SCRIPT : ENGLISH

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Question Booklet Series Code : **A** Question Booklet Series No : **2677**

Time Allowed : 120 minutes Total Questions : 100 Maximum marks : 200

There shall be negative marking @ 0.25 mark per question for wrong / multiple answers.

Before answering any question, check the Booklet that it contains 16 pages and no page is missing, mutilated or repeated. In case of defect, get it replaced immediately.

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1. Fill in the OMR answer sheet, mentioning the Roll No. and other data as required in the place(s) indicated therein. Darken the appropriate circles in **blue** or **black ball point** pen only. Do not write any name / surname or put any symbol, sign, slogan, prayer or any mark of identification in the OMR answer sheet. Do not tamper with the bar-code or any other portion of the OMR answer sheet. **Any such act is liable to render the answer sheet unfit for evaluation**.
2. Correcting fluid, eraser, blade, books, textual material, script notes / loose paper, calculator, document, slide rules, log tables / electronic watches, smart watch, cell phone, pager, other electrical/ electronic devices etc, are not allowed inside the examination hall. In case the candidate is found to be in possession of any of the above, he / she shall be **expelled from the examination without any enquiry** as to whether the same was / were used by the candidate or not.
3. A machine will read the coded information furnished by you in the OMR Answer Sheet. If the information so furnished by you is incomplete or different from what you have given in the application form, **you shall be awarded Zero mark**.
4. Answer must be given by completely darkening one of the four circles / ovals representing the most appropriate answer given on the Answer Sheet corresponding to the relevant question. For answers not shown by properly darkening **in black / blue ball point pen**, no marks shall be awarded.
5. **No Rough work should be done on the OMR Answer Sheet**, Space for rough work has been provided in the Question Booklet itself.
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Arithmetic

1. What approximate value will come in the place of the question mark "?" in the following expression ?

9.99% of 29.906 + 299.84% of 54.908 – 49.86% of 149.59 = ?

(a) 106
(b) 90
(c) 93
(d) 80

2. Five persons take part in a tournament. Each one has to play with every other one. How many minimum number of games must they play?

(a) 10
(b) 12
(c) 8
(d) 18

3. A man has a certain number of small gifts to pack into parcels. If he packs 3, 4, 5 or 6 numbers of gifts in a parcel, he is left with one, if he packs 7 gifts in a parcel, then he will be left with none. Then, what is the minimum number of total gifts, he may have to pack ?

(a) 361
(b) 301
(c) 241
(d) 181

4. In a club, 20% of the members own only two cars each, 40% of the remaining own three cars each, and the remaining members own only one car each.Then, what percentage of the total members own one car each ?

(a) 40%
(b) 60%
(c) 48%
(d) 52%

5. A boat running upstream takes 8 hours 48 minutes to cover a certain distance, while it takes 4 hours to cover the same distance running downstream. What is the ratio between the speed of the boat and speed of the water current ?

(a) 9 : 5
(b) 3 : 7
(c) 7 : 3
(d) 8 : 3

6. The total number of digits used to number the pages of a book having 366 pages is :

(a) 990
(b) 1002
(c) 884
(d) 664

7. In a garden, there are 10 rows and 12 columns of mango trees. The distance between the two trees is 2 metres and a distance of 1 metre is left from all sides of the boundary of the garden. What is the length of the garden ?

(a) 24 metres

(b) 32 metres
(c) 16 meters
(d) 42 meters

8. In an examination, a student scores 4 marks for every correct answer and loses 1 mark for every wrong answer. If he attempts in all 60 questions and secures 130 marks, then the number of questions he attempts correctly is :
(a) 40
(b) 42
(c) 38
(d) 20

9. 5 bells begin to toll together at the intervals of 6, 5, 7, 10 and 12 seconds, respectively. How many times will they toll together in one hour excluding the one at the start ?
(a) 10 times
(b) 12 times
(c) 6 times
(d) 8 times

10. Fresh grapes contain 90% water by weight, while dry grapes contain 20% water by weight. What is the weight of dry grapes available from 20 kg of fresh grapes ?
(a) 5 kg
(b) 2.5 kg
(c) 4 kg
(d) 3 kg

11. Akshay went to a fruit market with certain amount of money. With this money he can buy either 50 oranges or 40 mangoes. If he retains 10% of the money for taxi fare and buys 20 mangoes, then the number of oranges he can buy is :
(a) 20
(b) 18
(c) 16
(d) 14

