## **Mixtures and Alligations**

91. A 20 litre mixture of milk and water contains milk and water in the ratio 3 : 2. 10 litres of the mixture is removed and replaced with pure milk and the operation is repeated once more. At the end of the two removal and replacement, what is the ratio of milk and water in the resultant mixture?

A. 17:3
B. 9:1
C. 3:17
D. 5:3

Ans: B

- 92. In what ratio must a person mix three kinds of tea costing Rs.60/kg, Rs.75/kg and Rs.100 /kg so that the resultant mixture when sold at Rs.96/kg yields a profit of 20%?
  - A. 1:2:4
  - B. 3:7:6
  - C. 1:4:2
  - D. None of these

Ans: C

- 93. A merchant mixes three varieties of rice costing Rs.20/kg, Rs.24/kg and Rs.30/kg and sells the mixture at a profit of 20% at Rs.30 / kg. How many kgs of the second variety will be in the mixture if 2 kgs of the third variety is there in the mixture?
  - A. 1 kg
  - B. 5 kgs
  - C. 3 kgs
  - D. 6 kgs

#### Ans: B

- 94. How many litres of water should be added to a 30 litre mixture of milk and water containing milk and water in the ratio of 7 : 3 such that the resultant mixture has 40% water in it?
  - A. 7 litres
  - B. 10 litres
  - C. 5 litres
  - D. None of these

Ans: C

- 95. How many kgs of Basmati rice costing Rs.42/kg should a shopkeeper mix with 25 kgs of ordinary rice costing Rs.24 per kg so that he makes a profit of 25% on selling the mixture at Rs.40/kg?
  - A. 20 kgs
  - B. 12.5 kgs
  - C. 16 kgs
  - D. 200 kgs

Ans : A

- 96. How many litres of a 12 litre mixture containing milk and water in the ratio of 2 : 3 be replaced with pure milk so that the resultant mixture contains milk and water in equal proportion?
  - A. 4 litres
  - B. 2 litres
  - C. 1 litre
  - D. 1.5 litres

Ans: B

- 97. A sample of x litres from a container having a 60 litre mixture of milk and water containing milk and water in the ratio of 2 : 3 is replaced with pure milk so that the container will have milk and water in equal proportions. What is the value of x?
  - A. 6 litres
  - B. 10 litres
  - C. 30 litres
  - D. None of these

Ans: B

- 98. A zookeeper counted the heads of the animals in a zoo and found it to be 80. When he counted the legs of the animals he found it to be 260. If the zoo had either pigeons or horses, how many horses were there in the zoo?
  - A. 40
  - B. 30
  - C. 50
  - D. 60

Ans: C

- 99. From a cask of milk containing 30 litres, 6 litres are drawn out and the cask is filled up with water. If the same process is repeated a second, then a third time, what will be the number of litres of milk left in the cask?
  - A. 0.512 liters
  - B. 12 liters
  - C. 14.38 liters
  - D. 15.36 liters

Ans: D

- 100. In a km race, A gives B a start of 20 seconds and beats him by 40m. However, when he gives B a start of 25 seconds they finish in a dead heat. What is A's speed in m/sec?
  - A. 12.5 m/sec
  - B. 20 m/sec
  - C. 8 m/sec
  - D. 10 m/sec

Ans: D

## Races

101. In a kilometre race, A can give B a start of 100 m or 15 seconds. How long does A take to complete the race?

- A. 150 seconds
- B. 165 seconds
- C. 135 seconds
- D. 66.67 seconds

## Ans: C

102. A gives B a start of 10 metres in a 100 metre race and still beats him by 1.25 seconds. How long does B take to complete the 100 metre race if A runs at the rate of 10 m/sec?

- A. 8 seconds
- B. 10 seconds
- C. 16.67 seconds
- D. 12.5 seconds

## Ans: D

- 103. A predator is chasing its prey. The predator takes 4 leaps for every 6 leaps of the prey and the predator covers as much distance in 2 leaps as 3 leaps of the prey. Will the predator succeed in getting its food?
  - A. Yes
  - B. In the 6th leap
  - C. Never
  - D. Cannot determine

## Ans: D

- 104. A skating champion moves along the circumference of a circle of radius 21 meters in 44 seconds. How many seconds will it take her to move along the perimeter of a hexagon of side 42 meters?
  - A. 56
  - B. 84
  - C. 64

D. 48

Ans: B

105. A runs 13/5 times as fast as B. If A gives a start of 240m, how far must the post be so that A and B might reach at the same time.

A. 390 m

- B. 330 m
- C. 600 m
- D. 720 m

Ans : A

106. A gives B a start of 30 seconds in a km race and still beats him by 20 m. However, when he gives B a start of 35 seconds, they finish the race in a dead heat. How long does A take to run the km?

