DO NOT OPEN THIS TEST BOOKLET UNTIL YOU ARE ASKED TO DO SO

Test Booklet Series

A

T. B. C. : ASG – 2/21

TEST BOOKLET

RECRUITMENT OF A. S. O.

Sl. No. 297581

(A) TEST OF REASONING & MENTAL ABILITY

(B) MATHEMATICS

Time Allowed : 1 $\frac{1}{2}$ Hours

Maximum Marks : 100

: INSTRUCTIONS TO CANDIDATES :

1. IMMEDIATELY AFTER THE COMMENCEMENT OF THE EXAMINATION, YOU SHOULD CHECK THAT THIS TEST BOOKLET **DOES NOT** HAVE ANY UNPRINTED OR TORN OR MISSING PAGES OR ITEMS ETC. IF SO, GET IT REPLACED BY A COMPLETE TEST BOOKLET OF THE SAME SERIES ISSUED TO YOU.
2. ENCODE CLEARLY THE TEST BOOKLET SERIES **A, B, C** OR **D**, AS THE CASE MAY BE, IN THE APPROPRIATE PLACE IN THE ANSWER SHEET USING BALL POINT PEN (BLUE OR BLACK).
3. You have to enter your **Roll No.** on the Test Booklet in the Box provided alongside. **DO NOT** write *anything else* on the Test Booklet.
4. **YOU ARE REQUIRED TO FILL UP & DARKEN ROLL NO., TEST BOOKLET / QUESTION BOOKLET SERIES IN THE ANSWER SHEET AS WELL AS FILL UP TEST BOOKLET / QUESTION BOOKLET SERIES AND SERIAL NO. AND ANSWER SHEET SERIAL NO. IN THE ATTENDANCE SHEET CAREFULLY. WRONGLY FILLED UP ANSWER SHEETS ARE LIABLE FOR REJECTION AT THE RISK OF THE CANDIDATE.**
5. This Test Booklet contains **100** items (questions). i.e. Sl. No. **1** to **50** items (questions) for **Test of Reasoning & Mental Ability** and Sl. No. **51** to **100** items (questions) for **Mathematics**. Each item (question) comprises four responses (answers). You have to select the correct response (answer) which you want to mark (darken) on the Answer Sheet. In case, you feel that there is more than one correct response (answer). You should mark (darken) the response (answer) which you consider the best. In any case, choose **ONLY ONE** response (answer) for each item (question).
6. You have to mark (darken) all your responses (answers) **ONLY** on the **separate Answer Sheet** provided, by **using BALL POINT PEN (BLUE OR BLACK)**. See instructions in the Answer Sheet.
7. (i) All items (questions) carry equal marks. All items (questions) are compulsory. Your total marks will depend only on the number of correct responses (answers) marked by you in the Answer Sheet.

   (ii)There will be negative markings for wrong responses (answers). 25 (Twenty five) percentage of marks allotted to a particular item (question) will be deducted as negative marking for every wrong response (answer).

   (iii) If candidate give more than one response (answer), it will be treated as a wrong response (answer) even if one of the given responses (answers) happens to be correct and there will be same penalty as above to that item (question).
8. Before you proceed to mark (darken) in the Answer Sheet the responses (answers) to various items (questions) in the Test Booklet, you have to fill in some particulars in the Answer Sheet as per the instructions sent to you with your **Admission Certificate**.
9. After you have completed filling in all your responses (answers) on the Answer Sheet and after conclusion of the examination, you should hand over to the Invigilator the *Answer Sheet* issued to you. You are allowed to take with you the candidate's copy / second page of the Answer Sheet along with the **Test Booklet**, after completion of the examination, for your reference.
10. Sheets for rough work are appended in the Test Booklet at the end.

