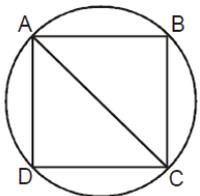


Read the following instructions carefully before you begin to answer the questions.

1. INSTRUCTIONS TO CANDIDATE this booklet contain 100 questions of Arithmetic.
2. All questions are compulsory and carry equal marks.
3. Before you start to answer the question you must check up this booklet and ensure that it contains all the pages and see that no page is missing or replaced. If you find any defect in this booklet, you must get it replaced immediately.
4. The paper carries negative marking. .50 marks will be deducted for each wrong answer.
5. You will be supplied the Answer-sheet separately by the invigilator. You must complete the details of Name, Roll number, Test Id and name of the examination on the Answer-Sheet carefully before you actually start answering the questions. You must also put your signature on the Answer-Sheet at the prescribed place. These instructions must be fully complied with, failing which, your Answer-Sheet will not be evaluated and you will be awarded 'ZERO' mark.
6. Answer must be shown by completely blackening the corresponding circles on the Answer-Sheet against the relevant question number by HB pencil or Black/ blue ball pen only.
7. A machine will read the coded information in the OMR Answer-Sheet. In case the information is incompletely /different from the information given in the application form, the candidature of such candidate will be treated as cancelled.
8. The Answer-Sheet must be handed over to the Invigilator before you leave the Examination Hall.
9. Failure to comply with any of the above Instructions will render a candidate liable to such action/penalty as may be deemed fit.
10. Answer the questions as quickly and as carefully as you can. Some questions may be difficult and others easy. Do not spend too much time on any question.
11. Mobile phones and wireless communication device are completely banned in the examination halls/rooms. Candidates are advised not to keep mobile phones/any other wireless communication devices with them even switching it off, in their own interest. Failing to comply with this provision will be considered as using unfair means in the examination and action will be taken against them including cancellation of their candidature.
12. No rough work is to be done on the Answer-Sheet.