- A. 250 seconds
- B. 285 seconds
- C. 220 seconds
- D. 215 seconds

## Ans: D

- 107. A can give B 20 points, A can give C 32 points and B can give C 15 points. How many points make the game?
  - A. 150
  - B. 200
  - C. 100
  - D. 170

Ans: D

108. A can give B a start of 50 metres or 10 seconds in a kilometer race. How long does A take to complete the race?

- A. 200 seconds
- B. 140 seconds
- C. 220 seconds
- D. 190 seconds

Ans : D

109. Three runners A, B and C run a race, with runner A finishing 12 meters ahead of runner B and 18 meters ahead of runner C, while runner B finishes 8 meters ahead of runner C. Each runner travels the entire distance at a constant speed.

What was the length of the race?

- A. 36 meters
- B. 48 meters
- C. 60 meters
- D. 72 meters

Ans: B

- 110. P can give Q a start of 20 seconds in a kilometer race. P can give R a start of 200 meters in the same kilometer race. And Q can give R a start of 20 seconds in the same kilometer race. How long does P take to run the kilometer?
  - A. 200 seconds
  - B. 240 seconds
  - C. 160 seconds
  - D. 140 seconds

Ans : C

# Number System

111. Two numbers when divided by a certain divisor leave remainders of 431 and 379 respectively. When the sum of these two numbers is divided by the same divisor, the remainder is 211. What is the divisor?

A. 599B. 1021

C. 263

D. Cannot be determined

## Ans : A

- 112. How many zeros contained in 100!?
  - A. 100
  - **B.** 24
  - C. 97
  - D. Cannot be determined

## Ans: B

- 113. Which is greater of the two
  - A. 2300
  - B. 3200
  - C. Both are equal
  - D. Cannot be determined

## Ans: B

- 114. What is the value of M and N respectively? If M39048458N is divisible by 8 & 11; Where M & N are single digit integers?
  - A. 7, 8 B. 8, 6
  - C. 6, 4
  - D. 5, 4

## Ans: C

- 115. When 26854 and 27584 are divided by a certain two digit prime number, the remainder obtained is 47. Which of the following choices is a possible value of the divisor?
  - A. 61
  - **B**. 71
  - C. 73
  - D. 89

## Ans: C

- 116. Find the G.C.D of 12x2y3z2, 18x3y2z4, and 24xy4z3
  - A. 6xy2z2
  - B. 6x3y4z3
  - C. 24xy2z2
  - D. 18x2y2z3

### Ans : A

- 117. Find the G.C.D of 12x2y3z2, 18x3y2z4, and 24xy4z3
  - A. 6xy2z2
  - B. 6x3y4z3
  - C. 24xy2z2
  - D. 18x2y2z3

Ans : A

118. The 7th digit of (202)3is

- A. 2
- B. 4
- C. 8
- D. 6

Ans : C

- 119. A railway half ticket costs half the full fare and the reservation charge is the same on half ticket as on full ticket. One reserved first class ticket from Chennai to Trivandrum costs Rs. 216 and one full and one half reserved first class tickets cost Rs. 327. What is the basic first class full fare and what is the reservation charge?
  - A. Rs. 105 and Rs. 6
  - B. Rs. 216 and Rs. 12
  - C. Rs. 210 and Rs. 12
  - D. Rs. 210 and Rs. 6

## Ans :D

120. Find the range of real values of x satisfying the inequalities 3x - 2 > 7 and 4x - 13 > 15.

A. x > 3
B. x > 7
C. x < 7</li>
D. x < 3</li>

Ans :B

## Number System

- 121. How many different factors are there for the number 48, excluding 1 and 48?
  - A. 12
  - B. 4
  - C. 8
  - D. None of these

Ans :C

122. What is the remainder when  $9 + 9^2 + 9^3 + \dots + 9^8$  is divided by 6?

- A. 3
- B. 2
- C. 0
- D. 5

Ans :C

123. The sum of the first 100 numbers, 1 to 100 is divisible by

- A. 2, 4 and 8
- B. 2 and 4
- C. 2 only
- D. None of these

#### Ans :C

124. The sum of the first 100 numbers, 1 to 100 is divisible by

- A. 2, 4 and 8
- B. 2 and 4
- C. 2 only
- D. None of these

Ans :C

125. For what value of 'n' will the remainder of  $351^n$  and  $352^n$  be the same when divided by 7?

- A. 2
- B. 3
- C. 6
- D. 4

### Ans :B

126. A person starts multiplying consecutive positive integers from 20. How many numbers should he multiply before the will have result that will end with 3 zeroes?