DO NOT OPEN THIS TEST BOOKLET UNTIL YOU ARE ASKED TO DO SO

SEAL

(A) TEST OF REASONING & MENTAL ABILITY

1. Select the correct option that indicates the arrangement of the given words in the order in which they appear in a telephone directory :

(I) Krishanmurty

(II) Krishnamurthy

(III) Krishnmurthi

(IV) Krishanmurthy

(V) Krishnamurti

(A) (IV), (I), (II), (V), (III)

(B) (IV), (I), (II), (III), (V)

(C) (IV), (V), (II), (III), (I)

(D) (IV), (III), (V), (III), (II)

2. In a certain code language, 'VIRTUE' is coded as '201' and 'TRAGEDY' is coded as '218'. How will 'PROFANE' be coded in that language ?

(A) 570

(B) 342

(C) 432

(D) 456

Directions (Q. Nos. 3 to 5) : *One hundred and twenty five cubes of the same size are arranged in the form of a cube on a table. Then a column of five cubes is removed from each of the four corners. All the exposed faces of the rest of the solid (except the face touching the table) are coloured red. Now, answer these questions based on the above statement :*

3. How many small cubes are there in the solid after the removal of the columns ?

(A) 120

(B) 110

(C) 105

(D) 100

4. How many cubes do not have any coloured face ?

(A) 12

(B) 24

(C) 36

(D) 48

5. How many cubes have only one red face ?

(A) 40

(B) 25

(C) 20

(D) 15

6. David gets on the elevator at the 11th floor of a building and rides up at the rate of 57 floors per minute. At the same time, Albert gets on an elevator at the 51st floor of the same building and rides down at the rate of 63 floors per minute. If they continue travelling at these rates, then at which floor will their paths cross ?

(A) 19

(B) 28

(C) 30

(D) 37

7. An egg vendor calls on his first customer and sells half his eggs and half an egg. To the second customer, he sells half of what he has left with and half an egg, and to the third customer, he sells half of what he was then left with and half an egg. However, he did not break any egg. If in the end, the vendor was left with three eggs. How many eggs did he have initially ?

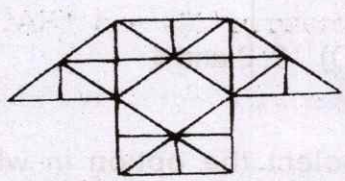
(A) 26

(B) 31

(C) 39

(D) None of these

8. How many triangles are there in the given figure ?



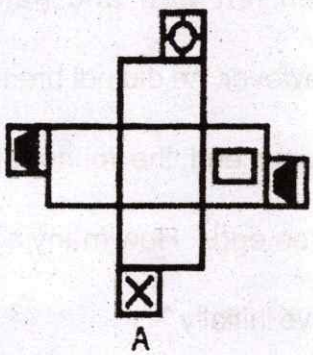
(A) 29

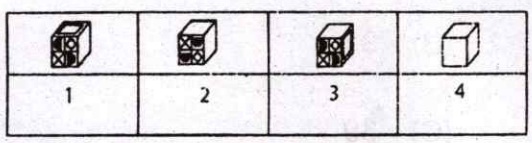
(B) 38

(C) 40

(D) 35

9. Choose the box that is similar to the box formed from the given sheet of paper :





(A) 1, 2 and 3

(B) 1, 2 and 4

(C) 2 and 3

(D) 2, 3 and 4

10. Select the option in which the numbers are related in the same way as are the numbers of the following set, (24, 10, 392) :

(A) (29, 18, 242)

(B) (27, 15, 480)

(C) (26, 12, 369)

(D) (21, 18, 234)

11. There are deer and peacocks in a zoo. By counting heads they are 80. The number of their legs is 200. How many peacocks are there ?

(A) 20

(B) 30

(C) 50

(D) 60

12. What day of the week was 31st January, 2007 ?

(A) Tuesday

(B) Monday

(C) Thursday

(D) Wednesday

13. Arrange the following words in the order in which they appear in an English dictionary :

(I) Meticulous

(II) Metric

(III) Method

(IV) Mettle

(V) Meter

(A) (V), (III), (I), (IV), (II)

(B) (V), (III), (I), (II), (IV)

(C) (III), (IV), (V), (I), (II)

(D) (V), (I), (III), (II), (IV)

14. Rasik walked 20m towards north. Then he turned right and walks 30m. Then he turns right and walks 35m. Then he turns left and walks 15m. Finally he turns left and walks 15m. In which direction and how many metres is he from the starting position ?

