 2 (3) 3 (4) None of these
62. How many girls are there before Amar?  
 (1) 6 (2) 6 (3) 7 (4) 9
63. How many girls are there between Meeta and Amar?  
 (1) 1 (2) 2 (3) 3 (4) 4
- 64-65 In each of the following question, there are given a combination of letters, followed by four alternatives (1,2,3 & 4). Choose the alternative which most closely resembles the mirror image of the given combination.
64. COLONIAL  
 (1) LAIONLOC (2) JIANOLOC (3) ΓVINOΓOC (4) JAINOJOC
65. EMANATE  
 (1) EWVIVLE (2) ETANAME (3) ETANAME (4) ETAEMAN
66. Ramesh can cover a distance in 1 hr 24 min by covering  $\frac{2}{3}$ <sup>rd</sup> of the distance at 4 mkph and the rest at 5 kmph, the total distance is?  
 (1) 6km. (2) 7 km. (3) 8 km. (4) 5 km.
67. If air is called water, water is called green, green is called dust, dust is called yellow and yellow is called cloud in which of the following does fish live in?  
 (1) Air (2) Water (3) Green (4) Dust
68. Choose the correct arrangement of mathematical signs at the place of \* for equating the given equation.  
 $5 * 5 * 53 * 10$   
 (1)  $x + = x$  (2)  $+ \div x =$  (3)  $+ - x =$  (4)  $+ \div = x$
69. If 'M' means '-', 'Y' means 'x', 'P' means ' $\div$ ' and 'R' means '+' then  
 $60 P 2 R 10 Y 5 M 20 = ?$   
 (1) 60 (2) 100 (3) 50 (4) 40
70. If 'A' means '-', 'B' means 'x', 'C' means ' $\div$ ' and 'D' means '+' then  
 $80 C 4 B 13 A 5 B 6 D 15 C 5 = ?$   
 (1) 263 (2) 200 (3) 233 (4) 333

71-75 In the figure below, circle represents employed people, rectangle represents intelligent, square represents hardworking and triangle represents rural people. Study the figure and match the letters with the questions that follow.

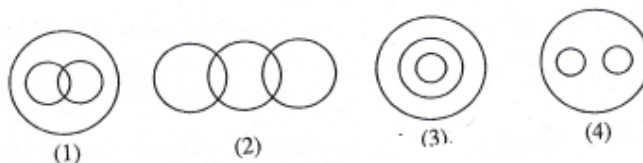


71. Which letter represents the non rural, employed, hardworking and intelligent people?  
 (1) I (2) A (3) C (4) F
72. Which letter represent the non rural employed people who are neither intelligent nor hardworking?  
 (1) A (2) G (3) C (4) I
73. Which letter represents the hardworking non rural people who are neither employed nor intelligent?  
 (1) D (2) K (3) L (4) J
74. Which letter represents employed, hardworking and intelligent rural people ?  
 (1) K (2) D (3) C (4) A
75. Which letter represents the rural hardworking people who are neither employed not intelligent?  
 (1) A (2) F (3) E (4) C

76-78 In each of these questions, four words/numbers are given. Three of them are alike in some manner and one is odd. Find the odd-one from the alternatives given and mark the correct alternatives on the answer sheet.

76. (1) Plateau (2) Influenza (3) Scurvy (4) Night blindness
77. (1) 8110 (2) 1234 (3) 1189 (4) 1234
78. (1) (42,14) (2) (69,23) (3) (108,36) (4) (56,19)
79. If every third letter is removed from English Alphabet from left then which letter will be the ninth letter in new alphabet?  
 (1) K (2) L (3) M (4) N
80. Choose series of letters in series, which makes one sensible word  
 T M H R E O  
 (1) 025314 (2) 504231 (3) 315402 (4) 405312
81. A car travels 432 km. on 48 litres of petrol. How far it travels on 20 litres of petrol.  
 (1) 160 km (2) 180 km. (3) 200 km (4) 240 km
82. Gopal goes 2 km. straight north from his school, then turns right and goes 1 km, again he turns right and goes 1 km. to his house, then in which direction is his school from his hous?  
 (1) North-East (2) South-East (3) North-West (4) South-West