- A. 11
- **B**. 10
- C. 6
- D. 5

Ans :C

- 127. What is the minimum number of square marbles required to tile a floor of length 5 metres 78 cm and width 3 metres 74 cm?
  - A. 176
  - B. 187
  - C. 54043
  - D. 748

### Ans :B

128. What number should be subtracted from  $x^3 + 4x^2 - 7x + 12$  if it is to be perfectly divisible

- by x + 3?
  - A. 42
  - B. 39

C. 13D. None of these

### Ans :A

- 129. Let x, y and z be distinct integers. x and y are odd and positive, and z is even and positive. Which one of the following statements cannot be true?
  - A.  $(x-z)^2 y$  is even
  - B.  $(x-z)y^2$  is odd
  - C. (x-z)y is odd
  - D.  $(x-y)^2 z$  is even

Ans :A

- 130. Anita had to do a multiplication. Instead of taking 35 as one of the multipliers, she took 53. As a result, the product went up by 540. What is the new product?
  - A. 1050
  - B. 540
  - C. 1440
  - D. 1590

Ans :D

## Number System

- 131. Let n be the number of different 5 digit numbers, divisible by 4 with the digits 1, 2, 3, 4, 5 and 6, no digit being repeated in the numbers. What is the value of n?
  - A. 144B. 168C. 192

D. None of these

Ans :C

132.

Find the greatest number of five digits, which is exactly divisible by 7, 10, 15, 21 and 28.

- A. 99840
- B. 99900
- C. 99960
- D. 99990

Ans :C

133. When 242 is divided by a certain divisor the remainder obtained is 8. When 698 is divided by the same divisor the remainder obtained is 9. However, when the sum of the two numbers 242 and 698 is divided by the divisor, the remainder obtained is 4. What is the value of the divisor?

- A. 11
- B. 17
- C. 13
- D. 23

Ans :C

134. 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

## Ans: D

135. Given A = 265 and B = (264+263+262+...+20)

- A. B is 264 larger than A
- B. A and B are equal
- C. B is larger than A by 1
- D. A is larger than B by 1

#### Ans :D

136. The sum of third and ninth term of an A.P is 8. Find the sum of the first 11 terms of the progression.

- A. 44
- B. 22
- C. 19
- D. None of these

#### Ans :A

137. If  $(x + 2)^2 = 9$  and  $(y + 3)^2 = 25$ , then the maximum value of x / y is A. 1 / 2 B. 5 / 2 C. 5 / 8 D. 1 / 8

## Ans :C

138. If p and q are the roots of the equation  $x^2 - bx + c = 0$ , then what is the equation if the roots are (pq + p + q) and (pq - p - q)? A.  $x^2 - 2cx + (c^2 - b^2) = 0$ B.  $x^2 - 2bx + (b^2 + c^2) = 0$ C.  $Bcx^2 - 2(b+c)x + c^2 = 0$ D.  $x^2 + 2bx - (c^2 - b^2) = 0$ 

Correct answer- A

- 139. A piece of equipment cost a certain factory Rs. 600,000. If it depreciates in value, 15% the first year, 13.5% the next year, 12% the third year, and so on, what will be its value at the end of 10 years, all percentages applying to the original cost?
  - A. 2,00,000
  - B. 1,05,000
  - C. 4,05,000
  - D. 6,50,000

Correct answer- B

140. Solve the inequality 33x-2 > 1A. x > 1B. x > 3C. x > 2/3D. x > 1/3

Ans :C

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# Number System

- 141. The largest number amongst the following that will perfectly divide 101100 1 is
  - A. 100
  - B. 10000
  - C.  $100^{100}$
  - D. 100000

**Ans :** 2

142. What is the reminder when  $91 + 92 + 93 + \dots + 99$  is divided by 6?

- A. 0
- B. 3
- C. 4
- D. None of these

## Ans :B

143. How many times will the digit '0' appear between 1 and 10,000?

- A. 4000
- B. 4003
- C. 2893

D. 3892

Ans :C

144. What is the total number of different divisors of the number 7200?

- A. 20
- **B**. 4
- C. 54
- D. 32

Ans :C

145. What is the least number that should be multiplied to 100! to make it perfectly divisible by 350?

A. 144B. 72C. 108D. 216

Ans :B

## **Permutation and Combination**

- 151. There are 2 brothers among a group of 20 persons. In how many ways can the group be arranged around a circle so that there is exactly one person between the two brothers?
  - A. 2 \* 19!
    B. 18! \* 18
    C. 19! \* 18
    D. 2 \* 18!

#### Ans : D

152. How many words can be formed by re-arranging the letters of the word ASCENT such that A and T occupy the first and last position respectively?