1. A and B undertook a work for Rs. 350. A got Rs. 150 more than that of B, when they worked together. B takes 9 days more than A, when they work individually. In how many days A and B working together can do the whole work:  
 (a) 5 (b)  $4\frac{2}{3}$   
 (c)  $4\frac{5}{7}$  (d)  $5\frac{4}{7}$
2. 6 men or 10 women can reap a field in 15 days, then the number of days that 12 men and 5 women will take to reap the same field is :  
 (a) 5 (b) 6  
 (c) 8 (d) 12
3. The driver of an ambulance sees a school bus 40 m ahead of him. After 20 second, the school bus is 60 meter behind. If the speed of the ambulance is 30 km/h, what is the speed of the school bus?  
 (a) 10 km/h (b) 12 km/h  
 (c) 15 km/h (d) 2 km/h
4. A postman riding a bicycle at 15 km/h can reach a village in 4 hours. If he is delayed by 1 hour at he start, then in order to reach his destination in time, he should ride with a speed of:  
 (a) 20 km/h (b) 16 km/h  
 (c) 14 km/h (d) 12 km/h
5. The number of zeros at the end of :  $(2^{123} - 2^{122} - 2^{121}) \times (3^{234} - 3^{233} - 3^{232})$ :  
 (a) 0 (b) 1  
 (c) 121 (d) None of these
6. The remainder when  $75^{75^{75}}$  is divided by 37:  
 (a) 0 (b) 1  
 (c) 5 (d) 7
7. The unit digit of  $2^{3^4}, 2^{4^5}, 2^{5^6}, 2^{6^7}, 2^{7^8}, 2^{8^9}$  is :  
 (a) 0 (b) 5  
 (c) can't be determined (d) None of these
8. A monkey wanted to climb on the smooth vertical pole of height of 35 metre. In the first on minute he climbs up 5 metre in the next one minute he slips down by 2 metre. Further he repeated the same process till he has reached on the top of the pole. How many times it has to go upward to reach the apex of the pole?  
 (a) 35 (b) 12  
 (c) 11 (d) can't say
9. If the sum of two numbers be multiplied by each number separately, the products so obtained are 247 and 144. The sum of the numbers is  
 (a) 19 (b) 20  
 (c) 21 (d) 23
10. The L.C.M. of three different numbers is 120. Which of the following cannot be their H.C.F.?  
 (a) 8 (b) 12  
 (c) 24 (d) 35
11. The traffic lights at her different road crossings change after 24 seconds, 36 seconds and 54 seconds respectively. If they al change simultaneously at 10:15:00 AM, then atwhat timewill they again change simultaneously?  
 (a) 10 :16 :54 AM (b) 10 :18 :36 AM  
 (c) 10 :17 :02 AM (d) 10 :2 :12 AM
12. A can do a work in 12 days. When he had worked for 3days, B joined him. If they complete the work in 3 more Days, in how many days can B alone finish the work?  
 (a) 6 days (b) 12 days  
 (c) 4 days (d) 8 days
13. A copper wire is bent in the shape of a square of area  $81\text{cm}^2$ . If the same wire is bent in the form of a semicircle, theradius (in cm) of the semicircle is.  
 (Taken)  $\Pi = 22/7$   
 (a) 16 (b) 14  
 (c) 10 (d) 7
14. A river 3 m deep and 40 m wide is flowing at the rate of 2 km per hour. How much water (in litres) willfall into the sea in a minute?  
 (a) 40, 0, 00,00 (b) 40,0,00  
 (c) 40, 00 (d) 4, 00
15. The perimeter of a triangle is 40cm and its area is  $60\text{cm}^2$  If he largest side measures 17cm, then the length (in cm) of the smallest side of the triangle is.  
 (a) 4 (b) 6  
 (c) 8 (d) 15
16. In a business partnership among A, B, C and D the profit is shared as follows:  
 $\frac{A's\text{share}}{B's\text{share}} = \frac{B's\text{share}}{C's\text{share}} = \frac{C's\text{share}}{D's\text{share}} = \frac{1}{3}$   
 If the total profit is Rs. 40000, the share of C is  
 (a) Rs. 1,12,500 (b) Rs. 1,37,500  
 (c) Rs. 9,000 (d) Rs. 77,000
17. Among three numbers, the first is twice the second and thrice the third. If the average of the three numbers is 49.5, then the differencebetween the first and the third numberis  
 (a) 54 (b) 28  
 (c) 39.5 (d) 41.5
18. While, selling a watch a shopkeeper gives a discount of 5%. If he gives a discount of 6%, he earns Rs. 15 less as profit. What is the marked price of the watch?  
 (a) Rs. 1,250 (b) Rs. 1,400  
 (c) Rs. 1,50 (d) Rs. 750
19. Krishna purchased a number of articles at Rs. 10 for each and the same number for Rs. 14 each. He mixed them together and sold them for Rs. 13 each. Then his gain or Loss percent is:  
 (a) Loss  $8\frac{1}{3}\%$  (b) Gain  $8\frac{2}{3}\%$   
 (c) Loss  $8\frac{2}{3}\%$  (d) Gain  $8\frac{1}{3}\%$
20. A trader bought two horses for Rs. 19,500. He sold one ata loss of 20% and the other at a profit of 15%. If the selling price of each horse is the same, then their cost prices arerespectively.