(A) 15m West

(B) 30m East

(C) 30m West

(D) 45m East

15. How is 'sure' written in a code language ?

I. 'he is sure' written as 'ja ha main in that code language

II. ' is she sure' written as 'Ka ja main in that code language

(A) Ja

(B) Ja or ma

(C) Ma

(D) Ha

16. Pointing to a woman, Nirmal said, "She is the daughter of my wife's grandmother's only child". How is the woman related to Nirmal if she is not the wife of Nirmal ?

(A) Wife

(B) Sister-in-law

(C) Sister

(D) None of these

17. IF ZIP = 198 and ZAP = 246, then how will you code VIP ?

(A) 174

(B) 222

(C) 888

(D) 990

Directions (Q. Nos. 18 to 20) : *Read the information given below to answer these questions :*

Rani and Shreshtha are a married couple having two daughters, Medha and Deepti. Deepti is married to Anurag who is the son of Garima and Tarun. Nidhi is the daughter of Anurag. Komal, who is Anurag's sister, is married to Harshit and has two sons, Aman and Prem. Prem is the grandson of Garima and Tarun.

18. What is the relationship between Aman and Nidhi ?

(A) Cousins

(B) Husband-Wife

(C) Father-Daughter

(D) Uncle-Niece

19. How is Komal related to Deepti ?

(A) Aunt

(B) Sister-in-law

(C) Sister

(D) None of these

20. Which of the following is true ?

(A) Tarun is Deepti's maternal uncle

(B) Aman is the son of Medha

(C) Garima is Harshit's mother-in-law

(D) Nidhi is cousin of Komal

21. In a cetain code, MOTHER is written as ONHURF. How will ANSWER be written in that code ?

(A) NBXSSE

(B) NBWRRF

(C) MAVSPE

(D) NBWTRF

22. Find the odd one out :

(A) Platform

(B) Dock

(C) Bus-stand

(D) Park

23. Find the odd one out :

(A) Lion

(B) Tiger

(C) Fox

(D) Deer

24. A doctor said to his compounder "I go to see the patients at their residence after every 3 hours 30 minutes. I have already gone to the patient 1 hour 20 minutes ago and next time I shall go at 1 : 40 P.M." At what time this information was given to the compounder by the doctor ?

(A) 11 : 30 A. M.

(B) 11 : 20 A. M.

(C) 10 : 10 A. M.

(D) None of these

25. If in the word SEPTUAGENARIAN first three and then next three letters are written in reverse order and the rest of the letters are written as they appear in English alphabet, the positions of how many letters get changed in the new arrangement ?

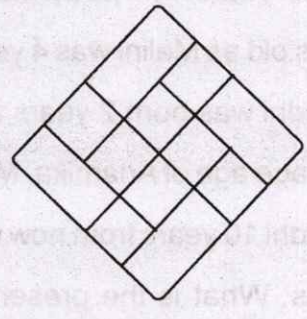
(A) Nil

(B) 2

(C) 10

(D) 12

26. How many rhombuses are in the figure ?



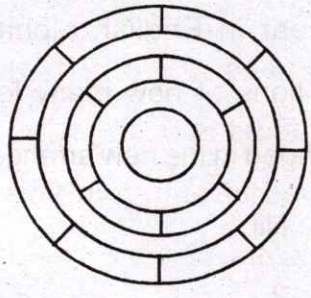
(A) 16

(B) 13

(C) 14

(D) 17

27. What is the minimum number of different colours required to paint the given figure such that no two adjacent regions have the same colour ?



(A) 3

(B) 4

(C) 5

(D) 6

28. Seven years from now, Anamika will be as old as Malini was 4 years ago. Srinidhi was born 2 years ago. The average age of Anamika, Malini and Srinidhi 10 years from now will be 33 years. What is the present age of Anamika ?