A. 5!
B. 4!
C. 6! - 2!
D. 6! / 2!

#### Ans: B

153. There are 12 yes or no questions. How many ways can these be answered?

- A. 1024
- B. 2048
- C. 4096
- D. 144

## Ans: C

154. How many ways can 4 prizes be given away to 3 boys, if each boy is eligible for all the prizes?

- A. 256
- B. 12
- C. 81
- D. None of these

#### Ans : C

- 155. A team of 8 students goes on an excursion, in two cars, of which one can seat 5 and the other only 4. In how many ways can they travel?
  - A. 9
  - B. 26
  - C. 126
  - D. 3920

#### Ans: C

156. How many numbers are there between 100 and 1000 such that atleast one of their digits

is 6? A. 648 B. 258 C. 654 D. 252

Ans : D

157. How many ways can 10 letters be posted in 5 post boxes, if each of the post boxes can take more than 10 letters?

A. 5<sup>10</sup>

B.  $10^5$ 

C. 10P5

D. 10C5

Ans : A

158. In how many ways can the letters of the word EDUCATION be rearranged so that the relative position of the vowels and consonants remain the same as in the word EDUCATION?

A. 9!/4

- B. 9!/(4!\*5!)
- C. 4!\*5!
- D. None of these

#### Ans : C

159. In how many ways can 15 people be seated around two round tables with seating capacities of 7 and 8 people?

A. 15!/(8!)

B. 7!\*8!

- C. (15C8)\*6!\*7!
- D. 2\*(15C7)\*6!\*7!

### Ans: C

160. If the letters of the word CHASM are rearranged to form 5 letter words such that none of the word repeat and the results arranged in ascending order as in a dictionary what is the rank of the word CHASM?

A. 24 B. 31 C. 32 D. 30 Ans : C

# **Permutation and Combination**

- 161. How many words of 4 consonants and 3 vowels can be made from 12 consonants and 4 vowels, if all the letters are different?
  - A. 16C7 \* 7!
    B. 12C4 \* 4C3 \* 7!
    C. 12C3 \* 4C4
  - D. 12C4 \* 4C3

Ans: B

- 162. In how many ways can 5 letters be posted in 3 post boxes, if any number of letters can be posted in all of the three post boxes?
  - A. 5C3
  - B. 5P3
  - C. 53
  - D. 35

Ans: D

163. How many number of times will the digit '7' be written when listing the integers from 1

- to 1000?
  - A. 271
  - B. 300
  - C. 252
  - D. 304

#### Ans: B

- 164. There are 6 boxes numbered 1, 2,...6. Each box is to be filled up either with a red or a green ball in such a way that at least 1 box contains a green ball and the boxes containing green balls are consecutively numbered. The total number of ways in which this can be done is
  - A. 5
  - **B.** 21
  - C. 33
  - D. 60

### Ans : B

165. What is the value of  $1*1! + 2*2! + 3!*3! + \dots n*n!$ , where n! means n factorial or n(n-A(n-2)...1

A. n(n-A(n-A!))
B. (n+A!)/(n(n-A))
C. (n+A! - n!)
D. (n + A! - 1!)

#### Ans: D

- 166. There are 5 Rock songs, 6 Carnatic songs and 3 Indi pop songs. How many different albums can be formed using the above repertoire if the albums should contain at least 1 Rock song and 1 Carnatic song?
  - A. 15624
  - B. 16384
  - C. 6144
  - D. 240

#### Ans: A

- 167. In how many ways can the letters of the word MANAGEMENT be rearranged so that the two As do not appear together?
  - A. 10! 2!
  - B. 9! 2!
  - C. 10! 9!
  - D. None of these

#### Ans : D

- 168. How many five digit numbers can be formed using the digits 0, 1, 2, 3, 4 and 5 which are divisible by 3, without repeating the digits?
  - A. 15
  - B. 96
  - C. 216
  - D. 120

### Ans: C

- 169. How many words can be formed by re-arranging the letters of the word PROBLEMS such that P and S occupy the first and last position respectively?
  - A. 8! / 2!
    B. 8! 2!
    C. 6!
    D. 8! 2\*7!

## Ans: C

- 170. Four dice are rolled simultaneously. What is the number of possible outcomes in which at least one of the die shows 6?
  - A. 6! / 4!
    B. 625
    C. 671
    D. 1296

Ans: C

## Percentage

171. A trader makes a profit equal to the selling price of 75 articles when he sold 100 of the articles. What % profit did he make in the transaction?

- B. 75%
- C. 300%
- D. 150%

Ans : C

- 172. A merchant buys two articles for Rs.600. He sells one of them at a profit of 22% and the other at a loss of 8% and makes no profit or loss in the end. What is the selling price of the article that he sold at a loss?
  - A. Rs. 404.80
  - B. Rs. 440
  - C. Rs. 536.80
  - D. Rs. 160

Ans : A

- 173. A trader professes to sell his goods at a loss of 8% but weights 900 grams in place of a kg weight. Find his real loss or gain per cent.
  - A. 2% loss
  - B. 2.22% gain
  - C. 2% gain
  - D. None of these

#### Ans: B

- 174. Rajiv sold an article for Rs.56 which cost him Rs.x. If he had gained x% on his outlay, what was his cost?
  - A. Rs. 40
  - B. Rs. 45
  - C. Rs. 36
  - D. Rs. 28

Ans : A

175. A trader buys goods at a 19% Aount on the label price. If he wants to make a profit of 20% after allowing a Aount of 10%, by what % should his marked price be greater than the original label price?

