

IBA MBA DIFFICULT QUESTIONS SINCE 2009

1. The ratio of income of Kamran and Dolon is 3:4. The ratio of their expenditures is 4:5. Find the ratio of their savings if the savings of Kamran is one fourth of his income?
 A) 5: 4 B) 19:12 C) 4:6 D) 12:19 E) 10:20

2. An equilateral triangle is inscribed in a circle. If the radius of the circle is 2, what is the area of the triangle?
 A) 3 B) $3\sqrt{3}$ C) $2\sqrt{2}$ D) 6 E) None of these

3. In a journey from Banani to Motijheel half the people on a bus exit at each stop and no additional passengers board the bus. If on the third stop the next to last person exits the bus, then how many people were on the bus at the time of the start of the journey?
 A) 20 B) 16 C) 8 D) 6 E) None of these

4. Recently, Sohan's hourly wage has been increased by 10 percent. Before this increase, Sohan's total weekly wage was Taka 1370. If his weekly hours were to decrease by 10 percent from last week's total hours, what would be the change in Taka, if any, in Sohan's total weekly wage?
 A) An increase of 13.70 B) An increase of 5.5 C) No Change D) An decrease of 13.70 E) None of these

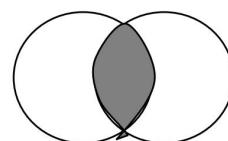
5. If $3 < x < 8$ and $5 < y < 11$, which of the following represents all possible values of xy ?
 A) $3 < xy < 11$ B) $8 < xy < 19$ C) $15 < xy < 88$ D) $24 < xy < 55$ E) None of these

6. 70 students are enrolled in Management, Accounting and Marketing, 40 students are in Management, 35 are in Accounting, and 30 are in Marketing. 15 students are enrolled in all three courses. How many of the students are enrolled in exactly two of the courses?
 A) 8 B) 5 C) 6 D) 9 E) None of these

7. In a survey of the people in a locality, it was found that 65% of the people surveyed watched the news on television, 40% read a newspaper, and 25% read a newspaper and watched the news on television. What percent of the people surveyed neither watched the news on television nor read a newspaper?
 A) 0 B) 5 C) 10 D) 20 E) None of these

8. In a room, all except 18 of the people are above 50 years of age. If 15 of the people in the room are under 50 years of age, how many people are in the room?
 A) 27 B) 30 C) 33 D) 36 E) None of these

9. In the figure right, each of the circles has radius 4 and the area enclosed by both circles is 28π . What is the area of the shaded region?
 A) 0 B) 2π C) 4π
 D) $4\pi^2$ E) None of these

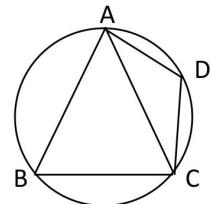


10. Two cyclists start biking from the starting point of a trail 3 hours apart. The second cyclist travels at 10 miles per hour and starts 3 hours after the first cyclist who is traveling at 6 miles per hour. How much time will pass before the second cyclist catches up with the first from the time the second cyclist started biking?
- A) 2 hours B) $4\frac{1}{2}$ hour C) $\frac{3}{4}$ D) 6 hours E) None of these
11. A rectangular land having an area of 320 sq meters is divided into two rectangle plots so that one of the plots has an area of 200 sq meters and a length of 20 meter. How many meters long is the other plot?
- A) 10 B) 12 C) 15 D) 20 E) none of these
12. If $x/y + w/z = 2$, then $(y/x + z/w) = ?$
- A) $\frac{1}{2}$ B) $\frac{3}{4}$ C) 1 D) 5 E) none of these
13. Arif appeared in 9 subjects in his class IX exam. His score in mathematics was 2 times the average of his scores in the rest 8 subjects. If his total score was x . then what was his score in mathematics in terms of x ?
- A) $\frac{1}{3}x$ B) $\frac{1}{4}x$ C) $\frac{1}{5}x$ D) $\frac{1}{6}x$ E) none of these
14. Let P and Q be points which are two inches apart, and let A be the area, in square inches, of a circle which passed through P and Q. Which of the following is the set of all possible values for A?
- A) $0 < A$ B) $0 < A \leq \pi$ C) $A = \pi$ D) $A > \pi$ E) $A \geq \pi$
15. Rita produces 2 products – chocolate cake and plain cake. Of the cakes produced last month, $\frac{3}{5}$ were plain cakes and the rest were chocolate cakes. It takes $\frac{7}{5}$ as many hours to make a chocolate cake as it does to make a plain cake. If last month Rita worked for a total of 58 hours, how many hours did she spend for making chocolate cakes?
- A) 26.5 B) 28 C) 31.50 D) 33 E) none of these
16. The figure at the right consists of four semicircles in a large semicircle. If small semicircles have radii of 1,2,3,4, what is the perimeter of the shaded region?
- (A) 10π (B) 20π (C) 40π
-
17. $\frac{2^{30} + 4^{20}}{4^{30} - 2^{20}} = ?$
- A) 2^{10} B) 2^{20} C) 2^{30} D) 2^{40} E) none of these

18. ABCD is a quadrilateral inscribed in a circle.

Given that $AB = AC$ and $\angle BAC = 50^\circ$, find $\angle ADC$.