12. A container contains a mixture of water and alcohol in the ratio 7 : 5. When 18 litres of mixture are drawn off and the container is filled with alcohol, the new ratio becomes 7 : 9. How many litres of water was in the container initially?
(a) 50 litres
(b) 42 litres
(c) 46 litres
(d) 40 litres

13. If the difference between the Compound interest (compounded annually) and simple interests, on certain sum of money for 2 years at the rate of 4% per annum is Re.1.00, then the sum (in ₹) is :
(a) ₹ 625
(b) ₹ 452
(c) ₹ 526
(d) ₹ 456

14. A man's speed with the water current is 15 km/hour and the speed of the water current is 2.5 km/hour. Then,the man's speed against the water current is :
(a) 12 km/hr
(b) 24 km/hr
(c) 18 km/hr
(d) 10 km/hr

15. A contractor agreed to construct a 6 km road in 200 days.He employed 140 persons for the work. After 60 days, he realized that only 1.5 km road has been completed. How many additional people would he need to employ in order to finish the work exactly on time?
(a) 30
(b) 40
(c) 50
(d) 60

16. Amal can complete a job in10 days and Bimal can complete it in 8 days. Amal, Bimal and Kamal together complete the job in 4 days.They are paid a total amount of Rs 1000.00 as remuneration. If this amount is shared by them in proportion to their work, then Bimal's share is :
(a) ₹ 600
(b) ₹ 400
(c) ₹ 300
(d) ₹ 500

17. Find the sum of two consecutive numbers, where four times the first number is 10 more than thrice of the second number :
(a) 27
(b) 33
(c) 23
(d) 17

18. A motorbike leaves a point X at 1 P.M. and moves towards the point Y at a uniform speed. A car leaves the point Y at 2 P.M. and moves towards the point X at a uniform speed which is double that of the motorbike. They meet at 3.40 P.M. at a point which is 168 km away from X. What is the distance between the points X and Y ?
(a) 480 km
(b) 378 km
(c) 680 km
(d) 266 km

19. A alone can do a work in 20 days. B is 25% more efficient than A. A and B started working and worked for 4 days.If C alone completed the remaining work in 22 days, then how many days C alone will take to complete the entire work ?
(a) 40 days
(b) 60 days
(c) 35 days
(d) 45 days

20. There are 500 rooms in a multi-floored hotel. Due to a change in rule, the hotel has to decrease the number of floors by 5. However, the management is able to put 5 more rooms in each floor. Over all, the number of rooms in the hotel decreases by 10%. Originally, the number of floors and the number of rooms in each floor of the hotel was :

(a) 25 Floors, 20 Rooms
(b) 15 Floors, 20 Rooms
(c) 20 Floors, 20 Rooms
(d) 20 Floors, 25 Rooms

21. Arun has13 boxes of chocolates with him, with an average of 17 chocolates per box. If each box has at least 11 chocolates and no two boxes have equal number of chocolates, then what would be the maximum possible number of chocolates in any box ?

(a) 23
(b) 25
(c) 28
(d) 30

22. A mixture contains lemon juice and sugar syrup in equal proportion. If a new mixture is prepared by adding this mixture and sugar syrup in the ratio 1 : 3, then the ratio of lemon juice and sugar syrup in the new mixture is :

(a) 6 : 1
(b) 7 : 1
(c) 1 : 7
(d) 1 : 6

23. A train 125 metres long passes a man in 10 seconds running at 5 km/hour in the same direction as the train. What is the speed of the train ?

(a) 50 km/hr
(b) 25 km/hr
(c) 40 km/hr
(d) 30 km/hr

24. A tank has an inlet pipe and an outlet pipe. If the outlet pipe is closed, then the inlet pipe fills the empty tank in 8 hours. If the outlet pipe is open, then the inlet pipe fills the empty tank in 10 hours. If only the outlet pipe is open, then in how many hours the full tank becomes half-full ?

(a) 30 hrs
(b) 16 hrs
(c) 25 hrs
(d) 20 hrs

25. A, B and C can complete a work in 20 days, 15 days and 12 days, respectively. They all started the work together, but C left the job 3 days before its completion, and B left the job 2 days before C. In how many days, did the work get completed ?