- (a) Rs. 10,000 and Rs. 9,500  
 (b) Rs. 11, 500 and Rs. 8,000  
 (c) Rs. 12,000 and Rs. 7,500  
 (d) Rs. 10,500 and Rs. 9,000
21. A man can row 6 km/h in still water. If the speed of the current is 2 km/h, it takes 3 hours more in upstream than in the downstream for the same distance. The distance is  
 (a) 30 km (b) 24 km  
 (c) 20 km (d) 32 km
22. The difference between the compound interest and simple interest on Rs. 10,000 for 2 years is Rs. 25. The rate of interest per annum is  
 (a) 5% (b) 7%  
 (c) 10% (d) 12%
23. The difference between a discount of 40% on Rs. 500 and two successive discounts of 36%, 4% on the same amount is  
 (a) Rs. 0 (b) Rs. 2  
 (c) Rs. 1.93 (d) Rs. 7.20
24. X sells two articles for Rs. 4,000 each with no loss and no gain in the transaction. If one was sold at a gain of 25% the other is sold at a loss of  
 (a) 25% (b)  $18\frac{2}{9}\%$   
 (c)  $16\frac{2}{3}\%$  (d) 20%
25. A man has only 20 paisa Coins and 25 paisa Coins in his purse. If he has 50 Coins in all totaling Rs. 11.25, how many 20 paisa Coins he have?  
 (a) 2 (b) 18  
 (c) 20 (d) 25
26. The radius of a circle is 6 cm. An external point is at a distance of 10 cm from the centre. Then the length of the tangent drawn to the circle from the external point up to the point of contact is.  
 (a) 8 cm (b) 10 cm  
 (c) 6 cm (d) 12 cm
27. If G be the centroid of  $\Delta ABC$  and the area of  $\Delta GBD$  is 6 sq. cm, where D is the mid-point of side BC, then the area of  $\Delta ABC$  is  
 (a) 18 sq. cm (b) 12 sq. cm  
 (c) 24 sq. cm (d) 36 sq. cm
28. If the area of the circle in the figure is 36 sq. cm. and ABCD is a square, then the area of  $\Delta ACD$ , in sq. cm, is
- 
- (a) 12p (b) 36/p  
 (c) 12 (d) 18
29. If the sides of a  $\Delta ABC$  are p, q and  $\sqrt{p^2 + q^2 + pq}$ , then the greatest angle of the triangle is  
 (a)  $150^\circ$  (b)  $135^\circ$   
 (c)  $120^\circ$  (d)  $90^\circ$
30. The length of the diagonal of a rhombus is 80% of the length of the other diagonal. Then, the area of the rhombus is how many times the square of the length of the longer diagonal?  
 (a) 4/5 (b) 2/5  
 (c) 3/4 (d) 1/4
31. Find the value of  $(\sin 5^\circ + \cos 85^\circ) / (\sin 5^\circ - \cos 85^\circ)$   
 (a) 1 (b) 0  
 (c)  $\infty$  (d) None of these
32. A right circular cone is exactly fitted inside a cube in such a way that the edges of the base of cone are touching the edges of one of the faces of the cube and the vertex is on the opposite face of the cube. If the volume of the cube is 343 c.c, what approximately is the volume of the cone?  
 (a) 90 c.c (b) 75 c.c  
 (c) 80 c.c (d) 85 c.c
33. A force of 60 men has food for 28 days. 8 days later reinforcements arrive leaving the number of days the food would last to 15 days. What was the strength of the reinforcement?  
 (a) 20 (b) 30  
 (c) 40 (d) 50
34. A person spent half of the money he had. Now he finds that he has just as many paise as he had rupees and half as many rupees as he had paise in the beginning. If 10% error is allowed, then what should be your nearest guess about his money in the beginning?  
 (a) Rs. 50 (b) Rs. 80  
 (c) Rs. 90 (d) Rs. 100
35. If  $x + y + z = 1$  and x, y, z are positive numbers, then  $(1-x)(1-y)(1-z) \geq Axyz$ , where A is a positive integer. Find the most suitable value of A.  
 (a) 6 (b) 8  
 (c) 9 (d) 10
36. A and B have some apples divided among themselves. A says to B "If I give you 25% of the apples I have, I will still have 2 more apples than you". To this, B says "If you give me apples equal to 70% of what I have now, I will have 4 more apples than you." What is the total number of apples than they have?  
 (a) 80 (b) 64  
 (c) 36 (d) 88
37. A student took five papers in an examination, where the full marks were the same for each paper. His marks in these papers were in the proportion of 6 : 7 : 8 : 9 : 10. In all papers together, the candidate obtained 60% of the total marks. Then, the number of papers in which he got more than 50% marks is:  
 (a) 1 (b) 3  
 (c) 4 (d) 5
38. A person who has certain amount with him goes to market. He can buy 50 orange and 40 mangoes. He retains 10% of the amount for taxi fares and buys 20