- (A) 100° (B) 110° (C) 115°
 (D) 120° (E) none of these



19. If x is an odd integer, for which of the following equations must y be an even integer?

- (A) $xy = 15$ (B) $x + 2y = 15$ (C) $2x + y = 15$ (D) $3x + y = 15$ (E) none of these

20. A square originally had sides with length x . Both the length and breadth of the plot are increased by $y\%$. If the new area is 20% more than the original area, then which of the following is true?

- (A) $8 > y > y$ (B) $9 > y > 8$ (C) $10 > y > 9$ (D) $11 > y > 10$ (E) none of these

21. A number when divided by 102 leaves the remainder 15. If the same number is divided by 17, what will be the remainder?

- (A) 2 (B) 8 (C) 13 (D) 15 (E) none of these

22. The cost price of 20 pens is the same as the selling price of x number of pens. If the profit is 25%, what is the value of x ?

- (A) 15 (B) 16 (C) 20 (D) 25 (E) none of these

23. Two numbers when divided by a certain divisor leave remainders of 271 and 159 respectively. When the sum of these two numbers is divided by the same divisor, the remainder is 147. What is the divisor?

- (A) 205 (B) 237 (C) 258 (D) 283 (E) none of these

24. If $p < q < r < s$, then which of the following must be true?

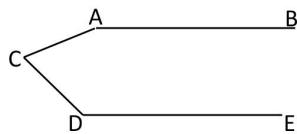
- (A) $rs > pq$ (B) $ps > qr$ (C) $(q - p) < (s - r)$ (D) $(q - p) > (s - r)$ (E) none of these

25. A certain integer n when divided by 5 yields a remainder of 4. Which of these cannot be an integer?

- (A) $\frac{n}{4}$ (B) $\frac{n}{6}$ (C) $\frac{n}{7}$ (D) $\frac{n}{10}$ (E) none of these

26. In the diagram, AB is parallel to DE, $\angle BAC = 150^\circ$ and $\angle ACB = 100^\circ$. Calculate the value of $\angle CDE$.

- (A) 110° (B) 120° (C) 145° (D) 150° (E) none of these



27. The rhombus ABCD has diagonals intersecting at X, with BC = 13 cm and CX = 5 cm. Calculate the area of the rhombus in cm^2

- (A) 65 (B) 90 (C) 120 (D) 130 (E) none of these

28. A trader buys two articles for Tk.800. He sells one of them at a profit of 20% and the other at a loss of 12% and makes no profit or loss in the end. What is the selling price of the article that he sold at a loss?

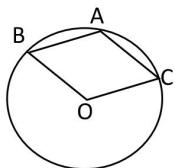
- (A) Tk. 300 (B) Tk. 360 (C) Tk. 400 (D) Tk.500 (E) none of these

29. x and y are positive integers and $\frac{10x}{(x+y)} + \frac{20y}{(x+y)} = k$. What could be the value of k if $x < y$?

- (A) 10 (B) 12 (C) 15 (D) 18 (E) none of these

30. O is the centre of the circle. If $\angle ABO = 55^\circ$ and $\angle ACO = 65^\circ$, calculate the value of $\angle BAC$.

- (A) 110° (B) 120° (C) 130° (D) 145° (E) cannot be determined



31. A number when divided by a divisor leaves a remainder of 24. When twice the original number is divided by the same divisor, the remainder is 11. What is the value of the divisor?

- (A) 13 (B) 59 (C) 35 (D) 37 (E) none of these

32. If $(8^x)(9^{2y}) = 81(2^{12y})$ what is the value of x?

- (A) 2 (B) 4 (C) 8 (D) 12 (E) 16

33. A seller bought some pens at a rate of 5 for Tk. 100. They were separated into two stacks, one of which was sold at a rate of 3 for Tk. 100 and the other at a rate of 6 for Tk. 100. What was the ratio of the number of pens in the two stacks if the seller made no overall profit or loss?

- (A) 1:4 (B) 1:5 (C) 2:3 (D) 1:2 (E) 2:5

34. A cyclist raced from point A to B at an average speed of 20 miles per hour and returned from B to A following the same path at an average speed of 24 miles per hour. If the entire trip took exactly 11 hours to complete non-stop, how many miles is the distance from A to B?

- (A) 88.88 (B) 120 (C) 166.33 (D) 176 (E) none of these

35. To make an instant coffee drink in a coffee machine, W liters of water is needed for every liter of concentrated liquid coffee mix. In a certain weekday in IBA canteen, C liters of concentrated coffee mix are required and coffee is sold for S taka per liter. If coffee mix is bought for B taka per liter and water is free, what will be the gross profit per day?

- (A) C(S + W-B) (B) S(C+ W-B) (C) S(C+CW-B) (D) C(S+SW-B) (E) none of these

36. If $5n + 4$ is divisible by 3 and $6m + 2$ is divisible by 5 (m and n are non negative integers), what is the lowest common value for m and n ?

- (A) 4 (B) 7 (C) 8 (D) 13 (E) none of these

37. Three persons individually can perform a particular job in 5, 6 and 7 hours respectively. What is the longest part of the job that can be done in one hour by two persons working together?