(a) $7\frac{11}{12}$ days

(b) $9\frac{11}{12}$ days

(c) $9\frac{7}{12}$ days

(d) $7\frac{7}{12}$ days

Algebra

26. If the number 2345x60y is exactly divisible by 3 and 5, then, find the maximum value of x + y :

(a) 16

(b) 13

(c) 12

(d) 11

27. If $x+\cfrac{1}{1+\cfrac{1}{3+\cfrac{1}{4}}}=2$, find x.

(a) $\frac{5}{9}$

(b) $\frac{11}{17}$

(c) $\frac{9}{13}$

(d) $\frac{21}{17}$

28. Find the value of :

$$\left(1-\frac{1}{3}\right)\left(1-\frac{1}{4}\right)\left(1-\frac{1}{5}\right).....\left(1-\frac{1}{n}\right)$$

(a) $\frac{n}{9}$

(b) $\frac{2}{n}$

(c) $\frac{5}{n}$

(d) $\frac{n}{55}$

29. If $a^{x^y}=(a^x)^y$ then, find the value of $x^{(y-1)}.y^{x-1}$:

(a) y^y

(b) x^y

(c) y^x

(d) x^x

30. Which of the following is NOT a quadratic equations ?

(a) $(x-2)^2+1=2x-3$

(b) $x(x+1)+8=(x+2)(x-2)$

(c) $x(2x+3)=x^2+1$

(d) $(x+2)^3=x^3-4$

31. If a and b are the zeroes of the quadratic polynomial $p(x) = ax^2 + bx + c$, then which of the following is **correct** ?

(a) $a+b=-\frac{b}{a}$

(b) $ab=\frac{c}{a}$

(c) a and b are precisely the x-coordinates of the points, where the graph of y = p(x) intersects the x - axis.

(d) All of these

32. If $x^3 - hx^2 + kx - 9$ has a factor of $x^2 + 3$, then find the values of h and k.

(a) h = 2, k = 3

(b) h = 3, k = 3

(c) h = 2, k = 2

(d) h = 3, k = 2

33. If α , β are the roots of the equation $x^2 + 2x + 4 = 0$, then find the value of $\frac{1}{\alpha^3} + \frac{1}{\beta^3}$:

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

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

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

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

34. If the equations $2x^2 + kx - 5 = 0$ and $x^2 - 3x - 4 = 0$ have one root common, then find the value of k.

(a) -3

(b) $-\frac{27}{4}$

(c) Both (a) and (b)