(A) 30 years

(B) 31 years

(C) 29 years

(D) 28 years

29. Nurture : Neglect :: Denigrate : ?

(A) Reveal

(B) Extol

(C) Recognise

(D) Calumlnate

Directions (Q. Nos. 30 to 32) : *In each of the following questions, one term in the number series is wrong. Find out the wrong term.*

30. 1, 3, 12, 25, 48 :

(A) 3

(B) 12

(C) 25

(D) 48

31. 105, 85, 60, 30, 0, – 45, – 90 :

(A) 105

(B) 60

(C) 0

(D) – 45

32. 325, 259, 204, 160, 127, 105, 96 :

(A) 325

(B) 127

(C) 105

(D) 96

33. Latex is related to Rubber as Flax is to _____.

(A) Linen

(B) Wool

(C) Jute

(D) Cotton

34. In a certain code language, "GOAT" is written as "45" and "COAT" is written as "41". How is "BOAT" written in that code language ?

(A) 40

(B) 41

(C) 42

(D) 43

35. In a certain code language, TUTORIAL is written as DODNGLCF and DANCE is written as YCJMZ, how is EDUCATION written in that code ?

(A) ZYMODCLNJ

(B) ZYOMCDLNJ

(C) ZYOMDCLNJ

(D) ZYOTNLCMD

36. The door of Aditya's house faces the East. From the back side of his house, he walks straight 50 meters, then turns to the right and walks 50 meters again. Finally, he turns towards left and stops after walking 25 meters. Now, Aditya is in which direction from the starting point ?

(A) South-East

(B) North-East

(C) South-West

(D) North-West

37. A man is facing towards West and turns through 45^{o} clock-wise, again 180^{o} clock-wise and then turns through 270^{o} anti clock-wise. In which direction is he facing now ?

(A) West

(B) North-West

(C) North

(D) South-West

38. In a row of thirty boys, R is 4th from right end and W is 10th from the left end. How many boys are there between R and W ?

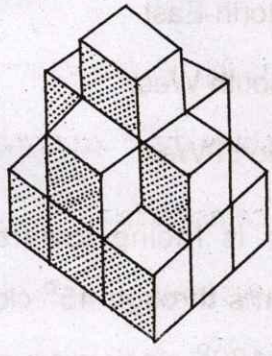
(A) 15

(B) 16

(C) 17

(D) Cannot be determined

39. How many cubes are there in the figure ?



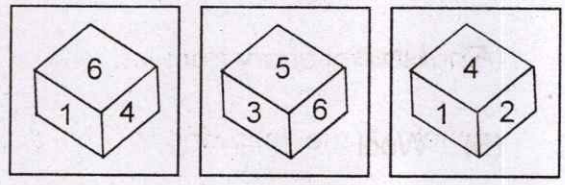
(A) 15

(B) 9

(C) 12

(D) 8

40. Three positions of a dice are given. Find out which number is found opposite the number 2 in the given cube ?



(A) 6

(B) 5

(C) 3

(D) 1

Directions (Q. Nos. 41 & 42) : *These questions are based on five words given below :*

THE MOD CPU RAM SHE

41. If the third alphabet in each of the word is changed to the next alphabet in English alphabetical order, how many words thus formed have more than two vowel ?

(A) None

(B) One

(C) Two

(D) Three

42. If the given words are arranged in the order as they would appear in the English dictionary from left to right, which of the following will be the fourth from the left ?