- (A) $11/30$ (B) $11/42$ (C) $12/35$ (D) $11/35$ (E) none of these

38. Given that $0 < x < 1$, which of the following inequalities must be valid?

I. $x^3 > x^5$

II. $x^4 + x^5 < x^3 + x^2$

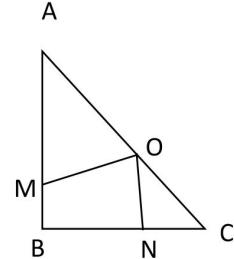
III. $x^2 - x^3 > x^4 - x^5$

- (A) I only (B) II only (C) I & II only (D) I, II & III (E) none of these

39. In the right angled triangle ABC, O is point on hypotenuse AC, where

$OM = ON$; ON is perpendicular to BC and OM is perpendicular to AB, $AB = 10$ cm and $BC = 8$ cm. Find the length of OM in cm.

- (A) $24/7$ (B) $54/7$ (C) $40/9$
 (D) $32/9$ (E) none of these

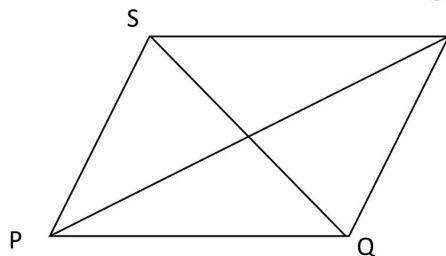


40. The numerator of a fraction is decreased by 20% and the denominator of the fraction is increased by 180%. The resultant fraction is $10/27$. What was the original fraction?

- (A) $2/5$ (B) $7/9$ (C) $3/5$ (D) $5/6$ (E) none of these

41. In the figure below PQRS is a rhombus with each side 5 cm. What is the length (in cm) of diagonal PR if $SQ = 8$ cm?

- (A) 6 (B) 5
 (C) 4 (D) 2
 (E) none of these

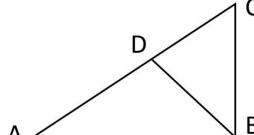


42. If x , y and z are integers and $x = 2y - 7 + 3z$, which of the following must be odd?

- (A) y (B) z (C) $xy - 1$ (D) $xz - 1$ (E) none of these

43. 200 players from different countries were auctioned for the second edition of the BPL in a ceremony held at the Radisson Blu Water Garden Hotel, Dhaka. The players play either for their respective national teams or national league of their home countries or both. If 50 of them do not play for their national teams and 120 do not play in the league, how many of the players play for both?

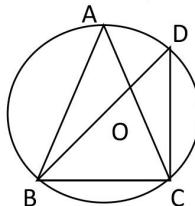
- (A) 30 (B) 50 (C) 70 (D) 120 (E) 170

44. If a , b and c are odd integers, which of the following expressions must be an even integer?
- A. $ab + bc + ca$ B. $a(b + c - 1)$ C. $a^2 - b^2 + c^2$ D. $3(ac - bc)$ E. none of these
45. If $A = 7C / (B + 0.5C)$, then $C =$
- A. $2AB / (7 - 0.5A)$ B. $AB + 2A/7$ C. $A(B + 0.5)/7$ D. $2AB/(14 - A)$ E. none of these
46. If z is the sum of x and y , and $x < y$, which of the following is equal to $(z - 2x)$?
- A. $z - x - y$ B. $z + x - y$ C. $2y - z$ D. $2z - x + y$ E. none of these
47. You can buy 16 pens for y Taka. How many pens can you buy for z Taka if the price of the pen is reduced by 20%?
- A. $20z/y$ B. $80y/2$ C. $20y/z$ D. $(20yz)/16$ E. none of these
48. In the triangle, $AC = AB$, $BC = BD = AD$. Find the value of $\angle DBA$.
- A. 32°
 B. 36°
 C. 37.5°
 D. 39°
 E. none of these
- 
49. Taka 3660 is divided among X , Y and Z in such a way that if Tk. 10, Tk. 20 and Tk. 30 are removed from the sums that X , Y and Z received respectively, then the share of the sums that they will get will be in the ratio of 3: 4: 5. How much did X receive?
- A. 890 B. 905 C. 910 D. 915 E. none of these
50. In a club the ratio of men and women is 16 : 7. The ratio of married men and married women is 4 : 3. Find the percentage of married men if 60% of the women are married.
- A. 35% B. 42% C. 45% D. 52.5% E. none of these
51. When the positive integer x is divided by 9, the remainder is 5. Which of the following must be true?
- A. x is odd B. x is even C. $x - 1$ is divisible by 2 D. $x + 1$ is divisible by 3 E. none of these
52. If $x > 0$ and $y < 0$, which of the following must be true?
- A. $x + y > 0$ B. $x^2 - y^2 > 0$ C. $y^2 - x > 0$ D. $y + x^2 > 0$ E. none of these

53. In the figure, O is the center of the circle, AB = AC and $\angle ACB = 62^\circ$.

Find $\angle ABD$.

- A. 28°
- B. 30°
- C. 32°
- D. 35°



- E. none of these

54. X and Y together can do a piece of work in 18 days. When Y and Z work together, they can do the work in 12 days. But when X and Z work together, they can do the same piece of work in 24 days. How many days will it take to complete the same work if all of them work together?