(d) None of these

35. Find x , if $\sqrt{2x + 9} + x = 13$:

(a) 8, 20

(b) 6, 16

(c) 3, 8

(d) 12, 16

36. Which of the following is **incorrect**. A quadratic equation $ax^2 + bx + c = 0$ has :

(a) two distinct real roots, if $b^2 - 4ac > 0$,

(b) two equal roots (i.e., coincident roots), if $b^2 - 4ac = 0$,

(c) no real roots, if $b^2 - 4ac < 0$

(d) None of these

37. If $x^2 + y^2 = 117$ and $xy = 54$, then find the value of $\frac{x + y}{x - y}$:

(a) 8

(b) 6

(c) 5

(d) 4

38. Find x if :

$\frac{3}{8}$ of $168 \times 15 \div 5 + x = 549 \div 9 + 235$

(a) 110

(b) 108

(c) 112

(d) 107

39. Find m and n, if $\frac{5 + 2\sqrt{3}}{7 + 4\sqrt{3}} = m + n\sqrt{3}$:

(a) $m = 6, n = 10$

(b) $m = 11, n = 6$

(c) $m = 11, n = -12$

(d) $m = 11, n = -6$

40. If $x^2 - 4x - 1 = 0$ for some $x \neq 0$, then what is the value of $x^2 + \frac{1}{x^2}$?

(a) 16

(b) 14

(c) 18

(d) 12

41. If $x = 3 + 2\sqrt{2}$, then what is the value of $\left(\sqrt{x} - \frac{1}{\sqrt{x}}\right)$?

(a) ± 2

(b) ± 1

(c) 0

(d) ±3

42. If $x : y : z = 2 : 3 : 4$, then $\frac{x}{y} : \frac{y}{z} : \frac{z}{x} = ?$

(a) 3 : 2 : 1

(b) 8 : 9 : 11

(c) 8 : 7 : 15

(d) 8 : 9 : 24

43. If $\frac{a}{b} = \frac{2}{3}$ and $\frac{b}{c} = \frac{4}{5}$, then, $\frac{a+b}{b+c} = ?$

(a) $\frac{20}{27}$

(b) $\frac{10}{27}$

(c) $\frac{20}{13}$

(d) $\frac{20}{37}$

44. If $a^{a\sqrt{a}} = \left(a\sqrt{a}\right)^a$ for some non-zero real numbers a, then a = ?

(a) $\frac{16}{9}$

(b) $\frac{16}{25}$

(c) $\frac{9}{4}$

(d) $\frac{1}{9}$

45. If $\frac{3a+5b}{3a-5b} = 5$, then a : b is equal to :

(a) 2 : 7

(b) 5 : 2

(c) 9 : 2

(d) 3 : 5

46. If $a^{\frac{1}{3}} + b^{\frac{1}{3}} + c^{\frac{1}{3}} = 0$, then the value of $(a + b + c)^3 = ?$

(a) 9abc

(b) 27abc

(c) 81abc

(d) 8abc

47. If $(x - 2)$ is a factor of the polynomial $p(x) = x^3 + Kx^2 - 2x - 24$, then K = ?

(a) 3

(b) 7

(c) 9

(d) 5

48. If one of the root of the equation : $ax^2 + bx + c = 0$ is three times the other root, then b^2 : ac is equal to :

(a) 16 : 3

(b) 9 : 4

(c) 25 : 3

(d) 25 : 4

49. If $3^{x+3} + 7 = 250$, then x is equal to :

(a) 5

(b) 2

(c) 3

(d) 9

50. If $x = 4.965$, $y = 2.343$ and $z = 2.622$, then, the value of $(x^3 - y^3 - z^3 - 3xyz)$ is equal to :
(a) 1
(b) 0
(c) 3
(d) 4

Statistics and Probability

Directions (Q51 – 53): The marks obtained by 30 students of Class-X of a certain school in a Mathematics paper consisting of 100 marks are presented in table below. Read the table carefully and answer the questions that follow :

Marks obtained	Number of Students
10	1
20	1
36	3
40	4
50	3
56	2
60	4
70	4
72	1
80	1
88	2
92	3
95	1
Total	**30**

51. What is the Mean of the marks obtained by the students ?
(a) 61.4
(b) 59.3
(c) 58.6
(d) 62.1

52. What is the Median value of the above marks ?
(a) 56
(b) 60
(c) 72
(d) 50

53. Using the Median and Mean data above, calculate the Mode of the above data :
(a) 60.7
(b) 61.4
(c) 62.1
(d) 62.8

54. If the mode of a data is 8 and its median is 12 less than its mean. Then what is the value of mean ?
(a) 40
(b) 42
(c) 48
(d) 44

55. For what values of x and y, the ordered data set :
17, 22, 26, 29, 34, x, 42, 67, 70, y
has a mean of 42 and a median of 35 ?
(a) $x = 36, y = 77$
(b) $x = 25, y = 36$
(c) $x = 20, y = 40$
(d) $x = 23, y = 32$

56. If the mode of a set of data exceeds its mean by 12, then the mode exceeds its median by :
(a) 6
(b) 8
(c) 9
(d) 10

57. The mean of 5 observations is 3 and variance is 2. If three of the five observations are 1, 3, 5, then what are the other two?
(a) 7 and 2
(b) 2 and 6
(c) 2 and 4
(d) 7 and 9

58. The mean of first n odd numbers is $n^2/81$, find 'n' :
(a) 27
(b) 65
(c) 81
(d) 18

59. The wickets taken by a bowler in 10 cricket matches are as follows :
2, 6, 4, 5, 0, 2, 1, 3, 2, 3
What is the mode of the data ?
(a) 1
(b) 0
(c) 3
(d) 2

60. Mean of 11 observations is 17.5. if an observations 15 is deleted, find the mean of the remaining observations :
(a) 17.65
(b) 17.4
(c) 17.75
(d) 17.35

61. The mean of 15 numbers is 25. If each number is multiplied by 4. Find the mean of the new numbers :
(a) 6.25
(b) 100
(c) 60
(d) 3.75

62. If the mean of x and $\frac{1}{x}$ is '2' find the mean of x^3 and $\frac{1}{x^3}$?
(a) 26
(b) 81
(c) 48
(d) 52

63. In a simultaneous throw of a pair of dice, what is the probability of getting a sum, which is a perfect square ?
(a) $\frac{11}{36}$
(b) $\frac{9}{36}$
(c) $\frac{7}{36}$
(d) $\frac{5}{36}$

