

TR 1702

Register Number

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Time - 150 minutes

Maximum Marks :100

## INSTRUCTIONS TO CANDIDATES

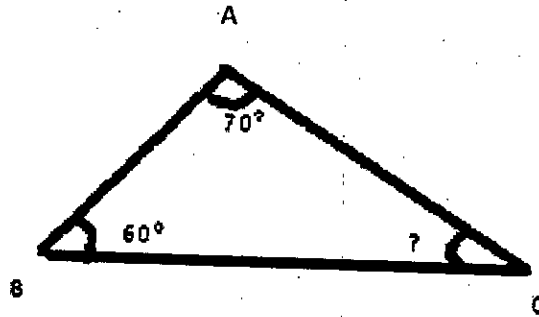
Read the following instructions carefully before you answer the questions. Answers should be marked in the OMR sheet using black ball point pen.

1. This booklet consists of 100 questions for four subjects at the rate of 25 questions to each subject.
2. Each question carries one mark.
3. Since all questions are compulsory, do not try to read through the whole question paper before beginning to answer it.
4. 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.
5. 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.
6. Blank pages are provided for rough work at the end of the booklet.
7. Choose the correct answer from the options given for each question and darken the corresponding circle with black ball point-pen in the OMR answer sheet.
8. Handover the OMR answer sheet only to the invigilator.

MATHEMATICS

1. The additive inverse of  $\frac{-3}{5}$  is -----
- (1)  $\frac{-3}{5}$   
 (2)  $\frac{5}{3}$   
 ✓ (3)  $\frac{3}{5}$   
 (4)  $\frac{-5}{3}$
2.  $y^0 =$  -----
- ✓ (1) 1  
 (2) -1  
 (3) 0  
 (4) y
3.  $\frac{6^4}{6^2} =$  -----
- (1)  $6^4$   
 ✓ (2)  $6^2$   
 (3)  $6^8$   
 (4)  $6^{-2}$
4. Find the cube root of 27
- (1)  $\sqrt{3}$   
 ✓ (2) 3  
 (3) 2  
 (4)  $\sqrt{2}$
5. Complete the following pattern  
 44, 55, 66, 77, ----
- (1) 80  
 ✓ (2) 88  
 (3) 70  
 (4) 75
6. The central angle of a quadrant is
- ✓ (1)  $90^\circ$   
 (2)  $180^\circ$   
 (3)  $270^\circ$   
 (4)  $360^\circ$
7. Which of the following will be the angles of a triangle?
- (1)  $35^\circ, 45^\circ, 90^\circ$   
 ✓ (2)  $26^\circ, 58^\circ, 96^\circ$   
 (3)  $38^\circ, 56^\circ, 96^\circ$   
 (4)  $30^\circ, 55^\circ, 90^\circ$
8. In a triangle ABC,  $\angle A = 40^\circ$  and  $AB = AC$  then ABC is ----- triangle
- (1) a right angled  
 (2) an equilateral  
 ✓ (3) an isosceles  
 (4) a scalene

9. In  $\triangle ABC$   $\angle A = 70^\circ$ ,  $\angle B = 60^\circ$ .  
Find  $\angle C = ?$



- ✓ (1)  $50^\circ$  (3)  $30^\circ$   
(2)  $40^\circ$  (4)  $20^\circ$

10. Perimeter of the semi circle is -----

- ✓ (1)  $(\pi + 2)r$  units  
(2)  $(\pi + 2)$  units  
(3)  $2(\pi + 2)$  units  
(4) none of these

11. Quadrant of a circle is ----- of the circle

- (1) one - half  
✓ (2) one - fourth  
(3) one - third  
(4) one - fifth

12. When  $p = \text{Rs. } 2400$   $n = 2$  years and rate of interest is 5% find the difference between compound interest and simple interest is