83. Satish reached a meeting place 20 minutes before 8:50 and came to know he came 30 minutes ahead of the person who is late by 40 minute to the meeting, what is the time of meeting?  
 (1) 8:20 (2) 8:10 (3) 8:05 (4) 8:30
84. 12 years old Mahesh is 3 times elder than his brother Ramesh. What will be the age of Mahesh when he will be double the age of Ramesh?  
 (1) 14 (2) 20 (3) 18 (4) 16
85. A is 3 times older than B. Four years back, age of C was twice the age of A. In four years A will be of 31 years, then what is the age of B and C?  
 (1) 10, 48 (2) 9, 46 (3) 9,50 (4) 10, 46
86. If '+' stands for multiplication, 'x' stands for addition, '-' stands for division and '÷' for subtraction, which of the following equation is right  
 (1)  $20-5 \times 60 + 7 = 425$  (2)  $18-9 \times 100+7=701$   
 (3)  $64 -8 \times 121 -11 = 19$  (4)  $121 -10 \times 80 -4 = 30$
87. Select the vein diagram which represents the relationship between the following group?  
 Player, Cricketer, Batsman



88. In this number series how many '4' are there who have even numbers after them and odd numbers before them?  
 7 3 4 5 1 2 4 3 5 4 8 1 7 5 4 6 1 4 7 2 6 7 8 5 2  
 (1) 2 (2) 5 (3) 3 (4) 4

**89-90** In the following questions, a series of number is given which follow certain rules. One of the numbers is missing. Choose the missing number from the alternatives given below and mark it on your answer-sheet as directed.

89. 25 – K – 8 , 23- I – 11, 21 – G – 14, 19- E- 17,.....?  
 (1) 17 – F-19 (2) 19 – C- 17 (3) 17 – C – 20 (4) 20 – D - 17
90. 2, 9, 28,.....?  
 (1) 65 (2) 60 (3) 39 (4) 37

91-92 In the given questions one word is given with the four alternative words. Out of the four alternative words only one word can be made from the given question, find the correct alternative

91. REPUTATION  
 (1) TUTOR (2) PONDER (3) REQUIRE (4) RETIRE

92. ARISTOCRATIC  
 (1) CREATION                      (2) STATIC                      (3) SECRET                      (4) ARREST
93. If 'A' is brother of 'B', 'C' is mother of 'A', 'D' is father of 'C' and 'E' is son of 'B', then what is relation of 'E' to 'A' ?  
 (A) Cousin                      (2) Nephew                      (3) Uncle                      (4) Grandson
94. If code for 'FAMILY' is 316459 and code for 'SISTER' is 747820 then what is the code for 'MISTRESS'  
 (1) 64870277                      (2) 64708277                      (3) 64782077                      (4) 64780277
95. In the given question, four pairs of words are given out of which three pairs of words bears a certain relationship. Choose the pair in which the words are differently related ?  
 (1) Forest – Elephant    (2) River – Crocodile    (3) Passenger- Luggage    (4) Class - Student

**96-100** Please read the paragraph and answer the questions given below –

A and B play cricket and tennis, B and E play' hockey, A and C play volleyball, C and D play hockey and tennis, C and E play football.

96. Who don't play tennis ?  
 (1) B                      (2) D                      (3) E                      (4) C
97. Who play cricket, tennis as well as volleyball?  
 (1) C                      (2) D                      (3) E                      (4) A
98. Who play hockey, cricket as well as tennis?  
 (1) A                      (2) B                      (3) C                      (4) D
99. Who play only hockey and tennis?  
 (1) A                      (2) C                      (3) D                      (4) E
100. Who play volleyball, hockey, tennis and football?  
 (1) A                      (2) C                      (3) D                      (4) B