- A. 6
- B. 7.5
- C. 8
- D. 9
- E. none of these

55. If $(2 + \sqrt{x}) > 2\sqrt{x}$, which of the following must be true?

- A. $x < 1$
- B. $x < 2$
- C. $x < 3$
- D. $x < 4$
- E. none of these

56. If a, b, and c are not equal to 0 or 1 and if $a^x = b$, $b^y = c$, $c^z = a$, then $xyz = ?$

- (A) 0
- (B) 1
- (C) 2
- (D) a
- (E) none of these

57. The time it took car A to travel 400 miles was 2 hours less than the time it took car B to travel the same distance. If car A's average speed was 10 miles per hour greater than that of car B, what was car B's average speed, in miles per hour?

- (A) 20
- (B) 30
- (C) 40
- (D) 50
- (E) none of these

58. If x and y are both integers and $xy = 27z$, then which of the following must be odd?

- (A) $(x+y+z)$
- (B) xyz
- (C) $(x+y+2z)$
- (D) $xy-z$
- (E) all of these

59. If $x < y$ and $z > 0$, which of the following must be true?

- I. $z/x < z/y$
- II. $(z-y) < (z-x)$
- III. $xz < yz$

- (A) I
- (B) II
- (C) III
- (D) I and II
- (E) II and III

60. If n is an integer greater than 4, which of the following must be divisible by 3?

- (A) $n(n+1)(n-2)$
- (B) $n(n^2-4)$
- (C) $4n(n-1)$
- (D) $n(n^2-1)$
- (E) none of these

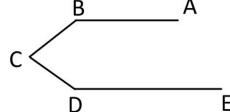
61. Fifty percent of the members in a club are married and doctor by profession. 25% of the unmarried members are doctor. If 40% of the members are not doctor, what percent of the members are unmarried and doctors?

- (A) 10%
- (B) 15%
- (C) 20%
- (D) 22.5%
- (E) none of these

62. When x is divided by 13 the answer is y with a remainder of 3. When x is divided by 7 the answer is z with a remainder of 3. If x , y , and z are all positive integers, what is the remainder of $yz/13$?
- (A) 0 (B) 3 (C) 4 (D) 7 (E) none of these
63. If the average (arithmetic mean) of x and y is 60 and the average (arithmetic mean) of y and z is 80, what is the value of $(z - y)$?
- (A) 70 (B) 40 (C) 20 (D) 10 (E) none of these
64. $2pq5$ is a four digit number divisible by 25. If the number formed from the two digits pq is a multiple of 13. then $pq =$
- (A) 10 (B) 25 (C) 52 (D) 65 (E) none of these
65. A certain elevator has safe weight limit of 2,000 pounds. What is the greatest possible number of people who can safely ride on the elevator at one time with the average (arithmetic mean) weight of half the riders being 180 pounds and the average weight of the others being 215 pounds?
- (A) 7 (B) 8 (C) 9 (D) 10 (E) none of these
66. In a club, 40 percent of the members are doctors and 70 percent are non-engineers. What fraction of those members who are not doctors are non-engineers?
- (A) 30 (B) 43 (C) 50 (D) 72 (E) none of these
67. An equilateral triangle is inscribed in a circle. If the radius of the circle is 2, what is the area of the triangle?
- (A) $\sqrt{2}/2$ (B) $\sqrt{2}$ (C) $\sqrt{3}$ (D) $3\sqrt{3}$ (E) none of these
68. If p and q are positive integers and $p(p + q)$ is even, which of the following must be true?
- a. if p is odd, then q is odd b. if p is odd, then q is even
 c. if p is even, then q is even d. if p is even, then q is odd e. none of these
69. Given $2x + 2y = 6z$, $2x - 2y = 2z$ and $y - z = 0$, how many unique solutions are there for y ?
- a. 1 b. 2 c. 3 d. 4 e. more than 4
70. On a particular day, a shop sold 3 fewer laptops of brand X than two times the number of laptops of brand Y. If a customer who bought a laptop of X brand had purchased a laptop of Y brand instead of X brand, the number of brand X and the number of brand Y sold would have been the same. What is the total number of laptops sold?
- a. 8 b. 9 c. 10 d. 12 e. None of these
71. The average age of 8 people increases by 2 years when two women are included in place of two men aged 20 and 24. Find the average age of the two women.
- a. 30 b. 32 c. 35 d. 40 e. None of these