- mangoes and of the balance, he purchases oranges. Number of oranges he can purchase is:
- (a) 36 (b) 40  
(c) 15 (d) 20
39. A dishonest retailer cheats his wholesaler and customer both. He purchases 19% more from the wholesaler and sells 15% less while selling to its customer. What is profit percentage by selling the goods at cost price?
- (a) 36.78% (b) 34%  
(c) 40% (d) 36.85%
40. A square has its side equal to the radius of a sphere. The square revolves round a side to generate a surface of total area S. If A be the surface area of the sphere, which one of the following is correct?
- (a)  $A = 3S$  (b)  $A = 2S$   
(c)  $A = S$  (d)  $A < S$
41. A number of boys raised Rs. 400 for a famine relief fund, each boy giving as many 25 paise coins as there were boys. The number of boys was.
- (a) 40 (b) 16  
(c) 20 (d) 100
42. A house and a shop were sold for Rs. 1 lakh each. In this transaction, the house sale resulted into 20% loss whereas the shop sale into 20% profit. The entire transaction resulted in.
- (a) no loss no gain  
(b) gain of Rs. 1/24 Lakh  
(c) loss of Rs. Of 1/25lakh  
(d) loss of Rs. 1/18 lakhs
43. A and B solved a quadratic equation. In solving it, A made a mistake in the constant term and obtained the roots as 6 and 2, while B made a mistake in the coefficient of x only and obtained the roots - 7 and - 1. Find the correct roots of the equation.
- (a) 7, 1 (b) 2, 5  
(c) -6, 3 (d) -7, 1
44. The median BD of the  $\triangle ABC$  meets AC at D. If  $BD = \frac{1}{2}AC$ , then which one of the following is correct?
- (a)  $\angle ACB = 90^\circ$   
(b)  $\angle BAC = 90^\circ$   
(c)  $\angle ABC = 90^\circ$   
(d) None of these
45. The three sides of a triangle are 10, 100 and x. Which one of the following is correct?
- (a)  $10 < x < 100$  (b)  $90 < x < 110$   
(c)  $90 \leq x \leq 100$  (d)  $90 \leq x < 110$
46.  $\triangle ABC$  is such that  $AB = 3$  cm,  $BC = 2$  cm and  $AC = 2.5$  cm.  $\triangle DEF$  is similar to  $\triangle ABC$ . If  $EF = 4$  cm, then the perimeter of  $\triangle DEF$  is.
- (a) 5 cm (b) 7.5 cm  
(c) 15 cm (d) 18 cm
47. If  $\cos\theta = 0.96$ , then  $\frac{1}{\sin\theta} + \frac{1}{\cos\theta}$  is equal to
- (a) 0.98 (b) 3  
(c) 4 (d) 7
48. The length of a line segment AB is 2 units. It is divided into two parts at the point C such that  $AC^2 = AB \times CB$ . What is the length of CB?
- (a)  $3 + \sqrt{5}$  units (b)  $3 - \sqrt{5}$  units  
(c)  $2 - \sqrt{5}$  units (d)  $\sqrt{3}$  units
49. In a triangle ABC if  $A = (1, 2)$  and internal angle bisector through B and C are  $y = x$  and  $y = -2x$ , then the in radius of  $\triangle ABC$  is.
- (a)  $1/\sqrt{3}$  (b)  $1/\sqrt{2}$   
(c)  $2/\sqrt{3}$  (d) None of these
50. A vessel is filled with liquid, 3 parts of which are water and 5 parts syrup. How much of the mixture must be drawn off and replaced with water so that the mixture may be half water and half syrup?
- (a) 1/3 (b) 1/4  
(c) 1/5 (d) 1/7
51. If  $(102)^2 = 10404$ , then the value of  $\sqrt{104.04} + \sqrt{1.0404} + \sqrt{0.010404}$  is equal to
- (a) 0.306 (b) 0.0306  
(c) 11.122 (d) 11.322
52. If n is an integer, how many values of n will give an integral value  $(\frac{16n^2+7n+6}{n})$  of |
- (a) 2 (b) 3  
(c) 4 (d) None of these
53. If  $\frac{1}{2}$  of the number of white cat in a certain laboratory is  $\frac{1}{8}$  of the total number of cats, and  $\frac{1}{3}$  of the number of black cat is  $\frac{1}{9}$  of the total number of cats, then what is the ratio of white cats and black cats in the laboratory?
- (a) 16 : 27 (b) 2 : 3  
(c) 3 : 4 (d) 4 : 5
54. A figure is formed by revolving a rectangular sheet of dimensions 7 cm  $\times$  4 cm about its length. What is the volume of the figure thus formed?
- (a) 352 cu cm (b) 296 cu cm  
(c) 176 cu cm (d) 616 cu cm
55. In  $\triangle PQR$ ,  $PQ = 4$  cm,  $QR = 3$  cm and  $RP = 3.5$  cm.  $\triangle DEF$  is similar to  $\triangle PQR$ . If  $EF = 9$  cm, then what is the perimeter of  $\triangle DEF$ ?
- (a) 10.5 cm (b) 21 cm  
(c) 31.5 cm (d) data insufficient
56. The equations of the sides of a triangle are  $x + y - 5 = 0$ ,  $x - y + 1 = 0$ , and  $y - 1 = 0$ . Then, the coordinates of the circumcentre are.
- (a) (2, 1) (b) (1, 2)  
(c) (2, -2) (d) (1, -2)
57. A and B entered into a partnership investing Rs. 16000 and Rs. 12000, respectively. After 3 months, A withdrew Rs. 5000 while B invested Rs. 5000 more. After three more months C joins the business with a capital of Rs. 21000. The share of B exceeds that of C, out of the total profit of Rs. 26400 after one year, by
- (a) Rs. 3600 (b) Rs. 2400  
(c) Rs. 1200 (d) Rs. 2100