## ANSWER – KEY

Que	Ans	Que	Ans	Que	Ans	Que	Ans
1	1	26	4	51	3	76	1
2	1	27	4	52	3	77	3
3	2	28	1	53	2	78	4
4	2	29	2	54	2	79	3
5	4	30	1	55	3	80	4
6	2	31	3	56	1	81	2
7	1	32	2	57	1	82	4
8	1	33	1	58	3	83	1
9	2	34	3	59	2	84	4
10	4	35	3	60	1	85	3
11	2	36	4	61	4	86	3
12	3	37	1	62	2	87	3
13	1	38	3	63	3	88	3
14	4	39	2	64	4	89	3
15	3	40	1	65	2	90	1
16	4	41	2	66	1	91	1
17	2	42	2	67	3	92	2
18	4	43	1	68	1	93	2
19	4	44	3	69	1	94	4
20	2	45	2	70	3	95	3
21	4	46	2	71	1	96	3
22	3	47	1	72	2	97	4
23	2	48	3	73	3	98	2
24	4	49	2	74	4	99	3
25	1	50	3	75	4	100	2

**SCHOOL EDUCATION & LITERACY DEPARTMENT  
JHARKHAND, RANCHI**

**AND**

**JHARKHAND ACADEMIC COUNCIL  
RANCHI**

**NATIONAL TALENT SEARCH EXAMINATION (Stage-I) 2018-19**

**Class X**

**SCHOLASTIC APTITUDE TEST**

**4TH NOVEMBER 2018**

Roll No.

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**JHARKHAND ACADEMIC COUNCIL**  
**RANCHI, JHARKHAND**  
**NATIONAL TALENT SEARCH EXAMINATION (Stage-I), 2018-19**  
**Class X**  
**SCHOLASTIC APTITUDE TEST**

*Time : 120 Minutes**Max. Marks : 100***INSTRUCTIONS TO CANDIDATES**

Read the following instructions carefully before you answer the questions. Answers are to be given on a separate O.M.R. Answer-Sheet.

1. Please write your Roll No. very carefully (only one digit in one Box) as given on your admission card. Please see that no Box is left unfilled and even zeros appearing in the Roll No. are correctly transferred to the appropriate Box on the booklet and on the answer-sheet. For example, a student appearing from Ranchi and Roll Number 21198899999 will make entries in the boxes as under :

Roll No.	2	1	1	9	8	8	9	9	9	9	9
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For all subsequent purposes your Roll No. shall remain the same as given on the admission card.

2. This Question Paper consists of 100 questions.
3. All questions carry one mark each.
4. A blank page has been provided for rough-work at the end of the booklet.
5. Remember you have to mark your answers on a separate O.M.R. Answer-Sheet as per instructions given below :
6. Answer to each question is to be indicated by darkening the circle by blue or black ball pen only, the number of the correct alternative in the answer-sheet from amongst the ones given for the corresponding question in the test booklet. The use of pencil is not allowed.
7. In case of any dispute arising out of the variation in translation, English version of the question paper will be considered as final.

**N.B.:** Do not write anything except the Roll Number in the Booklet.

**PHYSICS**

1. A body describes the first half of the total distance with velocity  $v_1$  and the second half with velocity  $v_2$ . The average velocity is :
 

(A) $\frac{v_1 + v_2}{2}$	(B) $\frac{1}{v_1} + \frac{1}{v_2}$
(C) $\frac{v_1 v_2}{v_1 + v_2}$	(D) $\frac{2v_1 v_2}{v_1 + v_2}$
  
2. In a current carrying conductor the motion of electron is :
 

(A) accelerated	(B) decelerated
(C) uniform	(D) drifting
  
3. Which of the following particles will experience maximum force when projected with same velocity in a direction perpendicular to the magnetic field.
 

(A) Electron	(B) Proton
(C) Helium-ion	(D) Lithium-ion
  
4. Magnetic meridian is
  - (A) a point
  - (B) a line along north-south
  - (C) a horizontal plane
  - (D) a vertical plane
  
5. A rainbow is formed because of :
 

(A) scattering	(B) dispersion
(C) total internal reflection	(D) none of these
  
6. The best quality optical fibres are made of :
 

(A) glass fibres	(B) quartz fibres
(C) silica-quartz fibres	(D) costly conducting materials
  
7. An object is placed at a distance of 10 cm. from a convex mirror of focal length 15 cm. The position and nature of the image are :
  - (A) 3 cm. in front of the mirror, real & erect
  - (B) 6 cm. behind the mirror, virtual & erect
  - (C) 9 cm. in front of the mirror, real & inverted
  - (D) 6 cm. behind the mirror, real & inverted
  