- ✓ (1) 6  
(2) 5  
(3) 4  
(4) 10

13. Profit = -----

- ✓ (1) S.P. - C.P.  
(2) C.P. - S.P.  
(3) C.P. + S.P.  
(4) None of these

14. In  $\triangle ABC$   $\angle C = 90^\circ$   $AB = 5$  cm,  $AC = 4$  cm. Find  $BC = ?$

- ✓ (1) 3 cm  
(2) 5 cm  
(3) 4 cm  
(4) 9 cm

15. The side of an isosceles triangle is 10 cm find the height?

- (1)  $\sqrt{3}$  cm  
✓ (2)  $5\sqrt{3}$  cm  
(3) 5 cm  
(4)  $\sqrt{5}$  cm

16.  $x^2 + y^2 - 2z^2 + 5x - 7$  is a -----

- (1) Monomial  
(2) Binomial  
(3) Trinomial  
✓ (4) Polynomial

17.  $3 \times 7x =$  -----

- (1) 21  
✓ (2)  $21x$   
(3)  $x$   
(4)  $21x^2$

18.  $(4.9)^2 =$  -----

- (1) 2401  
✓ (2) 240.1  
(3) 24.01  
(4) 2.401

19.  $(a+b)^2 - (a-b)^2 =$  -----

- (1)  $4ab$   
(2)  $2ab$   
(3)  $a^2+2ab+b^2$   
(4)  $2(a^2+b^2)$

20. If  $5y + 9 = 24$ , find  $y=?$

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

21. Area of the rhombus is

- (1)  $d_1 \times d_2$  sq. units  
 (2)  $\frac{1}{2} (d_1 \times d_2)$  sq. units  
(3)  $\frac{1}{2} (d_1 + d_2)$  sq. units  
(4)  $(d_1 + d_2)$  sq. units

22. Find the degree of polynomial in  $5x^2-3x+2$ 

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

23. A bicycle, market price at Rs.1500/- is sold for Rs.1350/-  
What is the percentage of discount?

- (1) 10%  
(2) 20%  
(3) 8%  
(4) 12%

24. Find the average of 2, 4, 6, 8, 10, 12, 14, 16

- (1) 9  
(2) 10  
(3) 11  
(4) 12

25. Find the median of 83, 86, 66, 30, 81

- (1) 30  
 (2) 81  
(3) 83  
(4) 86

**PHYSICS AND CHEMISTRY**

26. The chief element in coal is -----  
(1) Nitrogen  
(2) Silicon  
✓ (3) Carbon  
(4) Iron
27. Chemical name of washing soda -----  
(1) Sodium bicarbonate  
✓ (2) Sodium carbonate  
(3) Sodium Chloride  
(4) Calcium Carbonate
28. ----- is a positive charge particle  
(1) electron  
✓ (2) proton  
(3) neutron  
(4) cathode
29. The fuel used in Jet Aircraft is -----  
(1) Petroleum Gas  
✓ (2) Kerosene  
(3) Petrol  
(4) Diesel
30. Unit of Luminous Intensity -----  
✓ (1) Candela  
(2) Kelvin  
(3) Kilogram  
(4) Radian
31. The atmospheric pressure at sea level is approximately -----  
(1) 10,000 N/m<sup>2</sup>  
(2) 1,00,000 N/m<sup>2</sup>  
✓ (3) 1,00,000 N/m<sup>2</sup>  
(4) 1,000 NM
32. Lightning Arrester was invented by -----  
(1) Michael Faraday  
(2) J.J. Thomson  
(3) Pascal  
✓ (4) Benjamin Franklin
33. ----- works on the principle of multiple reflection  
✓ (1) Kaleidoscope  
(2) Laparoscope  
(3) Thermo flask  
(4) electroscope
34. Sound cannot travel in -----  
(1) Water  
(2) Air  
✓ (3) Vacuum  
(4) Glass
35. Solar cells convert solar energy into ----- energy  
(1) Thermal energy  
✓ (2) Electrical energy  
(3) Wind energy  
(4) Hydro energy

36. ----- is used in manufacture of cement and glass.