58. In an examination, 40% of the candidates wrote their answers in Hindi and the others in English. The average marks of the candidates written in Hindi is 74 and the average marks of the candidates written in English is 77. What is the average marks of all the candidates?

- (a) 75.5 (b) 75.8  
(c) 76.0 (d) 76.8

59. The digit in the unit's place of  $[(251)^{98} + (21)^{29} - (106)^{100} + (705)^{35} - 16^4 + 259]$  is:

- (a) 1 (b) 4  
(c) 5 (d) 6

60. Tap 'A' can fill the cistern in 5 h and the another tap 'B' can empty that cistern in 4 h. How much time it will take to empty the cistern if both the taps are opened simultaneously when the cistern is already full?

- (a) 10 h (b) 16 h  
(c) 18 h (d) 20 h

61. The length of a train and that of a platform are equal. If with a speed of 90 km/h the train crosses the platform in one minute, the length of the train (in metres) is.

- (a) 500 (b) 600  
(c) 750 (d) 900

62. A solid cylinder has a total surface area of  $231 \text{ m}^2$ . Its curved surface area is  $\frac{2}{3}$  of the total surface area. The volume of the cylinder is.

- (a)  $269\frac{1}{2} \text{ m}^3$  (b)  $259\frac{1}{2} \text{ m}^3$   
(c)  $249\frac{1}{2} \text{ m}^3$  (d)  $239\frac{1}{2} \text{ m}^3$

63. If  $(x + 2)$  is the HCF of  $x^2 + ax + b$  and  $x^2 + cx + d$  ( $a \neq c$  and  $b \neq d$ ), then which one of the following is correct?