(A) THE

(B) MOD

(C) CPU

(D) RAM

43. Select the option in which the numbers are related in the same way as are the numbers of the following set, (24, 10, 392) :

(A) (29, 18, 242)

(B) (27, 15, 480)

(C) (26, 12, 369)

(D) (21, 18, 234)

44. If REQUEST is written as S2R52TU, then how will ACID be written ?

(A) 1394

(B) IC94

(C) BDJE

(D) ID3E

45. Nandini is the only daughter of Madan's sister Sangita's brother. How is Nandini related to Madan ?

(A) Daughter

(B) Niece

(C) Cousin

(D) Niece or Daughter

46. Choose the alternative which closely resembles the mirror image of the given combination :

TARAIN1014A

(I) A⊬1O1NIAЯAT

(II) A⊬1O1⊬NIAЯAT

(III) NIAЯA⊬1O1A

(IV) A⊬1O1NIAЯAT

(A) 1

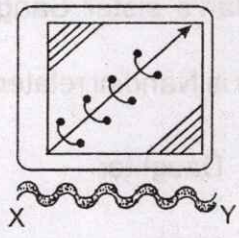
(B) 2

(C) 3

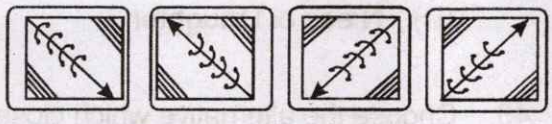
(D) 4

47. Choose the correct water image of the question figure, from the given answer figures (assume that water is along XY) :

Question figure :



Answer figures :



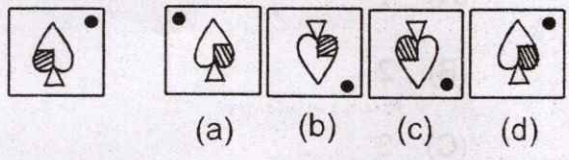
(A) 1

(B) 2

(C) 3

(D) 4

48. Choose the correct mirror image from the answer figures (a), (b), (c) and (d) :



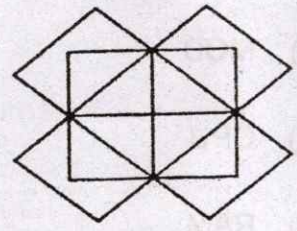
(A) (a)

(B) (b)

(C) (c)

(D) (d)

49. How many rectangles are there in the given diagram ?



(A) 20

(B) 26

(C) 21

(D) 14

50. A clock seen through a mirror show quarter past three. What is the correct time shown by the clock ?

(A) 9 : 45

(B) 9 : 15

(C) 8 : 45

(D) 3 : 15

(B) MATHEMATICS

51. $\frac{1}{1.3} + \frac{1}{3.5} + \frac{1}{5.7} + \frac{1}{7.9} = ?$

(A) 5/11

(B) 6/11

(C) 9/4

(D) 4/9

52. Determine the smallest 3-digit number which is exactly divisible by 6 and 12 ?

(A) 96

(B) 84

(C) 108

(D) 120

53. What is the HCF of 1/5, 2/7 and 3/11 ?

(A) 1/385

(B) 6

(C) 1/35

(D) 5/77

54. 0.03×0.0165 is equal to :

(A) 4.95×10^{-3}

(B) 4.95×10^{-4}

(C) 4.95×10^{-5}

(D) 4.95×10^{-6}

55. $\frac{(799 + 267)^2 - (799 - 267)^2}{799 \times 267} = ?$

(A) 532

(B) 1066

(C) 2

(D) 4

56. $\overline{0.68} + \overline{0.73} = ?$

(A) $\overline{1.41}$

(B) $\overline{1.42}$

(C) $\overline{0.141}$

(D) None of these

57. Two numbers are 20% and 40% more than the third number respectively. The ratio of first and second number is :

(A) 7 : 6

(B) 7 : 5

(C) 6 : 7

(D) 5 : 7

58. A fruit seller had some oranges. He sells 30% oranges and still has 140 oranges. Originally he had :

(A) 140 oranges

(B) 420 oranges

(C) 200 oranges

(D) 60 oranges

59. 11 oranges are bought for Rs. 10 and 10 oranges for Rs. 11. What is the gain in percentage ?

(A) 11%

(B) 21%

(C) 25%

(D) 28%

60. The difference between Compound Interest and Simple Interest for 2 years at 5% per annum is Rs. 2.50. Find the sum :

(A) 500

(B) 1500

(C) 1000

(D) None of these

61. A can finish a work in 18 days and B can do the same work in 15 days. B worked for 10 days and left the job. In how many days will 10 women complete it ?