- (1) Quick Lime
- (2) Slaked Lime
- (3) Lime Stone
- (4) Bleaching Powder

38. Symbol of Calcium -----

- (1) Cr
- (2) Fe
- (3) Na
- (4) Ca

37. Laws of reflection shows -----

- (1)  $\angle i > \angle r$
  - (2)  $\angle i < \angle r$
  - (3)  $\angle i = \angle r$
  - (4)  $\angle i \neq \angle r$
-

## BOTANY AND ZOOLOGY

39. Deficiency of ----- causes diabetes mellitus  
 (1) Glucagon  
 ✓ (2) Insulin  
 (3) Thyroxin  
 (4) Adrenalin
40. Cervical region (neck region) consists of -----  
 ✓ (1) 7 vertebrae  
 (2) 8 vertebrae  
 (3) 5 vertebrae  
 (4) 6 vertebrae
41. The fermented food is -----  
 (1) Wine  
 ✓ (2) Milk  
 (3) Fresh Juice  
 (4) Tea
42. Vascular cryptogams are -----  
 (1) Bryophytes  
 (2) Gymnosperms  
 (3) Angiosperms  
 ✓ (4) pteridophytes
43. ----- bacteria present inside the root nodules and also responsible for nitrogen fixation.  
 ✓ (1) Acetobactor  
 (2) Bacillus Ramosus  
 (3) Nitrobactor  
 (4) Nitrosommonas
44. ----- are called suicidal bags  
 (1) Mitochondria  
 (2) Golgi apparatus  
 (3) Centrioles  
 ✓ (4) Lysosomes
45. Gir national park is located at  
 (1) Karnataka  
 ✓ (2) Gujarat  
 (3) Uttarpradesh  
 (4) Tamilnadu
46. Ozone is found in ----- layer  
 (1) Thermosphere  
 (2) Troposphere  
 ✓ (3) Stratosphere  
 (4) Lithosphere
47. ----- is the structural and functional unit of kidney.  
 (1) Neuron  
 (2) Dendron  
 ✓ (3) Nephron  
 (4) Axon
48. Prevention and Control of Water Pollution Act -----  
 ✓ (1) 1974  
 (2) 1981  
 (3) 1986  
 (4) 1994
49. ----- conduct food in plants  
 (1) Cambium  
 (2) Xylem  
 ✓ (3) Phloem  
 (4) Cuticle
50. The word dinosaur itself means ---  
 (1) Dragon lizard  
 ✓ (2) Very big lizard  
 (3) Terrible lizard  
 (4) Tallest lizard

**SOCIAL SCIENCE**

51. The first Battle of Panipat was fought in A.D. -----
- (1) 1536  
 (2) 1526  
 (3) 1506  
 (4) 1516
52. ----- became the head quarters of the French settlements in India
- (1) Chandranagore  
 (2) Pondicherry  
 (3) Mahe  
 (4) Chennai
53. The battle of Plassey was fought in -----
- (1) AD 1764  
 (2) AD 1757  
 (3) AD 1765  
 (4) AD 1775
54. Count-de-Lally was defeated by Sir Eyre Coote at the battle of -----
- (1) Madras  
 (2) St. Thomas  
 (3) Wandiwash  
 (4) Mir Jafar
55. The first Chief Justice of British India was -----
- (1) Sir Thomas  
 (2) Sir Elijah Impey  
 (3) Sir Morse  
 (4) Tipu Sultan
56. The first Governor General of Bengal was -----
- (1) Clive  
 (2) Warren Hastings  
 (3) Cornwallis  
 (4) Wandiwash
57. The ----- emblem was sculptured on Tipu's throne.
- (1) Lion  
 (2) Tiger  
 (3) Fish  
 (4) Elephant
58. The ----- system of revenue was introduced during the period of Lord Hastings
- (1) Mahalwari  
 (2) Ryotwari  
 (3) Permanent  
 (4) Tenancy Act
59. Lord William Bentinck is famous for his -----
- (1) Appearance  
 (2) Wars  
 (3) Reforms  
 (4) Ryotwari
60. ----- was the first soldier who refused to use the greased cartridge.
- (1) Mangal Pandey  
 (2) Nana Sahib  
 (3) Bahadur Shah  
 (4) Jancy Rani



**CIVICS**

61. In India the states are divided on the basis of -----

- (1) Language
- (2) Literature
- (3) Heritage
- (4) Natural resource

62. The National Integration Day is observed on -----

- (1) 14<sup>th</sup> November
- (2) 19<sup>th</sup> November
- (3) 1<sup>st</sup> November
- (4) 5<sup>th</sup> November