- (a)  $a + c = b + d$  (b)  $2a + b = 2c + d$   
(c)  $b + 2c = 2a + d$  (d)  $b - 2c = 2a - d$

64.

$$\left[ 8 - \left( \frac{9}{4^4 \sqrt{(2.2)^2}} \right)^{\frac{1}{2}} \right]$$

- (a) 32 (b) 8  
(c) 1 (d) 0

65. The total number of integers between 200 and 400, each of which either begins with 3 or ends with 3 or both, is.

- (a) 10 (b) 100  
(c) 110 (d) 120

66. If  $\frac{x}{y} = \frac{2}{3}$ ,  $\frac{y}{z} = \frac{3}{5}$ ,  $\frac{z}{w} = \frac{5}{6}$ ,  $\frac{w}{a} = \frac{2}{3}$  and  $\frac{a}{d} = \frac{1}{2}$  that what is the value of  $\frac{x^2 ad^3}{y^3 zw^2}$ ?

- (a) 248/5 (b) 124/5  
(c) 108/5 (d) 216/5

67.  $3^{3.5} \times 21^2 \times 42^{2.5} \div 2^{2.5} \times 7^{3.5} = (21)^?$

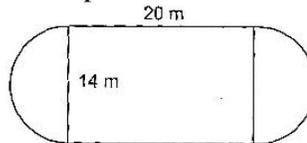
- (a) 8 (b) 10  
(c) 12.5 (d) 6.5

68. If  $(a - 1)^2 + (b + 2)^2 + (c + 1)^2 = 0$ , then the value of  $2a - 3b + 7c$  is.

- (a) 12 (b) 3

(c) - 11 (d) 1

69. A garden is in the form of a rectangle with semi-circular ends on the either side as shown in the diagram below. The length and breadth of the rectangle are 20 m and 14 m respectively. The cost of leveling the plot at Rs. 25 per  $\text{m}^2$  is.



- (a) Rs. 10850 (b) Rs. 5425  
(c) Rs. 8510 (d) Rs. 4255

70. If  $x = \frac{2\sqrt{2}}{1+\sqrt{2}}$ , then  $\frac{x+\sqrt{2}}{x+\sqrt{2}} + \frac{x+1}{x+1}$  will be equal to?

- (a)  $\sqrt{2}$  (b)  $\sqrt{3}$   
(c) 2 (d) 1

Directions (76-77): In each of the following number series is a wrong number. Find out that number.

71. 46080, 3840, 384, 48, 24, 2, 1

- (a) 384 (b) 48  
(c) 24 (d) 2

72. 5, 10, 40, 80, 320, 550, 2560

- (a) 80 (b) 320  
(c) 550 (d) 2560

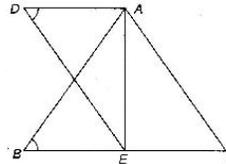
73. A company offers three types of successive discounts

- (i) 25% and 15%  
(ii) 30% and 10%  
(iii) 35% and 5%

Which offer is the best for a customer?

- (a) First offer (b) Second offer  
(c) Third offer (d) Anyone, all are equally good

74. If figure,  $\triangle ADE$  and  $\triangle ABC$  are similar, if  $AC : BC = 3:2$ , then the ratio  $\frac{DE}{AE}$  is:



- (a) 3 : 2 (b) 2 : 3  
(c) 1 : 3 (d) 1 : 2

75. AB and CD are two parallel lines. PQ cuts AB and CD at E and F, respectively. EL is the bisector of  $\angle FEB$ . If  $\angle LEB = 35^\circ$ , then  $\angle CFQ$  will be.