8. The Magnetic effect of current was discovered by –
 

(A) Faraday	(B) Oersted
(C) Joule	(D) Ampere
  
9. A thin Prism  $P_1$  with angle  $4^\circ$  and made from glass of refractive index 1.54 is combined with another thin Prism  $P_2$  made from glass of refractive index 1.72 to produce dispersion without deviation. The angle of Prism  $P_2$  is :
 

(A) $5.33^\circ$	(B) $4^\circ$
(C) $3^\circ$	(D) $13^\circ$

10. When a conductor of capacitance  $C$  is charged to potential  $V$ , the total amount of energy present in the field is :

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

(B)  $\frac{1}{2}C^2V$

(C)  $\frac{1}{2}CV^2$

(D)  $CV$

11. Lightning conductor is provided in tall buildings :

(A) to light the building on festive occasions

(B) to make it good conducting

(C) to safeguard it from strong lightning

(D) to make it fool proof

12. A Volt is synonymous with :

(A)  $NC^{-1}$

(B)  $NC$

(C)  $JC^{-1}$

(D)  $JC$

13. According to wave theory the reasons for the colour of light is :

(A) amplitude

(B) velocity

(C) frequency

(D) none of these

**CHEMISTRY**

14. What happens when dilute Hydrochloric acid is added to iron filings?  
(A) Hydrogen gas and iron chloride is produced.  
(B) Chlorine gas and iron hydroxide are produced  
(C) No reaction takes place  
(D) Iron salt and water are produced
15. One of the following is not an organic acid. This is  
(A) Ethanoic acid (B) Formic acid  
(C) Citric acid (D) Carbonic acid
16. The indicators which turn red in acid solution are :  
(A) Turmeric and Litmus  
(B) Phenolphthalein and Methyl Orange  
(C) Litmus and Methyl Orange  
(D) Phenolphthalein and Litmus
17. Fresh milk has a pH of 6. When milk changes into curd. The pH value will  
(A) become 7 (B) become more than 7  
(C) become less than 7 (D) remain unchanged
18. The real bleaching agent present in bleaching powder is  
(A) Oxygen (B) Calcium  
(C) Chlorine (D) Sulphuric acid
19. An element X forms two oxides XO and XO<sub>2</sub>. The oxide XO is neutral but XO<sub>2</sub> is acidic in nature. The element X is most likely to be  
(A) Sulphur (B) Carbon  
(C) Calcium (D) Hydrogen
20. Which of the following pair of reactants can undergo a displacement reaction under appropriate conditions ?  
(A)  $MgSO_4 + Fe$  (B)  $ZnSO_4 + Fe$   
(C)  $MgSO_4 + Pb$  (D)  $CuSO_4 + Fe$
21. The number of protons in one atom of an element X is 8. What will be the number of electrons in its ion X<sup>-2</sup>?  
(A) 8 (B) 9  
(C) 10 (D) 11
22. The number of covalent bonds in Pentane (C<sub>5</sub>H<sub>12</sub>) is  
(A) 5 (B) 12  
(C) 17 (D) 16
23. 14 elements after actinium is called  
(A) Lanthanide (B) Actinide  
(C) D-block elements (D) P-block elements
24. The elements which has the maximum number of valence electron is  
(A) Na (B) P  
(C) Si (D) Al

25. A few drops of ethanoic acid were added to solid sodium carbonate. The observation made was that
- (A) A hissing sound was produced
  - (B) Brown fumes evolved
  - (C) Brisk effervescence occurred
  - (D) A pungent smelling gas was evolved
26. Which of the following set of elements is written correctly in the order of their increasing metallic character?
- |                |                |
|----------------|----------------|
| (A) Mg, Al, Si | (B) C, D, N    |
| (C) Na, Li, K  | (D) Be, Mg, Ca |