A. +8%

- B. -3.8%
- C. +33.33%
- D. None of these

#### Ans : A

- 176. If apples are bought at the rate of 30 for a rupee. How many apples must be sold for a rupee so as to gain 20%?
  - A. 28
  - B. 25
  - C. 20
  - D. 22

#### Ans: B

177. One year payment to the servant is Rs. 200 plus one shirt. The servant leaves after 9 months and recieves Rs. 120 and a shirt. Then find the price of the shirt.

- A. Rs. 80
- B. Rs. 100
- C. Rs. 120
- D. Cannot be determined

#### Ans : C

- 178. Two merchants sell, each an article for Rs.1000. If Merchant A computes his profit on cost price, while Merchant B computes his profit on selling price, they end up making profits of 25% respectively. By how much is the profit made by Merchant B greater than that of Merchant A?
  - A. Rs.66.67
  - B. Rs. 50
  - C. Rs.125
  - D. Rs.200

#### Ans: B

179. A merchant marks his goods in such a way that the profit on sale of 50 articles is equal to the selling price of 25 articles. What is his profit margin?

A. 25%

- B. 50%C. 100%
- D. 66.67%

Ans: C

- 180. A merchant marks his goods up by 75% above his cost price. What is the maximum % Aount that he can offer so that he ends up selling at no profit or loss?
  - A. 75%
  - B. 46.67%
  - C. 300%
  - D. 42.85%

Ans : D

## **Speed, Time and Distance**

- 181. Rajesh traveled from city A to city B covering as much distance in the second part as he did in the first part of this journey. His speed during the second part was twice as that of the speed during the first part of the journey. What is his average speed of journey during the entire travel?
  - A. His average speed is the harmonic mean of the individual speeds for the two parts.
  - B. His average speed is the arithmetic mean of the individual speeds for the two parts.
  - C. His average speed is the geometric mean of the individual speeds for the two parts.
  - D. Cannot be determined.

#### Ans: B

- 182. Two boys begin together to write out a booklet containing 535 lines. The first boy starts with the first line, writing at the rate of 100 lines an hour; and the second starts with the last line then writes line 534 and so on, backward proceeding at the rate of 50 lines an hour. At what line will they meet?
  - A. 356
  - B. 277

C. 357 D. 267

Ans : C

- 183. A man and a woman 81 miles apart from each other, start travelling towrds each other at the same time. If the man covers 5 miles per hour to the women's 4 miles per hour, how far will the woman have travelled when they meet?
  - A. 27
  - B. 36
  - C. 45
  - D. None of these.

#### Ans: B

- 184. The speed of a motor boat itself is 20 km/h and the rate of flow of the river is 4 km/h. Moving with the stream the boat went 120 km. What distance will the boat cover during the same time going against the stream?
  - A. 80 km
  - B. 180 km
  - C. 60 km
  - D. 100 km

## Ans : A

- 185. Two friends A and B run around a circular track of length 510 metres, starting from the same point, simultaneously and in the same direction. A who runs faster laps B in the middle of the 5th round. If A and B were to run a 3 km race long race, how much start, in terms of distance, should A give B so that they finish the race in a dead heat?
  - A. 545.45 metres
  - B. 666.67 metres
  - C. 857.14 metres
  - D. Cannot be determined

#### Ans: B

186. I travel the first part of my journey at 40 kmph and the second part at 60 kmph and cover the total distance of 240 km to my destination in 5 hours. How long did the first part of my

journey last?

- A. 4 hours
- B. 2 hours
- C. 3 hours
- D. 2 hours 24 minutes

## Ans: C

187. By walking at 3/4th of his usual speed, a man reaches office 20 minutes later than usual. What is his usual time?

- A. 30 min
- B. 60 min
- C. 70 min
- D. 50 min

## Ans: B

- 188. A passenger train covers the distance between stations X and Y, 50 minutes faster than a goods train. Find this distance if the average speed of the passenger train is 60 kmph and that of goods train is 20 kmph.
  - A. 20 kms
  - B. 25 kms
  - C. 45 kms
  - D. 40 kms

## Ans: B

- 189. Yana and Gupta leave points x and y towards y and x respectively simultaneously and travel in the same route. After meeting each other on the way, Yana takes 4 hours to reach her destination, while Gupta takes 9 hours to reach his destination. If the speed of Yana is 48 km/hr, what is the speed of Gupta?
  - A. 72 kmph
  - B. 32 mph
  - C. 20 mph
  - D. None of these

## Ans: C

190. Ram covers a part of the journey at 20 kmph and the balance at 70 kmph taking total of 8 hours to cover the distance of 400 km. How many hours has been driving at 20 kmph?