- (a)  $110^\circ$  (b)  $85^\circ$   
(c)  $70^\circ$  (d)  $95^\circ$

76. If  $\cos x + \cos^2 x = 1$ , then the value of  $\sin^8 x + 2 \sin^6 x + \sin^4 x$  is.

- (a) 0 (b) - 1  
(c) 2 (d) 1

77.  $\triangle ABC$  is a right angled at A and AD is the altitude to BC. If  $AB = 7\text{cm}$  and  $AC = 24 \text{ cm}$ . Find the ratio of AD to AM if M is the mid-point of BC:

- (a) 25:41 (b) 32:41  
(c) 336/625 (d) 625/33

78. A train covers a distance of 3584 km in 2 days 8 h. If it covers 1440 km on the first day and 1608 km on the second day, by how much does the average speed of the train for the remaining part of the journey differ from that for the entire journey?

- (a) 3 km/h more (b) 3 km/h less  
(c) 4 km/h more (d) 5 km/h less

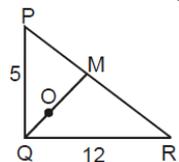
79. The speeds of two trains are in the ratio 6 : 7. If the second train runs 364 km in 4 h, then the speed of first train is.

- (a) 60 km/h (b) 72 km/h  
(c) 78 km/h (d) 84 km/h

80. A, B and C completed a work costing Rs. 1800. A worked for 6 days, B for 4 days and C for 9 days. If their daily wages are in the ratio of 5 : 6 : 4, how much amount will be received by A daily?

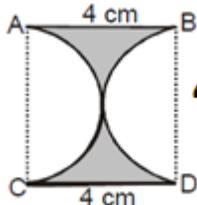
- (a) Rs. 800 (b) Rs. 600  
(c) Rs. 900 (d) Rs. 750

81. If  $\angle PQR = 90^\circ$ , O is the centroid, PQ = 5 cm and QR = 12 cm, then OQ is



- (a)  $3\frac{1}{4}$  (b)  $4\frac{1}{3}$   
(c)  $4\frac{1}{2}$  (d)  $5\frac{1}{3}$

82. In the figure, the area of shaded part is.



- (a)  $3.44 \text{ cm}^2$  (b)  $3.14 \text{ cm}^2$   
(c)  $2.5 \text{ cm}^2$  (d)  $4 \text{ cm}^2$

83. If p and q represent digits, what is the possible maximum value of q in the statement  $5p9 + 327 + 2q8 = 1114$  ?

- (a) 9 (b) 8  
(c) 7 (d) 6

84. A garrison of 6600 men had provisions for 64 days at the rate of 1700 g per head. At the end of 14 days, reinforcement arrives and it was found that the provision will last 34 days more at the rate of 1650 g per head. What is the strength of the reinforcement?

- (a) 3400 (b) 6800  
(c) 3300 (d) 3500

85. The length of minute hand on a wall clock is 7 cms. The area swept by the minute hand in 30 minutes is

- (a)  $147 \text{ cm}^2$  (b)  $210 \text{ cm}^2$   
(c)  $154 \text{ cm}^2$  (d)  $77 \text{ cm}^2$

86. The ratio of the 7th to the 3rd term of an A.P. is 12 : 5. Find the ratio of 13th to the 4th term.

- (a) 8 : 5 (b) 9 : 4  
(c) 7 : 3 (d) 10 : 3

87. For a sphere of radius 10 cm, the numerical value of the surface area is how many percent of the numerical value of its volume.