72. If the price of pen is discounted by 40%, for Tk. 120 you can buy 4 more pens than you could buy at the original price. How many pens could be bought for Tk. 120 at the original price?
- a. 6 b. 8 c. 10 d. 12 e. None of these
73. If $x < 10$, then it must be true that
- a. $-x < -10$ b. $-x - 2 < 12$ c. $-x + 2 < -8$
 d. $x - 2 < 9$ e. None of these
74. The average of the five numbers is 7. If one of the numbers is multiplied by 3, the average of the numbers increases to 9.4. Which of the five numbers is multiplied by 3?
- a. 4 b. 5 c. 5.6 d. 6 e. None of these
75. What is the smallest positive integer n such that the product of $1152 \times n$ is a perfect square?
- (A) 2 (B) 4 (C) 6 (D) 8 (E) None of these
76. If n is an integer greater than 5, which of the following must be divisible by 4?
- (A) $n(n + 1)(n - 2)$
 (B) $(n + 4)(n - 2)$
 (C) $n(2n + 4)(n - 1)$
 (D) $(n + 5)(n - 2)$
 (E) none of these
77. In a class there are 15 students starting from roll number 1 to 15. If you randomly pick 2 students, what is the probability that roll number of both students will be odd?
- (A) $8/15$ (B) $3/5$ (C) $4/15$ (D) $2/5$ (E) none of these
78. In a group of 100 students, 45 play football and 38 play cricket. If 72 students play either football or cricket or both, then how many students play football but not cricket?
- (A) 34 (B) 36 (C) 38 (D) 42 (E) none of these
79. If $z = (x + y)/2xy$ and $0 < y < x < 1$, which of the following must be true?
- (A) $Z < 0.5$ (B) $Z > 0.5$ (C) $Z < 1$ (D) $Z > 1$ (E) None of these
80. When 117 chocolates are equally distributed among x number of students, you are left with $(x - 9)$ chocolates. Which of the following could be a value of x ?
- (A) 15 (B) 18 (C) 21 (D) 24 (E) None of these
81. If $|x - y| + x = y$, which of the following must be true?
- (A) $x = 0$ (B) $x = -y$ (C) $x = y$ (D) $x \leq y$ (E) None of these

82. If x is an integer and $(0.5)(.005)(.05)(.005) 10^x$ is an integer, what is the least possible value of x ?
- (A) 8 (B) 9 (C) 10 (D) 11 (E) None of these
83. If $y = 4^{10} + 4^{11} + 4^{12} + 4^{13}$, then y is divisible by which number?
- (A) 12 (B) 13 (C) 17 (D) 19 (E) None of these
84. If $4y - 3x = 5$, what is the smallest integer value of x for which $y > 100$?
- A) 130 B) 131 C) 132 D) 135 E) none of these
85. If x and y are positive integers, each greater than 1, and if $13(x - 1) = 17(y - 1)$, what is the least possible value of $(x + y)$?
- A) 32 B) 30 C) 26 D) 25 E) None of these
86. A certain company that sells only i-pads and i-phones reported that revenues from i-pad sales in 2015 were down 11% from the sale of 2014 and revenue from i-phone sales were up 7% from the sale of 2014. If total revenues from i-pad sales and i-phone sales in 2015 were up 1% from the sale of 2014, what is the ratio of revenue from i-pad sales in 2014 to revenue from i-phone sales in 2014?
- A) 1:2 B) 4:5 C) 1:1 D) 3:2 E) none of these
87. If x and y are both integers, $x > y$, and $-5x > 26$, then what would be the largest value of y ?
- A) -5 B) -6 C) -7 D) -8 E) None of these
88. The current ratio of the age of a man and his wife is 4:3. At the time of marriage the ratio was 5:3 and after 4 years this ratio will become 9:7. How many years ago were they married?
- A) 12 B) 6 C) 3 D) 2 E) None of these
89. A trader made 2 different grades of mixture – one containing m kg of Melphin and m kg of water and the other mixture containing m kg of Melphin and $2m$ kg of water. Both the mixtures were completely sold out. Revenues from selling the mixtures were the same. If the selling price of the first mixture was Tk. 600 per kg, what was the per kg selling price of the second mixture in Taka?
- A) 300 B) 400 C) 450 D) 480 E) None of these
90. A teacher has 3 hours to grade all the papers submitted by the 35 students in her class. She gets through the first 5 papers in 30 minutes. How much faster does she have to work to grade the remaining papers in the allotted time?
- A) 10% B) 15% C) 20% D) 25% E) none of these
91. In a class, a certain number of students opted to participate in a cultural competition comprising of 3 items-music, recitation and drama. Of these students, 53% showed interest for music and 35% showed interest for recitation. If 8% of the students of the whole class showed interest for drama, what percent of the students did not participate in the cultural program?
- A) 12% B) 16.33% C) 25% D) 33.33% E) None of these