(A) 5

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

(C) 6

(D) 8

62. The ratio between the speeds of two trains is 7 : 8. If the second train runs 400 kms in 4 hours, then the speed of first train is :

(A) 70 km / h

(B) 75 km / h

(C) 84 km / h

(D) 87.5 km / h

63. $\sqrt{1.5625}$ = ?

(A) 1.05

(B) 1.25

(C) 1.45

(D) 1.55

64. If α and β are the roots of quardatic equation such that $\alpha + \beta = 12$ and $\alpha - \beta = 4$, then the equation is :

(A) $x^2 - 12x + 32 = 0$

(B) $x^2 - 12x - 32 = 0$

(C) $x^2 + 12x + 32 = 0$

(D) $x^2 + 12x - 32 = 0$

65. If for $p \neq 1$, $p^{5x+3} = 1$ then x = ?

(A) – 2/5

(B) 3/5

(C) – 3/5

(D) 2/5

66. If n is a natural number, then $(6n^2 + 6n)$ is always divisible by :

(A) 6 only

(B) 6 and 12 only

(C) 12 only

(D) 18 only

67. If $\frac{x}{5} = \frac{y}{9}$ then (x + 5) : (y + 9) = ?

(A) 3 : 5

(B) 13 : 8

(C) 5 : 9

(D) 9 : 5

68. The fourth proportional to 5, 8, 15 is :

(A) 18

(B) 21

(C) 19

(D) 24

69. If $\begin{vmatrix} x+y & y \\ 3-x & 3 \end{vmatrix} = \begin{vmatrix} 2-1 \\ 0 \quad 3 \end{vmatrix}$ then the value of x and y is :

(A) 3, – 1

(B) – 3, – 1

(C) – 3, 1

(D) 3, 1

70. If $M = \begin{vmatrix} -1 & 0 \\ 2 & 3 \end{vmatrix}$, $N = \begin{vmatrix} 0 & -2 \\ -2 & 3 \end{vmatrix}$, then 2M + N is :

(A) $\begin{vmatrix} -2 & -2 \\ 2 & 6 \end{vmatrix}$

(B) $\begin{vmatrix} -2 & -2 \\ -2 & 9 \end{vmatrix}$

(C) $\begin{vmatrix} -2 & 2 \\ 2 & 9 \end{vmatrix}$

(D) $\begin{vmatrix} -2 & -2 \\ 2 & 9 \end{vmatrix}$

71. For what value of α does the equations $\alpha x + y = 3, 2x - 3y = 5$ has no solution ?

(A) – 2/3

(B) 3/4

(C) 1/5

(D) 3/5

72. The discriminant of the quadratic equation $3x^2 - 5x + 3 = 0$ is :

(A) – 5

(B) 3

(C) – 11

(D) – 1

73. If a pair of linear equations is given by $a_1x + b_1y + c_1 = 0$ and $a_2x + b_2y + c_2 = 0$ where $\frac{a_1}{a_2} = \frac{b_1}{b_2} \neq \frac{c_1}{c_2}$ then :

(A) The pair of linear equation is consistent

(B) The pair of linear equation is inconsistent

(C) The pair of linear equation is independent

(D) The pair of linear equation is dependent

74. If the 7th and 13th terms of an A. P. be 34 and 64 respectively, then its 18th term is :

(A) 87

(B) 88

(C) 89

(D) 100

75. If the sum of n terms of an A. P. is $3n^2 + 5n$ then which of its terms is 164 ?

(A) 26th

(B) 27th

(C) 30th

(D) None of these

76. If the sum of n terms of an A. P. be $3n^2 + n$ and the common difference is 6, then its 1st term is :

(A) 2

(B) 3

(C) 1

(D) 4

77. What is the sum of all odd terms between 2 and 100 ?

(A) 2687

(B) 2600

(C) 2768

(D) 2967

78. In a group of 500 students, there are 475 students who can speak Hindi and 200 can speak English. What is the number of students who can speak Hindi only ?