64. A number is selected at random from first thirty natural numbers . What is the probability that it's a multiple of either 3 or 13 ?
(a) $\frac{2}{5}$

(b) $\frac{11}{30}$

(c) $\frac{13}{30}$

(d) $\frac{1}{6}$

65. Two dice are thrown together. Find the probability that neither they show equal digits nor the sum of their digits is 9 :

(a) $\frac{13}{18}$

(b) $\frac{7}{9}$

(c) $\frac{13}{36}$

(d) $\frac{5}{18}$

66. A pack of cards contains 4 aces, 4 kings, 4 queens and 4 jacks. Out of these 16 number of cards, two cards are drawn at random. Find the probability that at least one of them is an ace :

(a) $\frac{11}{20}$

(b) $\frac{13}{20}$

(c) $\frac{9}{20}$

(d) $\frac{17}{20}$

67. Find the probability that a leap year will have 53 Fridays or 53 Saturdays :

(a) $\frac{2}{7}$

(b) $\frac{3}{7}$

(c) $\frac{4}{7}$

(d) $\frac{5}{7}$

68. A box contains 10 good articles and 6 defective articles. One items is drawn at random. Find the probability that it is either good or is defective :

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

(b) $\frac{15}{16}$

(c) $\frac{11}{16}$

(d) 1

69. What is the probability that the month of April has exactly 5 Monday ?

(a) $\frac{2}{7}$

(b) $\frac{3}{7}$

(c) $\frac{4}{7}$

(d) $\frac{5}{7}$

70. One card is drawn from a pack of 52 cards. What is the probability that the card drawn is either a red card or a king ?

(a) $\frac{6}{13}$

(b) $\frac{11}{13}$

(c) $\frac{3}{13}$

(d) $\frac{7}{13}$

71. Three fair coins are tossed simultaneously. Find the probability of getting more heads than the number of tails.

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

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

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

(d) $\frac{1}{9}$

72. A jar contains 24 marbles, some are green and others are blue . If a marble is drawn at random from the jar, the probability that it is green is $\frac{2}{3}$. Find the number of blue marbles :

(a) 9

(b) 8

(c) 7

(d) 6

73. The probability of Sita, Gita, Mita passing a test are 60%, 40% and 20%, respectively. What is the probability that Sita and Gita will pass the test, but not Mita?

(a) $\frac{12}{125}$

(b) $\frac{36}{125}$

(c) $\frac{48}{125}$

(d) $\frac{24}{125}$

74. A coin is tossed up 4 times. The probability that tails turn up in 3 cases is :

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

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

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

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

75. If 40% of the boys opted for Mathematics and 60% of the girls opted for Mathematics, then what is the probability that Mathematics is chosen, if half of the class's population is girls ?

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

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

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

(d) $\frac{4}{5}$

Mensuration

76. If the perimeter of an isosceles right triangle is $(6+3\sqrt{2})$m, then find the area of the triangle ?

(a) 4.5 m^2

(b) 5 m^2

(c) 6 m^2

(d) 8 m^2

77. The opposite pairs of sides of a square are increased by 40% and 30% respectively .By what percentage the area of the resulting rectangle exceeds the area of the square ?

(a) 68%

(b) 82%
(c) 76%
(d) 90%

78. A rectangular carpet has an area of 60 cm^2. Its diagonal and longer side together equal 5 times the shorter side. What is the length of the carpet ?
(a) 16 m
(b) 12 m
(c) 18 m
(d) 14 m

79. If the circumference and area of a circle are numerically equal ,then find the numerical value of the diameter ?
(a) 6
(b) 4
(c) 3
(d) 7

80. If the diagonal of a square is decreased by 15%, then by what percentage the area decreases ?
(a) 30%
(b) 25%
(c) 27.75%
(d) 15%

81. How much is the area of the largest possible square inscribed in a circle of unit radius (in square unit) ?
(a) 0.5
(b) 1
(c) 2
(d) 1.5

82. The wheel of a cycle covers 660 meters by making 500 revolutions. What is the diameter of the wheel (in cm.) ? $\left[\pi = \frac{22}{7}\right]$
(a) 40
(b) 55
(c) 42
(d) 60

83. What is the ratio of the areas of the incircle and the circumcircle of a square ?
(a) 1 : 2
(b) 3 : 4
(c) 2 : 3
(d) 2 : 5