**BIOLOGY**

27. Ovoviviparous are  
 (A) Hen (B) Snake  
 (C) Crocodile (D) All of these
28. Mendel discovered  
 (A) Law of linkage (B) 10% energy law  
 (C) Laws of inheritance (D) None of these
29. 'AIDS' virus is called  
 (A) ARV (B) HTLV  
 (C) HIV (D) All of these
30. Organic farming is the technique of raising crops through the use of –  
 (A) Manure (B) Biofertilizers  
 (C) Resistance varieties (D) All of these
31. In simple organisms, exchange of gases and excretion occur through –  
 (A) Osmosis (B) Diffusion  
 (C) Imbibition (D) All of the above

32. Match the items in column I and column II and select the correct choice :

Column – I	Column – II
A. Lion	P. Producer
B. Cow	Q. Decomposer
C. Algae	R. Primary consumer
D. Micro-organism	S. Tertiary consumer

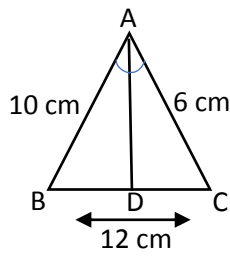
33. When offspring is formed by single parent then it is called as  
 (A) Sexual reproduction (B) Asexual reproduction  
 (C) Both (1) & (2) (D) Internal fertilization
34. Which of the following is a plant hormone?  
 (A) Insulin (B) Thyroxin  
 (C) Astrogen (D) Cytokinin
35. Which of the following enzymes covertes proteins into peptones?  
 (A) Ptyalin (B) Pepsin  
 (C) Insulin (D) None of these
36. Indicator of SO<sub>2</sub> pollution is  
 (A) Algae (B) Fungi  
 (C) Lichen (D) All of these
37. The eukaryotic chromosomes are made up of  
 (A) DNA (B) DNA and Lipids  
 (C) RNA (D) DNA and Proteins
38. The basis source of energy for all Organism is  
 (A) Green plants (B) Temperature  
 (C) Water (D) Solar energy

39. T-lymphocytes originate from  
(A) Bone-marrow (B) Stomach  
(C) Thymus (D) Liver
40. What is the number of chromosomes present in human gametes?  
(A) 21 (B) 23  
(C) 44 (D) 46

**MATHEMATICS**

41. The sum of the five consecutive numbers is equal to 170. What is the product of largest and the smallest numbers?  
 (A) 1512 (B) 1102  
 (C) 1152 (D) 1210
42. The HCF of two numbers is 15 and their LCM is 225. If one of the numbers is 75, find the another number.  
 (A) 105 (B) 90  
 (C) 60 (D) 45
43. The capacity of two pots are 240 litre and 112 litre respectively. Find the capacity of a container which can exactly measure the contents of the two pots  
 (A) 9000cc (B) 12000cc  
 (C) 16000cc (D) 8000cc
44. If  $2^{x-1} + 2^{x+1} = 2560$ , find the value of x  
 (A) 10 (B) 12  
 (C) 9 (D) 8
45. Simplify  $6 - \left\{ 9 - \left\{ 18 - \left( 15 - \overline{12 - 9} \right) \right\} \right\}$   
 (A) 1 (B) 4  
 (C) 5 (D) 3
46. If  $a^2 + b^2 = 234$  and  $ab = 108$ , find the value of  $\frac{a+b}{a-b}$   
 (A) 10 (B) 8  
 (C) 5 (D) 4
47. The product of two numbers is 12960 and their HCF is 36. Number of pairs of such numbers that can be formed is  
 (A) 2 (B) 3  
 (C) 4 (D) 5
48. A man had 170 currency notes in all, some of which were of Rs.100 denominations and some of are Rs.50 denomination. The total amount of all these currency notes was Rs. 10000. How much amount did he have in the denominations of Rs.50.  
 (A) Rs.4000 (B) Rs.9000  
 (C) Rs.7000 (D) Rs.6000
49. The difference between the ages of Sonu and Sneha is 12 years. If the ratio of their ages is 3:5 then the age of Sneha is  
 (A) 32 yrs. (B) 24 yrs.  
 (C) 28 yrs. (D) 30 yrs.
50. Five ninth of 60% of a number is equal to 2790. What is the number?  
 (A) 8100 (B) 7200  
 (C) 7300 (D) None of these