- (a) 26.5% (b) 24%  
(c) 30% (d) 45%

88. If  $\frac{\cos^2\theta - 3\cos\theta + 2}{\sin^2\theta} = 1$ ,  $\theta \neq 0^\circ$  then  $\theta$  is:

- (a)  $60^\circ$  (b)  $30^\circ$   
(c)  $75^\circ$  (d)  $90^\circ$

89. If  $\frac{\sin\theta}{\cos\theta} + \frac{\cos\theta}{\sin\theta} = 2$ , then the value of  $\theta$  is:

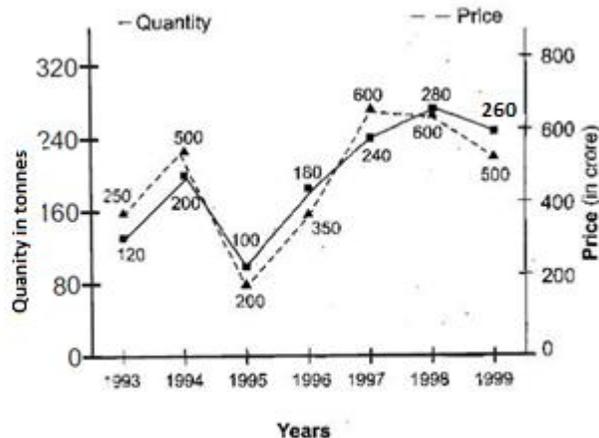
- (a)  $60^\circ$  (b)  $45^\circ$   
(c)  $90^\circ$  (d)  $30^\circ$

90.  $x^4 + 4$  is equal to:

- (a)  $(x^2 + 2)(x^2 - 2)$   
(b)  $(x^2 + 2x + 2)(x^2 - 2x + 2)$   
(c)  $(x - 1)(x + 1)(x + 2)(x - 2)$   
(d)  $(x^2 + 2)^2$

Directions (91-95) Study the following graph carefully and answer the questions given below.

The quantity and the price of pearls, produced by a company in given years



91. How much percentage fall in the price in 1999 that of in 1998?

- (a)  $12\frac{2}{3}$  (b)  $3\frac{1}{3}$   
(c) 20 (d)  $16\frac{2}{3}$

92. If per kg price of pearls in 1999 was equal to that of in 1997, what will be the total value in 1999?

- (a) Rs. 650 crore (b) Rs. 625 crore  
(c) Rs. 700 crore (d) Rs. 725 crore

93. In which of the following years the price per kg pearls was Rs. 2600?

- (a) 1996 (b) 1997  
(c) 1994 (d) Never

94. In which of the following years price per tonne pearls was maximum?

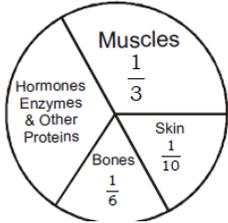
- (a) 1993 and 1994 (b) 1995 and 1997  
(c) 1994 and 1997 (d) 1997 and 1999

95. What was the average approximate production of pearls?

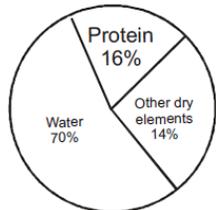
- (a) 197 tonne      (b) 250 tonne  
 (c) 150 tonne      (d) 180 tonne

**Direction (96-100):** Study the following graph and answer the questions given below.

**Break up of proteins**



**Distribution of components in body**



96. What is the ratio of the distribution of proteins in the muscles to that of distribution of proteins in the bones?  
 (a) 1 : 2      (b) 2 : 1  
 (c) 18 : 1      (d) 1 : 18
97. What per cent of the total weight of the human body is equivalent to the weight of the Skin in human body?  
 (a) .016      (b) 1.6  
 (c) .16      (d) Data insufficient
98. To show the distribution of proteins and other dry elements in the human body, the arc of the circle should subtend at the centre an angle of :  
 (a)  $126^\circ$       (b)  $54^\circ$   
 (c)  $108^\circ$       (d)  $252^\circ$
99. What will be the quantity of water in the body of a person weighing 50 kg?  
 (a) 35 kg      (b) 20 kg  
 (c) 71.42 kg      (d) 120 kg
100. In the human body what is made of neither bones nor skin?  
 (a)  $\frac{2}{5}$       (b)  $\frac{3}{5}$   
 (c)  $\frac{1}{40}$       (d)  $\frac{3}{80}$