84. A wire is in the form of a circle of radius 35 cm. If it is bent into the shape of a rhombus, what is the length of each side of the rhombus ? $\left[\pi = \frac{22}{7}\right]$
(a) 55 cm
(b) 60 cm
(c) 65 cm
(d) 70 cm

85. Find the area of the largest triangle that can be inscribed in a semi-circle of radius 'r' :
(a) 2r
(b) r^2
(c) $\frac{r}{2}$
(d) $\frac{r}{4}$

86. A cone and a hemisphere have equal base diameter and equal volumes. What is the ratio of the height of Cone to that of hemisphere ?
(a) 2 : 1
(b) 3 : 2
(c) 4 : 3
(d) 1 : 3

87. A river 3 m deep and 60 m wide is flowing at the rate of 2.4 km/hr. Find the amount of water running into the sea per minute :
(a) 6000 m^3
(b) 6500 m^3
(c) 6800 m^3
(d) 7200 m^3

88. A cylinder circumscribes a sphere. Find the ratio of the volume of cylinder to that of sphere :
(a) 2 : 5
(b) 3 : 7
(c) 3 : 4
(d) 3 : 2

89. The total surface area of a cuboid is 846 cm^2. Find the volume, if the dimensions are proportional to 5 : 4 : 3 :
(a) 1400 cm^3
(b) 1500 cm^3
(c) 1620 cm^3
(d) 1780 cm^3

90. If the largest possible cube is inscribed in a hemisphere of radius 3 cm., then find the edge of the cube :
(a) $\sqrt{8}$
(b) $\sqrt{6}$
(c) $\frac{6}{\sqrt{5}}$
(d) $\sqrt{5}$

91. The volumes of two similar pyramids are in the ratio 8 : 27. What is the ratio of their surface areas ?
(a) 2 : 3
(b) 4 : 9
(c) 3 : 8
(d) 9 : 5

92. A Cone of height 10 cm and radius 5 cm is cut into two parts at half its height. The cut is given parallel to its circular base. What is the ratio of the volume of the original cone to the volume of the frustum left ?
(a) $\frac{9}{5}$
(b) $\frac{7}{5}$
(c) $\frac{8}{5}$
(d) $\frac{8}{7}$

93. The radii of the base of a cylinder and a cone are in the ratio 3 : 4 and their height are in the ratio 2 : 3. Then, find their ratio of volumes ?
(a) 7 : 6
(b) 5 : 4
(c) 8 : 7
(d) 9 : 8

94. A right triangle with sides 3 cm, 4 cm and 5 cm is revolved about its side 3 cm. Find the volume of the cone so formed :

(a) 16π cm^3

(b) 8π cm^3

(c) 12π cm^3

(d) 20π cm^3

95. The volume of a cube is numerically equal to the sum of its edges. What is the total surface area in square units ?

(a) 72

(b) 80

(c) 96

(d) 68

96. The sum of three sides of an isosceles triangle is 20cm. If the ratio of an equal side to the base is 3 : 4, then the altitude of the triangle is :

(a) $3\sqrt{5}$ cm

(b) $2\sqrt{5}$ cm

(c) $\sqrt{5}$ cm

(d) $4\sqrt{5}$ cm

97. A solid right circular cone of height 27 cm is cut into two pieces along a plane parallel to its base at a height of 18 cm from the base. If the difference in volume of the two pieces is 225 cc, then the volume (in cc) of the original cone is :

(a) 256

(b) 169

(c) 243

(d) 296

98. A spherical metal of radius 10 cm is molten and made into 1000 smaller spheres of equal sizes. In this process, the surface area of the metal is increased by how many times ?

(a) 6 times

(b) 7 times

(c) 8 times

(d) 9 times

99. Radius of a spherical balloon increases at the rate of 2 cm per second. Then, what would be the rate of increase of its curved surface area when the radius reaches 30 cm ?

(a) 240π cm^2/s

(b) 340π cm^2/s

(c) 280π cm^2/s

(d) 480π cm^2/s

100. A ladder leans against a vertical wall. The top of the ladder is 8 metres above the ground. When the bottom of the ladder is moved 2 metres farther away from the wall, the top of the ladder rests against the foot of the wall. What is the length of the ladder ?

(a) 12 metres

(b) 13 metres

(c) 17 metres

(d) 19 metres

Space for rough work