- A. 2 hours
- B. 3 hours 20 minutes
- C. 4 hours 40 minutes
- D. 3 hours 12 minutes

Ans : D

## **Speed, Time and Distance**

- 191. Train A traveling at 60 km/hr leaves Mumbai for Delhi at 6 P.M. Train B traveling at 90 km/hr also leaves Mumbai for Delhi at 9 P.M. Train C leaves Delhi for Mumbai at 9 P.M. If all three trains meet at the same time between Mumbai and Delhi, what is the speed of Train C if the distance between Delhi and Mumbai is 1260 kms?
  - A. 60 km/hr
  - B. 90 km/hr
  - C. 120 km/hr
  - D. 135 km/hr

#### Ans : C

- 192. Two trains, 200 and 160 meters long take a minute to cross each other while traveling in the same direction and take only 10 seconds when they cross in opposite directions. What are the speeds at which the trains are traveling?
  - A. 21 m/s; 15 m/s
  - B. 30 m/s; 24 m/s
  - C. 18 m/s; 27 m/s
  - D. 15 m/s; 24 m/s

#### Ans : A

193. An express train traveling at 72 km/hr speed crosses a goods train traveling at 45 km/hr speed in the opposite direction in half a minute. Alternatively, if the express train were to overtake the goods train, how long will it take to accomplish the task. Assume that the trains

continue to travel at the same respective speeds as mentioned in case 1.

- A. Cannot be determined
- B. 30 seconds
- C. 150 seconds
- D. 130 seconds

#### Ans: D

- 194. A train travels at an average speed of 90 km/hr without any stoppages. However, its average speed decrease to 60km/hr on account of stoppages. On an average, how many minutes per hour does the train stop?
  - A. 12 minutes
  - B. 18 minutes
  - C. 24 minutes
  - D. 20 minutes

### Ans : D

- 195. Two trains A and B start simultaneously from stations X and Y towards each other respectively. After meeting at a point between X and Y, train A reaches station Y in 9 hours and train B reaches station X in 4 hours from the time they have met each other. If the speed of train A is 36 km/hr, what is the speed of train B?
  - A. 24 km/hr
  - B. 54 km/hr
  - C. 81 km/hr
  - D. 16 km/hr

## Ans: B

- 196. A man moves from A to B at the rate of 4 km/hr. Had he moved at the rate of 3.67 km/hr, he would have taken 3 hours more to reach the destination. What is the distance between A and B?
  - A. 33 kms
  - B. 132 kms
  - C. 36 kms
  - D. 144 kms

#### Ans: B

- 197. A ship develops a leak 12 km from the shore. Despite the leak, the ship is able to move towards the shore at a speed of 8 km/hr. However, the ship can stay afloat only for 20 minutes. If a rescue vessel were to leave from the shore towards the ship, and it takes 4 minutes to evacuate the crew and passengers of the ship, what should be the minimum speed of the rescue vessel in order to be able to successfully rescue the people aboard the ship?
  - A. 53 km/hr
  - B. 37 km/hr
  - C. 28 km/hr
  - D. 44 km/hr

#### Ans: B

- 198. A man driving his bike at 24 kmph reaches his office 5 minutes late. Had he driven 25% faster on an average he would have reached 4 minutes earlier than the scheduled time. How far is his office?
  - A. 24 km
  - B. 72 km
  - C. 18 km
  - D. Data Insufficient

#### Ans: C

- 199. When an object is dropped, the number of feet N that it falls is given by the formula  $N = \frac{1}{2}$ gt2 where t is the time in seconds from the time it was dropped and g is 32.2. If it takes 5 seconds for the object to reach the ground, how many feet does it fall during the last 2 seconds?
  - A. 64.4
  - B. 96.6
  - C. 161.0
  - D. 257.6

#### Ans : D

200. If the wheel of a bicycle makes 560 revolutions in travelling 1.1 km, what is its radius?

- A. 31.25 cm
- B. 37.75 cm
- C. 35.15 cm

D. 11.25 cm

Ans: A

## **Time and Work**

- 201. Two workers A and B manufactured a batch of identical parts. A worked for 2 hours and B worked for 5 hours and they did half the job. Then they worked together for another 3 hours and they had to do (1/20)th of the job. How much time does B take to complete the job, if he worked alone?
  - A. 24 hours
  - B. 12 hours
  - C. 15 hours
  - D. 30 hours