63. The UNO declared ----- year as the international year of children.

- (1) 1697
- (2) 1779
- (3) 1879
- (4) 1979

64. In Traffic Light ----- colour indicates stop.

- (1) Red
- (2) Blue
- (3) Green
- (4) Yellow

65. Road signals are classified into ----- types.

- (1) Two
- (2) Three
- (3) Four
- (4) Five

-----

GEOGRAPHY

66. Minerals are ----- resources.
- (1) Renewable
  - ✓(2) Non renewable
  - (3) Biotic
  - (4) Lignite
67. The ----- harbour is at the west coast of India
- ✓(1) Mumbai
  - (2) Chennai
  - (3) Vishakapattinam
  - (4) Cuddalore
68. This is primary activity -----
- ✓(1) Lumbering
  - (2) Banking
  - (3) Consultation
  - (4) Hunting
69. Eskimos of Canada are -----
- ✓(1) Hunters
  - (2) Gatherers
  - (3) Herders
  - (4) Mining
70. The mineral found in alluvial deposits is -----
- ✓(1) Gold
  - (2) Iron
  - (3) Coal
  - (4) Salt
71. Shifting agriculture in Brazil is known as -----
- (1) Jhum
  - ✓(2) Roco
  - (3) Plantation
  - (4) Shifting
72. Asia accounts for ---- of the world's rice production.
- ✓(1) 98%
  - (2) 80%
  - (3) 75%
  - (4) 90%
73. ----- are fragile goods.
- ✓(1) Glass items
  - (2) Vegetables
  - (3) Cars
  - (4) Iron
74. Trade within the country is called ----
- ✓(1) Internal trade
  - (2) International trade
  - (3) Open trade
  - (4) Primary trade
75. ----- is considered the most density populated country
- (1) China
  - (2) Mexico
  - ✓(3) Bangladesh
  - (4) Egypt

**MENTAL ABILITY TEST****SECTION – A**

In each of the questions 76 to 80 there are four items. Three of them have something in common, while the fourth is different. Find out the different item and write its number in the answer sheet.

76. (1) Chennai  
 (2) Mumbai  
 (3) New Delhi  
 ✓(4) Madurai
77. (1) Mahatma Gandhi  
 (2) Pandit Jawaharlal Nehru  
 (3) Subash Chandra Bose  
 ✓(4) Rajiv Gandhi
78. (1) Groundnut  
 (2) Potato  
 (3) Radish  
 ✓(4) Bitter Guard
79. (1) Cell Phone  
 (2) SIM Card  
 (3) Vibration  
 ✓(4) Phone
80. (1) Jasmine Flower  
 (2) Rose Flower  
 (3) Lotus Flower  
 ✓(4) Banana Flower

**SECTION – B**

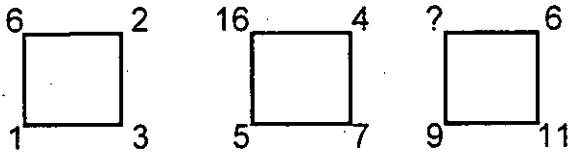
In each of the questions 81 to 85 a series as per rule is given with one term missing. Pick the missing item from among the four alternatives given and write its numbers in the answer sheet.

81. 4, 5, 7, 10, 14, ---  
 (1) 24  
 (2) 18  
 ✓(3) 19  
 (4) 36
82. 81, 64, 49, 36, 25, ---  
 (1) 9  
 ✓(2) 16  
 (3) 100  
 (4) 4
83. 625, 125, 25, 5, ---  
 (1) 0  
 ✓(2) 1  
 (3) -5  
 (4) 10
84. 21, 19, 16, 12, 7, ---  
 (1) 4  
 (2) 3  
 (3) -5  
 ✓(4) 1
85. 1000, 200, 40, ---  
 ✓(1) 8  
 (2) 20  
 (3) 10  
 (4) 5

**SECTION C**

In each of the questions 86 to 90 there is blank. Four responses to fill the blank are given. Identify the correct response and write the appropriate number in the answer sheet.

86.