(A) 475

(B) 300

(C) 175

(D) 500

79. In a cricket match, a batsman hits a boundary 15 times out of 60 balls he plays. Find the probability that he didn't hit a boundary in next ball :

(A) 0.75

(B) 0.15

(C) 0.60

(D) 0.18

80. Find the probability that a non-leap year has 53 Sundays :

(A) 2/7

(B) 5/7

(C) 1/7

(D) 6/7

81. If a number is selected from numbers 1 to 25, then find the probability that it is a prime number :

(A) 3/5

(B) 1/5

(C) 7/25

(D) 9/25

82. How many natural numbers are there between 23 and 100 which are exactly divisible by 6 ?

(A) 8

(B) 11

(C) 13

(D) 12

83. If a set has 5 elements, then the power set of that set has _____ elements.

(A) 25

(B) 32

(C) 10

(D) None of these

84. A bag contains 3 green, 4 blue and 2 orange marbles. If a marble is picked at random then find the probability of not getting an orange marble :

(A) 4/9

(B) 7/9

(C) 1/4

(D) 1/3

85. If x is any number chosen from 1, 2, 3 and y is selected from the numbers 1, 4, 9, then $P(xy < 9) = ?$

(A) 2/3

(B) 5/9

(C) 7/9

(D) 1/3

86. If the angle of elevation of the top of tower from a point 20m away from the foot is 45°, then find height of the tower :

(A) 40m

(B) 20m

(C) 30m

(D) 25m

87. If a circle and a semi-circle have the same radius as 14 cm, then the ratio of their perimeters is _____.

(A) 5 : 1

(B) 6 : 7

(C) 11 : 9

(D) 12 : 9

88. If the height of the cone is twice of the radius of its base circle then find the ratio of the area of base with total surface area :

(A) $1 : \sqrt{5}$

(B) $2 : \sqrt{3}$

(C) 3 : 2

(D) 4 : 3

89. A single letter is drawn at random from the word "ASPIRATION" the probability that it is a vowel is :

(A) 1/2

(B) 1/3

(C) 1/4

(D) 0

90. If 4 coins are tossed once then what is the probability of getting exactly 2 heads ?

(A) 7/8

(B) 5/8

(C) 1/2

(D) 3/8

91. A and B are two independent events such that $P(A \cup B') = 0.8$, and $P(A) = 0.3$, then $P(B) = ?$

(A) 2/7

(B) 2/3

(C) 3/8

(D) 1/8

92. Find the probability of getting a number greater than 3 in rolling of a dice once :

(A) 1/2

(B) 1/3

(C) 1/4

(D) 1/5

93. What is the sum of two consecutive even numbers, the difference of whose squares is 84 ?

(A) 34

(B) 38

(C) 42

(D) 46

94. What is the geometric mean of 4 and 16 ?

(A) 2

(B) 4

(C) 6

(D) 8

95. The average of 30 numbers is 12. The average of the first 20 of them is 11 and that of the next 9 is 10. The last number is :

(A) 60

(B) 45

(C) 50

(D) 40

96. The average of two numbers A and B is 20, that of B and C is 19 and of C and A is 21. What is the value of A ?

(A) 20

(B) 24

(C) 22

(D) 18

97. Find the sum of deviations of the variate values 3, 4, 6, 7, 8 and 14 from their mean ?

(A) 0

(B) 3

(C) 4

(D) 6

98. What is the mean of 1st 5 multiple of 7 ?

(A) 28

(B) 35

(C) 14

(D) 21

99. Find out the algebraic sum of deviation of a set of P values from their mean :

(A) P – 1

(B) 0

(C) P

(D) P + 1

100. The median of the following data :

Class interval	Frequency
0 – 10	8
10 – 20	16
20 – 30	36
30 – 40	34
40 – 50	6

(A) 27.22

(B) 24

(C) 50

(D) 36

SPACE FOR ROUGH WORK

SEAL