Ans:C

- 202. Pipe A can fill a tank in 'a' hours. On account of a leak at the bottom of the tank it takes thrice as long to fill the tank. How long will the leak at the bottom of the tank take to empty a full tank, when pipe A is kept closed?
  - A. (3/2)a hours
  - B. (2/3)a
  - C. (4/3)a
  - D. (3/4)a

## Ans : A

- 203. A and B working together can finish a job in T days. If A works alone and completes the job, he will take T + 5 days. If B works alone and completes the same job, he will take T + 45 days. What is T?
  - A. 25
  - B. 60
  - C. 15
  - D. None of these

Ans : C

- 204. A man can do a piece of work in 60 hours. If he takes his son with him and both work together then the work is finished in 40 hours. How long will the son take to do the same job, if he worked alone on the job?
  - A. 20 hours
  - B. 120 hours
  - C. 24 hours
  - D. None of these

### Ans: B

- 205. A, B and C can do a work in 5 days, 10 days and 15 days respectively. They started together to do the work but after 2 days A and B left. C did the remaining work (in days)
  - A. 1
    B. 3
    C. 5
    D. 4

Ans: D

- 206. X alone can do a piece of work in 15 days and Y alone can do it in 10 days. X and Y undertook to do it for Rs. 720. With the help of Z they finished it in 5 days. How much is paid to Z?
  - A. Rs. 360
  - B. Rs. 120
  - C. Rs. 240
  - D. Rs. 300

## Ans: B

207. Ram starts working on a job and works on it for 12 days and completes 40% of the work. To help him complete the work, he employs Ravi and together they work for another 12 days and the work gets completed. How much more efficient is Ram than Ravi?

A. 50%

- B. 200%
- C. 60%

D. 100%

Ans : D

208. A red light flashes 3 times per minute and a green light flashes 5 times in two minutes at regular intervals. If both lights start flashing at the same time, how many times do they flash together in each hour?

A. 30

- B. 24
- C. 20
- D. 60

Ans : A

- 209. A and B can do a piece of work in 21 and 24 days respectively. They started the work together and after some days A leaves the work and B completes the remaining work in 9 days. After how many days did A leave?
  - A. 5
  - B. 7
  - C. 8
  - D. 6

Ans: B

- 210. Ram, who is half as efficient as Krish, will take 24 days to complete a work if he worked alone. If Ram and Krish worked together, how long will they take to complete the work?
  - A. 16 days
  - B. 12 days
  - C. 8 days
  - D. 18 days

Ans: C

## **Probability**

211. A number is selected at random from first thirty natural numbers. What is the chance that it is a multiple of either 3 or 13?A. 17/30

B. 2/5C. 11/30D. 4/15

Ans: B

212. What is the probability of getting at least one six in a single throw of three unbiased dice?

- A. 1 / 6
  B. 125 / 216
  C. 1 / 36
- D. 91/216

### Ans : D

- 213. What is the probability that a two digit number selected at random will be a multiple of '3' and not a multiple of '5'?
  - A. 2/15
  - B. 4/15
  - C. 1/15 D. 4/90

## Ans: B

- 214. A man bets on number 16 on a roulette wheel 14 times and losses each time. On the 15th span he does a quick calculation and finds out that the number 12 had appeared twice in the 14 spans and is therefore, unable to decide whether to bet on 16 or 12 in the 15th span. Which will give him the best chance and what are the odds of winning on the bet that he takes? (Roulette has numbers 1 to 36)
  - A. 16; 22 : 14
  - B. 12; 72 : 1
  - C. 12; 7:1
  - D. Either; 35 : 1

#### Ans : D

have a side in common? A. 1 / 18 B. 64 / 4032 C. 63 / 64

D. 1/9

Ans : A

- 216. When two dice are thrown simultaneously, what is the probability that the sum of the two numbers that turn up is less than 11?
  - A. 5 / 6
    B. 11 / 12
    C. 1 / 6
    D. 1 / 12

Ans: B

- 217. When 4 dice are thrown, what is the probability that the same number appears on each of them?
  - A. 1/36
  - **B.** 1/18
  - C. 1/216
  - D. 1/5

Ans: C

- 218. An experiment succeeds twice as often as it fails. What is the probability that in the next 5 trials there will be four successes?
  - A. 0
  - B. (2/3)^4
  - C. 5\*((2/3)^4)\*(1/3)
  - D. ((2/3)^4)\*(1/3)

Ans: C

219. An anti aircraft gun can fire four shots at a time. If the probabilities of the first, second, third and the last shot hitting the enemy aircraft are 0.7, 0.6, 0.5 and 0.4, what is the probability that four shots aimed at an enemy aircraft will bring the aircraft down?