51. In the given figure, AD is the bisector of  $\angle BAC$ . If AB = 10 cm., AC = 6 cm and BC = 12 cm., find BD.



- (A) 4.5 cm (B) 9 cm  
(C) 7.5 cm (D) 3 cm
52. The average monthly income of four earning members of a family is Rs.7350. One member passes away and the average monthly income becomes Rs.6500. What was the monthly income of the person, who is no more?  
(A) Rs.6928 (B) Rs.8200  
(C) Rs.9900 (D) Rs.13850
53. A class is divided into two sections A and B. Passing average of 20 students of section A is 80% and passing average of 30 students of section B is 70%. What is the passing average of both of the sections?  
(A) 72% (B) 74%  
(C) 75% (D) 77%
54. In the class, the number of boys and girls are in the ratio of 4 : 5. If 10 more boys join the class, the ratio of numbers of boys and girls become 6 : 5. How many girls are there in the class?  
(A) 20 (B) 30  
(C) 25 (D) None of these
55. The difference between the two adjacent angles of a parallelogram is  $20^\circ$ . What would be the ratio between the smaller and the longer angles of the parallelogram respectively.  
(A) 4 : 5 (B) 4 : 7  
(C) 3 : 5 (D) 5 : 6
56. A sum becomes 6 times at 5% per annum. At what rate, the sum becomes 12 times?  
(A) 10% (B) 12%  
(C) 9% (D) 11%
57. If  $\sin\theta + \sin^2\theta = 1$ , then  $\cos^2\theta + \cos^4\theta =$   
(A) 1 (B) 2  
(C) 0 (D) -1
58. The mean age of a combined group of men and women is 25 years. If mean age of men is 26 and that of women is 21, then the percentage of men and women in the group is  
(A) 60, 40 (B) 80, 20  
(C) 20, 80 (D) 30, 70

59. The curved surface area of a right circular cylinder of basis radius  $r$  is obtained by multiplying its volume by

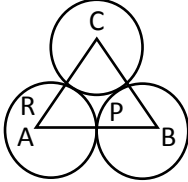
(A)  $\frac{2}{r^2}$

(B)  $2r^2$

(C)  $\frac{2}{r}$

(D)  $2r$

60. In the given figure, three circles with centres A, B, C respectively touch each other externally. If  $AB = 5$  cm,  $BC = 7$  cm and  $CA = 6$  cm, then the radius of the circle with centre A is



(A) 1.5 cm

(B) 2 cm

(C) 2.5 cm

(D) 3 cm

**HISTORY**

61. Who was known as “Führer”?  
 (A) Mussolini (B) Hitler  
 (C) Cavour (D) Bismarck
62. Who organised the Dalits into the depressed classes association?  
 (A) Mahatma Gandhi (B) Subhas Chandra Bose  
 (C) Jawahar Lal Nehru (D) B. R. Ambedkar
63. The Bolshevik Revolution in Russian began on  
 (A) 7 October, 1917 (B) 7 November, 1917  
 (C) 7 December, 1917 (D) 7 March, 1918
64. Who created the cotton mill?  
 (A) Richard Arkwright (B) Williams  
 (C) Newcomen (D) James Watt
65. The main grievance of the peasants of the Champaran Satyagraha was about the  
 (A) Abwabs and illegal cesses (B) Land revenue demands  
 (C) Tinkathia System (D) Exploitation by the Moneylenders
66. Assertion (A) while joining the mainstream of the National Movement led by Gandhiji the tribal communities were unmindful of the demands of their situation.  
 Reason (R) Swaraj meant for both the freedom from British rule and freedom from the oppression of the moneylenders, zamindars and feudal overlords.  
 Code –  
 (A) Both (A) and (R) are true but (R) is not the correct explanation of (A)  
 (B) Both (A) and (R) are true and (R) is the correct explanation of (A)  
 (C) (A) is true but (R) is false  
 (D) (A) is false but (R) is true
67. Who was the founder of Bengal Chemicals?  
 (A) J. C. Bose (B) P. C. Ray  
 (C) M. L. Sarkar (D) None of these
68. Which of the following was not true of James Augustus Hickey?  
 (A) He was the pioneer of Indian Journalism  
 (B) He was the founder of the Bengal Chronicle  
 (C) He always worked for the press freedom  
 (D) He was sent to prison by Company Government for being fearless journalist
69. The first President of the Congress Socialist Party was  
 (A) Jai Prakash Narayan (B) Acharya Narendra Deva  
 (C) Jawahar Lal Nehru (D) Sampurnand
70. From the following newspapers with which Gandhiji was not associated?  
 (A) Indian Opinion (B) Indian Mirror  
 (C) Harijan (D) Young India
71. The first factory legislation was passed to improve the working conditions of the labour in  
 (A) 1880 (B) 1881  
 (C) 1884 (D) 1894