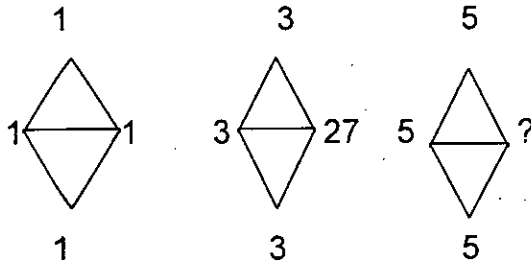
- (1) 24
- (2) 18
- (3) 26
- (4) 20

89.

10	2	100	4	1000	?
5		25		125	

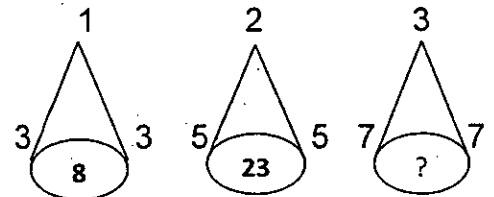
- (1) 8
- (2) 15
- (3) 16
- (4) 12

87.



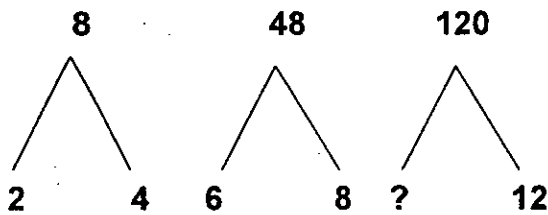
- (1) 100
- (2) 15
- (3) 150
- (4) 125

90.



- (1) 42
- (2) 46
- (3) 35
- (4) 52

88.



- (1) 12
- (2) 8
- (3) 10
- (4) 6

**SECTION D**

Find the pattern and write the number of alternative that fits in.

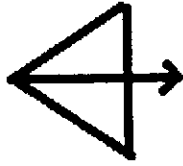
91. If 'COURSE' is 'CUS' then what is 'ANSWER'  
(1) SAE  
(2) RWN  
✓ (3) ASE  
(4) NWR
92. BPA, DQC, FRE, HSG, ----  
(1) ITJ  
✓ (2) JTI  
(3) TIJ  
(4) JIT
93. If 'LEDGER' is written as 654321  
then 'RED' is written as  
(1) 142  
(2) 421  
(3) 441  
✓ (4) 124
94. If  $X=3, Y=2, Z=1$  then  $XY+YZ+ZX = ?$   
(1) 21  
✓ (2) 11  
(3) 6  
(4) 4
95.  $4 \times 2 = 7, 6 \times 3 = 17, 8 \times 4 = ?$   
(1) 13  
✓ (2) 19  
(3) 31  
(4) 16

SECTION E

96. Identify the different one and write its number in the answer sheet.



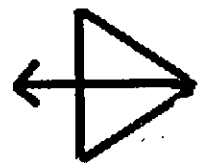
(1)



(2)



(3)

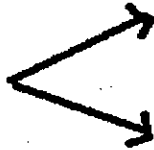


(4)

97.



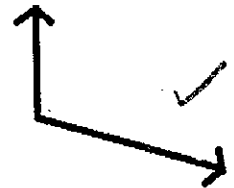
(1)



(2)



(3)

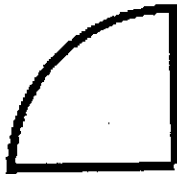


(4)

98.



(1)



(2)



(3)



(4)

99.



(1)



(2)

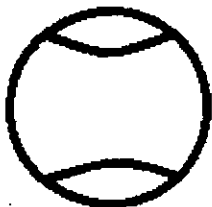


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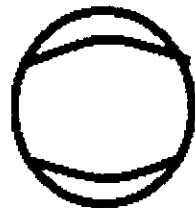


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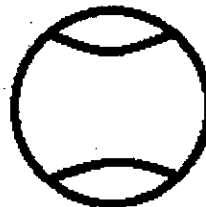
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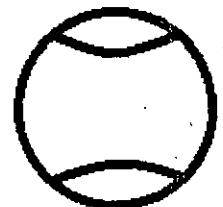
(1)



(2)



(3)



(4)

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**Rough work**