92. In an exam 62% of the students were declared as passed. However, due to compilation error, 20% of the students who have actually passed were shown as failed and 20% of the students who have actually failed were declared as passed. What percent of the students actually passed?
- A) 68 B) 70 C) 72 D) 75 E) None of these
93. There are 87 balls in a jar. Each ball is painted with at least one of two colors, red and green. It is observed that $\frac{2}{7}$ of the balls that have red color also have green color, while $\frac{3}{7}$ of the balls that have green color also have red color. What fraction of the balls in the jar has both red and green colors?
- A) $\frac{6}{14}$ B) $\frac{2}{7}$ C) $\frac{6}{35}$ D) $\frac{6}{29}$ E) None of these
94. Two trains are moving in opposite directions at 60 km/hr and 90 km/hr. Their lengths are 1.10 km and 0.9 km respectively. The time taken by the slower train to cross the faster train in seconds is:
- A) 36 B) 45 C) 48 D) 49 E) None of these
95. A number when divided by a divisor leaves a remainder of 33. When twice the original number is divided by the same divisor, the remainder is 13. What is the value of the divisor?
- a. 13 b. 20 c. 38 d. 53 e. None of these
96. The profit on sale of 100 pencils is equal to the selling price of 20 pencils. What is the profit margin?
- a. 20% b. 25% c. 33.33% d. 40% e. None of these
97. In the diagram, BA is parallel to DE, $\angle ABC = 110^\circ$ and $\angle CDE = 140^\circ$. Calculate the value of $\angle BCD$.
- a. 90° b. 100° c. 110°
 d. 135° e. None of these
- 
98. After 3 quizzes Apu had an average of 12 marks per quiz. In order to increase the average by n marks, what should be the score in his 4th quiz?
- a. $4n$ b. $36 + 3n$ c. $12n$ d. $12 + 4n$ e. None of these
99. A mixture of sugar and water contains sugar and water in the ratio of 3 : 2. Another mixture of sugar and water contains sugar and water in the ratio of 2 : 5. In what ratio should the two mixtures be mixed so that the resultant mixture contains equal proportion of sugar and water?
- a. 2:1 b. 3:1 c. 3:2 d. 4:1 e. None of these
100. If x , y , and z are positive integers and $3x = 4y = 7z$, then the least possible value of $x + y + z$ is
- a. 33 b. 40 c. 49 d. 61 e. None of these
101. There are 10 women and 3 men in Room A. One person is picked at random from Room A and moved to room B, where there are already 3 women and 5 men. If a single person is then to be picked from room B, what is the probability that a woman will be picked?
- a. $\frac{13}{21}$ b. $\frac{49}{117}$ c. $\frac{40}{117}$ d. $\frac{15}{52}$ e. None of these

102. In a class of 25 students, 10 have less than 6 marbles, 10 have more than 7 marbles and 4 have more than 8 marbles. How many students have more than 5 marbles but less than 9 marbles?
- A) 10 B) 11 C) 12 D) 13 E) None of these
103. A jogger running at 9 kmph alongside a railway track is 240 metres ahead of the engine of a 120 metres long train running at 45 kmph in the same direction. In how much time will the train pass the jogger?
- A) 3.6 sec B) 18 sec C) 36 sec D) 72 sec E) None of these
104. If $-8 \leq x \leq 2$ and $-4 \leq y \leq 10$ which of the following represents the range of all possible values of xy ?
- A) $-8 \leq xy \leq 20$ B) $-80 \leq xy \leq 32$ C) $-32 \leq xy \leq 20$
 D) $-8 \leq xy \leq 32$ E) $-80 \leq xy \leq 80$
105. Raju has x number of books, which is 3 times as many as Siam and $\frac{1}{2}$ as many as Payel. How many books do the three of them have altogether, in terms of x ?
- A) $\frac{5x}{6}$ B) $\frac{7x}{3}$ C) $\frac{10x}{3}$ D) $\frac{7x}{2}$ E. None of these
106. If $x \geq -1$ and $x \geq x^5$, which of the following must be true?
- A. $x > 1$ B. $0 < x < 1$ C. $-1 \leq x < 0$ D. $x > 0$ E. None of these
107. One year ago, the ratio of salary of Nasir and Gaurav was 5:8. Ratio between this year's and last year's salary of Nasir is 28:25 and the same for Gaurav's is 23:20. If the sum of their present salary is Tk 1184, the difference between their present salary is:
- A) Tk 448 B) Tk 340 C) Tk 288 D) Tk 240 E) None of these
108. John appointed 25 persons to complete a small bridge in 40 days. After 20 days, he appointed 15 more workers and the bridge was completed 5 days earlier. If he had not appointed additional workers by how many days he would have been behind the scheduled time?
- A) 2 days B) 3 days C) 4 days D) 5 days E) 7 days
109. At a certain club, the number of male members is twice that of female members. If $\frac{1}{4}\%$ of the male members are engineers and $\frac{1}{5}$ of the female members are engineers, what fraction of the members are non-engineers?
- A) $13/25$ B) $23/30$ C) $2/5$ D) $8/19$ E) None of these
110. If $ab < 0$, then all the following must be true EXCEPT,
- A) $a/b < 0$ B) $a^2 + b^2 > 0$ C) $a^3 + b^3 < 0$ D) $b/a < 0$ E) None of these

111. The cost price of two articles , p and q are in the ratio 5: 7 and their selling prices , in the ratio 2: 5 respectively . if the losses made on both the products are the same what the ratio between the cost price and selling price of q?

- A) 5: 4 B) 7: 3 C) 8: 3 D) 15: 4 E) None of these

112. In a club, 20% of members are below 25 years of age. The number of members above 15 years of age is 16, which is two - third of the number of members of 25 years of age. What is the total number of members in the club?

- A) 50 B) 52 C) 60 D) 72 E) None of these

113. Two numbers individually are less than the third number by 60% and 74% respectively. By what percentage is the second number less than the first?

- A) 18 B) 27 C) 30 D) 35 E) None of these

114. In a group 30% of the men are more than 25 years old and 80% of the men are less than or equal to 50 years old. 20% of all men play football. If 20% of the men above the age of 50 play football, what percentage of the football players are less than or equal to 50 years?

- A) 50% B) 60% C) 75% D) 80% E) 90%

115. The weight of a box is estimated by three persons. According to A, the weight lies between 50 and 60 kgs. According to B, the weight is more than 45 kgs but less than 58 kgs. C estimates that the weight cannot be greater than 56 kgs. If all of them are correct in their estimation, what is the average of different probable weights of the box?