72. Gandhiji halted the Non-Cooperation Movement after  
(A) Chauri Chaura incident (B) Kheda Satyagrah  
(C) Ahmedabad mill works strike (D) Bardoli Strike
73. Which of the following novel is not written by Munshi Premchand?  
(A) Rangbhoomi (B) Godan  
(C) Sewasadan (D) Indulekha
74. Who wrote "The Bitter Cry of Outcast London"?  
(A) Durga Charan Ray (B) Charles Dickens  
(C) Andrew Mearns (D) Thomas Hardy
75. Who was the founder of the 'Hoa Hao' movement?  
(A) Boi Chan (B) Liang Qichao  
(C) Huynh Phu So (D) Phanchu Trinh

**GEOGRAPHY**

76. Alluvial Soil is a very fertile soil. The soil is principally found in the states of :  
 (A) Telangana, Gujarat and Rajasthan (B) Uttar Pradesh, Bihar and West Bengal  
 (C) Kerala, Goa and Rajasthan (D) Chattisgarh, Jharkhand and Nagaland
77. Bhakra – Nangal multi-purpose river valley project is situated on river:  
 (A) Damodar (B) Sutlej  
 (C) Mahanadi (D) Yamuna
78. Which pair of states is famous for the production of petroleum in India?  
 (A) Maharashtra and Goa (B) Punjab and Gujarat  
 (C) Assam and Gujarat (D) Rajasthan and Punjab
79. Select the row of towns who are famous for atomic power plants:  
 (A) Tarapur, Ankleshwar, Nagpur, Kaiga  
 (B) Tarapur, Nagarjunsagar, Mathura, Meerut  
 (C) Tarapur, Rawatbhata, Vadodara, Narora  
 (D) Tarapur, Narora, Kakrapar, Kaiga
80. Sundarbans National Park is famous for:  
 (A) Elephant (B) Wild Pigs  
 (C) Bengal Tiger (D) Gangetic Dolphin
81. Blue Revolution is associated with :  
 (A) Development of Food Crops Farming (B) Development of Hydel Power Projects  
 (C) River Management (D) Development of Fisheries
82. Durgapur Steel Plant is situated in the state of  
 (A) Chhattisgarh (B) West Bengal  
 (C) Madhya Pradesh (D) Jharkhand
83. Which group of ports are major ports on the Western Coast of India?  
 (A) Mangalore, Kochi, Tuticorin (B) Kochi, Tuticorin, Paradeep  
 (C) Kandala, Marmagao, Mangalore (D) Kandala, Porbandar, Paradeep
84. The National Waterways No. 1 extends from :  
 (A) Haldia to Varanasi (B) Haldia to Allahabad  
 (C) Haldia to Patna (D) Haldia to Guwahati
85. Which of the following resources is very useful in maintaining ecological balance:  
 (A) Minerals (B) Suitable Land for Transport  
 (C) Forest (D) Building
86. Which of the following is the greatest and the most important resources of a country?  
 (A) Minerals (B) Land  
 (C) Water (D) People of the Country
87. Which of the following crops is grown by shifting agriculture:  
 (A) Cotton (B) Cereals  
 (C) Sugarcane (D) Tea

88. Which are the commercial crops :

Name of crops :

- |                 |            |
|-----------------|------------|
| (i) Groundnut   | (ii) Wheat |
| (iii) Sugarcane | (iv) Rice  |
| (v) Mustard     |            |

Select the correct answer from the following options :

- |                       |                       |
|-----------------------|-----------------------|
| (A) (i), (ii) & (iii) | (B) (i), (iii) & (v)  |
| (C) (i), (iii) & (iv) | (D) (iii), (iv) & (v) |

89. River Damodar is a tributary of River :

- |             |                |
|-------------|----------------|
| (A) Ganga   | (B) Swarnrekha |
| (C) Barakar | (D) Hooghly    |

90. Which cities are to be connected by Golden Quadrilateral Super Highways –

Name of Cities :

- |                 |              |
|-----------------|--------------|
| (i) Delhi       | (ii) Mumbai  |
| (iii) Bengaluru | (iv) Mysore  |
| (v) Chennai     | (vi) Kolkata |

Select the correct answer from the following options :

- |                             |                             |
|-----------------------------|-----------------------------|
| (A) (i), (ii), (iii) & (iv) | (B) (ii), (iii), (iv) & (v) |
| (C) (i), (ii), (v) & (vi)   | (D) (ii), (iii), (iv) & (v) |

**CIVICS**

91. Who is the present UN Secretary General?  
(A) Kofi Annan (B) Antonio Guterres  
(C) Ban Ki-Moon (D) None
92. The Chief Justice of Supreme Court of India is –  
(A) Deepak Mishra (B) T. S. Thakur  
(C) Ranjan Gogoi (D) Jagdish Singh Khehar
93. Which of the following Countries has adopted the One Party System?  
(A) India (B) USA  
(C) China (D) Japan
94. What is the full name of UPA?  
(A) United Party Alliance (B) United People's Alliance  
(C) United Progressive Alliance (D) United Progressive Axis
95. Which constitutional amendment granted reservation to women in Panchayats?  
(A) 42nd (B) 44th  
(C) 65th (D) 73rd
96. Due to Inflation, Market items  
(A) gets cheaper (B) gets expensive  
(C) Price remains the same (D) None of these
97. The Reserve Bank of India was nationalised in :  
(A) 1945 (B) 1947  
(C) 1949 (D) 1950
98. When the New Economic Policy came into force in India?  
(A) 1990 (B) 1991  
(C) 1993 (D) 1994
99. Who wrote the book "Wealth of Nations"?  
(A) Marshall (B) Piggu  
(C) Adam Smith (D) Kinns
100. The main feature of the New Economic Policy of India-  
(A) Liberalisation (B) Globalisation  
(C) Privatisation (D) All of them

**ANSWER KEY**

QUESTION NO.	ANSWER	QUESTION NO.	ANSWER
1	(D)	51	(C)
2	(D)	52	(C)
3	(D)	53	(B)
4	(C)	54	(C)
5	(B)	55	(A)
6	(C)	56	(D)
7	(B)	57	(A)
8	(B)	58	(C)
9	(B)	59	(C)
10	(C)	60	(B)
11	(C)	61	(B)
12	(C)	62	(D)
13	(C)	63	(B)
14	(A)	64	(A)
15	(D)	65	(C)
16	(D)	66	(D)
17	(C)	67	(B)
18	(C)	68	(B)
19	(B)	69	(A)
20	(D)	70	(B)
21	(C)	71	(B)
22	(D)	72	(A)
23	(B)	73	(D)
24	(B)	74	(C)
25	(C)	75	(C)
26	(D)	76	(B)
27	(B)	77	(B)
28	(C)	78	(C)
29	(C)	79	(D)
30	(D)	80	(C)
31	(B)	81	(D)
32	A→S; B→R; C→P; D→Q	82	(B)
33	(B)	83	(C)
34	(D)	84	(B)
35	(B)	85	(C)
36	(C)	86	(D)
37	(D)	87	(B)
38	(D)	88	(B)
39	(C)	89	(D)
40	(B)	90	(C)
41	(C)	91	(B)
42	(D)	92	(C)
43	(C)	93	(C)
44	(A)	94	(C)
45	(D)	95	(D)
46	(C)	96	(B)
47	(A)	97	(C)
48	(C)	98	(B)
49	(D)	99	(C)
50	(D)	100	(D)