- A) 52 B) 53 C) 54 D) 55 E) None of these

116. In a group of civil, mechanical and electrical engineers, all but 20 are civil engineers, all but 15 are mechanical engineers and all but 25 are electrical engineers. How many of them are electrical engineers?

- A) 5 B) 10 C) 15 D) 20 E) None of these

117. If $-1 < x < 1$ and $x \neq 0$, which of the following must be true?

I. $x^3 < x^2$ II. $x^5 < 1 - x$ III. $x^4 < x^2$

- A) I only B) I and II only C) II and III only D) I and III only E) I, II and III

118. Train Karnafuli starts from Chittagong at 6 AM and reaches Dhaka at 4 PM. Train Paharika leaves Dhaka at 7 AM and reaches Chittagong at 7:30 PM. At what time do the two trains cross one another?

- A) 11 AM B) 11:40 AM C) 12 PM D) 12:45 PM E) None

119. Given $y = (x-6)(x-5)(x-4)(x-3)$. And x is a positive integer. If $y > 0$, then which of the following must be true?

- A) $x < 3$ B) $x < 6$ C) $3 < x < 0$ D) $x > 3$ E) None of these

120. In a rectangle the length of the diagonal is 8 meters and the length of the perpendicular drawn on the diagonal from the opposite corner is 4 meters. What is the area of the rectangle in square meter?

- A) 32 B) 16 C) 24 D) 12 E) None of these

121. In a swimming competition, Saju beats Sajib by 60 seconds. If the rate of Saju's swimming is 69 meters/minute and that of Sajib is 66 meters/minute, how long has it taken for Sajib to complete the competition?

- A) 20 minutes B) 21 minutes C) 22 minutes D) 23 minutes E) None of these

122. Pavel's Monthly income is Tk 5250. The ratio of his monthly expenditure to savings is 8:7. From the next months, he wants to increase his savings by 550 which his monthly income will remain unchanged. What will be the new ratio of his monthly savings to expenditure?

- A) 3:2 B) 2:1 C) 8:7 D) 4:3 E) None of these

123. Syntax cement gives a commission of 15% on the printed price of each sack of cement if sells to its dealers and gains a profit of 19%. If the commission is decreased to 10%, the new profit percentage will be:

- A) 21% B) 25% C) 26% D) 35% E) None of these

124. If $-1 < a < b < 0$, which of the following has the highest value?

- A) a/b B) b/a C) $b/-a^2$ D) a^2/b E) None of these

125. Azam can swim 10 km upstream and 25 km downstream in 12 hours. He can also swim 15 km upstream and 50 km downstream in 20 hours. How many hours will it take for him to cover 70.5 km in the downstream if the rate of current increases by 40%?

- A) 4.5 hours B) 4 hours C) 3.5 hours D) 3 hours E) None of these

126. Find the range of values of x , for which $(2x+3)(x-1) < 0$?

- A) $x < -3/2$ B) $-3/2 < x < 1$ C) $x > 1$ D) $x > -3/2$ E) None of these

127. A number of people were asked whether they liked drinks of orange, lemon or grape flavor. The responses are as follows: 85 liked orange, 45 liked orange and lemon, 65 liked grapes, 40 liked lemon and grapes, 90 liked lemon, 30 liked orange and grapes, 15 liked all three and 25 liked none. Find the number of people who liked only orange?

- A) 55 B) 5 C) 25 D) 70 E) None of these

128. In the above problem (Question 127), how many people were interviewed?

- A) 120 B) 125 C) 140 D) 155 E) None of these

129. Water is poured into an empty cylindrical tank at a constant rate. In 15 minutes the height of water increased by 9 feet. The radius of the tank is 10 feet. What is the rate at which the water is poured?

- A) 55 Cubic feet per minute B) 90 C) 60 TT D) 11 E) None of these

130. Working 11 hours per day, 24 men and 33 women can complete the construction of a road in 78 days. The working capacity of 3 women equals to that of 1 man. Now, the authority decides that the road is to be constructed in 55 days by working 13 hours per day. If there are only 27 women present, how many men will be needed?

- A) 33 B) 45 C) 87 D) 99 E) None of these

131. If the width of the shaded region of the following figure is 1 cm and the radius of the outer circle is 10 cm, find the radius of the inner semi-circle.



- A) 8 cm B) 7 cm C) 8.5 cm D) 3.5 E) None of these

132. Train Green Arrow leaves station A for station B every day at 7 PM. On a certain day it was delayed by 2 hours. To cover up the time, it increased its average speed by 20%. But still arrives at station 1 hour later than the scheduled time. What is the usual duration of the train's journey from station A to station B?

- A) 6 hours B) 6.5 hours C) 8 hours D) 8.5 hours E) None of these

Questions Data Sufficiency

Each problem consists of a problem followed by two statements. Decide whether the data in the statements are sufficient to answer the question. Select your answer according to whether:

- (A) statement (1) alone is sufficient, but statement (2) alone is not sufficient to answer the question
 - (B) statement (2) alone is sufficient, but statement (1) alone is not sufficient to answer the question
 - (C) both statements taken together are sufficient to answer the question, but neither statement alone is sufficient
 - (D) each statement alone is sufficient
 - (E) statements (1) and (2) together are not sufficient, and additional data is needed to answer the question
1. At least 200 students at a certain school play football. If 5% of the students at the school who play cricket also play football, do more students at the school play cricket than football?
 - (1) 20 students at the school play both cricket and football.
 - (2) 10 percent of the students at the school who play football also play cricket.
 2. Is $xyz > 0$?
 - (1) $(x - 3)(y - 3) > 0$
 - (2) $z > 0$
 3. The ratio of the number of BBA students to the number of MBA students to the number of EMBA students in a room is 5 : 4 : 3, respectively. What is the total number of people in the room?
 - (1) The total number of BBA students and EMBA students in the room is 16.
 - (2) There are fewer than 10 MBA students in the room.
 4. Arif spent a total of Tk. 400 to buy one kind of pen and one kind of pencils. How many pens did he buy?
 - (1) The price of 2 pens was Tk. 20 less than the price of 3 pencils.
 - (2) the average price of 1 pen and 1 pencil is Tk. 40.
 5. The distance between Arif's house and office is D km. On Monday, Arif traveled to his office at M km./hr for the first 20km. and the rest at a speed of $1.25M$ km/hr. On Tuesday, Arif Traveled the same distance at a speed of M km./hr. What is the ratio of time taken by Arif to travel from his house to office on Monday and Tuesday?
 - (1) $M = 48$
 - (2) $D = 40$
 6. If P is an integer greater than 30, is $P > 40$?

- (1) P is a multiple of 3 (2) P is a multiple of 8
7. In a demographic study, the population size and total income of a certain region were estimated from other data, and both estimates had lower and upper limits. At the time of the estimates, was the per capita income for the region greater than taka 16,500?
- (1) The lower limit for the estimate of the population was 330,000 people.
(2) The lower limit for the estimate of the total income was taka 5,500,000,000.
8. X and Y are both positive integers. If $x - 3$ can be divided by 5 and y can be divided by 2, what is the remainder when xy is divided by 10?
- (1) the remainder is 3 when x is divided by 3
(2) the remainder is 2 when y is divided by 5
9. If x and y are integers and x is a factor of y, what is the remainder when $x^3 - y$ is divided by 16?
- (1) x is divisible by 32 (2) y is an even number
10. A box contains red chips, white chips, and blue chips. If a chip is randomly selected from the box, what is the probability that the chip will be either white or blue?
- (1) The probability that the chip will be blue is $1/5$
(2) The probability that the chip will be red is $1/3$
11. If $x + y + z > 0$, is $z > 1$?
- (1) $z > x + y + 1$ (2) $x + y + 1 < 0$
12. What is the remainder when the positive integer x is divided by 16?
- (1) When x is divided by 24, the remainder is 5.
(2) When x is divided by 18, the remainder is 13.
13. If x, y and z are integers, is xyz an even number?
- (1) $xy + z$ is odd (2) $x + y + z$ is even
14. A solution consists of only water and sugar. The ratio of sugar to water in the solution is 5:2. How much amount of water (in kgs) should be added to the solution so that the resulting solution contains 50% sugar?
- (1) Total quantity of the resulting solution will be 0180 kgs
(2) 54 kgs of water needs to be added to the original solution
15. Of a group of 48 students, how many have at least one pen or at least one pencil but not both?
- (1) The number of students having at least one pen and at least one pencil is 6
(2) The number of students having no pen and no pencil is 18
16. If x is an integer between 0 and 10, is y less than the average (the arithmetic mean) of x and 10?
- (1) $(10-y) < y-(x-10)/2$
(2) y is 4 times as large as x

17. If x is an integer, is $x-2y$ an integer?

- (1) x is divisible by 20
- (2) y is 5 percent of x

ANSWERS

1	D	21	D	41	A	61	A	81	C	101	B	121	D	141	
2	B	22	B	42	D	62	A	82	B	102	E	122	D	142	
3	C	23	D	43	A	63	B	83	C	103	C	123	D	143	
4	D	24	E	44	D	64	C	84	E	104	B	124	A	144	
5	C	25	D	45	D	65	D	85	A	105	C	125	E	145	
6	B	26	E	46	C	66	E	86	A	106	E	126	B	146	
7	D	27	C	47	A	67	D	87	C	107	C	127	C	147	
8	E	28	E	48	B	68	A	88	A	108	C	128	E	148	
9	C	29	D	49	C	69	B	89	B	109	B	129	C	149	
10	B	30	B	50	A	70	D	90	C	110	C	130	A	150	
11	B	31	D	51	D	71	A	91	D	111	E	131	E		
12	E	32	B	52	E	72	A	92	B	112	A	132	A		
13	C	33	A	53	A	73	D	93	D	113	D	133			
14	E	34	B	54	E	74	D	94	C	114	D	134			
15	B	35	D	55	D	75	A	95	D	115	E	135			
16	B	36	D	56	B	76	C	96	B	116	A	136			
17	E	37	A	57	C	77	C	97	C	117	E	137			
18	C	38	D	58	E	78	A	98	D	118	C	138			
19	D	39	C	59	E	79	D	99	E	119	A	139			
20	C	40	B	60	B	80	B	100	A	120	A	140			