- A. 0.084
- B. 0.916
- C. 0.036
- D. 0.964

### Ans : A

- 220. A can complete a project in 20 days and B can complete the same project in 30 days. If A and B start working on the project together and A quits 10 days before the project is completed, in how many days will the project be completed?
  - A. 18 days
  - B. 27 days
  - C. 26.67 days
  - D. 16 days

## Ans : A

## Miscellaneous

221. Which amongst the following investments has the lowest return?

- a. 7% Rs.100 shares at Rs.120b. 8% Rs.10 shares at 13.50c. 9% Rs.50 shares at Rs.54
  - A. a
    B. b
    C. c
    D. a and c

Ans : A

222. The classic problem of a monkey and the greased flag pole . The height of a certain flag pole is 30 feet. Grease is applied to the pole. A monkey attempts to climb the pole. It climbs 3 feet every second but slips down 2 ft in the next second. When will the monkey reach the top of the flag pole?

A. 56 secs

- B. 27 secs
- C. 60 secs
- D. 55 secs

Ans : D

223. How many squares can be formed using the checkered 1 \* 1 squares in a normal chessboard?

- A. 64
- B. 204
- C. 1296
- D. 65

#### Ans: B

224. Solve for real 'x' if :

- A. x > 9
- B. 0 < x < 9
- $C. \ x < 0$
- D. None of these

#### Ans: B

225. If  $\log 2 = 0.3010$ , then find how many digits are contained in the number 256.

- A. 15
- B. 16
- C. 17
- D. Cannot be determined

#### Ans: C

- 226. A gentleman buys every year Bank's cash certificates of value exceeding the last year's purchase by Rs. 300. After 20 years, he finds that the total value of the certificates purchased by him is Rs. 83,000. Find the value of the certificates purchased by him in the 13th year.
  - A. Rs. 4900
  - B. Rs. 6900
  - C. Rs. 1300

D. None of these.

Ans : A

- 227. From the following choices what is the equation of a line whose x intercept is half as that of the line 3x + 4y = 12 and y intercept is twice as that of the same line.
  - A. 3x + 8y = 24B. 8x + 3y = 24C. 16x + 3y = 24D. 3x + y = 6

Ans : D

- 228. Pipe A can fill a tank completely in 5 hours. However, on account of a leak at the bottom of the tank, it takes 3 more hours to fill the tank. How long will the leak take to empty a full tank, when pipe A is shut?
  - A. 13 hours 20 minutes
  - B. 7.5 hours
  - C. 14 hours 40 minutes
  - D. None of these

Ans: A

- 229. The sum of the first 50 terms common to the series 15,19,23 ... and 14,19,24 ... is
  - A. 25450
  - B. 24550
  - C. 50900
  - D. Cannot be determined

## Ans : A

- 230. For what values of 'x' will the function be defined in the real domain?
  - A. -10 < x < 4
  - B. 4 < x < 10
  - C.  $\,x$  does not lie between the closed interval 10 and 4  $\,$
  - D. x does not lie between the open interval 4 and 10

231. Find the sum of all the integers which are multiples of 7 and lie between 200 and 400.

- A. 8729
- B. 8700
- C. 8428
- D. None of these

Ans : A

232. How many digits will the number  $3^{200}$  have if the value of log 3 = 0.4771?

- A. 95
- B. 94
- C. 96
- D. None of these

## Ans : C

- 233. A and B enter in to a partnership and A invests Rs. 10,000 in the partnership. At the end of 4 months he withdraws Rs.2000. At the end of another 5 months, he withdraws another Rs.3000. If B receives Rs.9600 as his share of the total profit of Rs.19,100 for the year, how much did B invest in the company?
  - A. 12,000
  - B. 96,000
  - C. 8000
  - D. 6000

## Ans: C

- 234. The sum of the first and the 9th of an arithmetic progression is 24. What is the sum of the first nine terms of the progression?
  - A. 216
  - B. 108
  - C. 54
  - D. None of these

## Ans: B

235. What is the equation of the line that is parallel to the line 3x + 7y = 10 and passes

through the point (4, 8) A. 7x - 3y = 46B. 3x + 7y = 44C. 9x + 21y - 184 = 0D. 3x + 7y = 68

Ans : D

- 236. Ram and Shyam take a vacation at their grandparents' house. During the vacation, they do any activity together. They either played tennis in the evening or practiced Yoga in the morning, ensuring that they do not undertake both the activities on any single day. There were some days when they did nothing. Out of the days that they stayed at their grandparents' house, they involved in one of the two activities on 22 days. However, their grandmother while sending an end of vacation report to their parents stated that they did not do anything on 24 mornings and they did nothing on 12 evenings. How long was their vacation?
  - A. 36 days
  - B. 14 days
  - C. 29 days
  - D. Cannot be determined.

Ans: C

- 237. Ram buys Rs.100 shares at Rs.112. If he sells the shares after a year at Rs.132 after receiving a dividend of 8% just before selling, what is the net yield on his investment?
  - A. 17.85%
  - B. 6.06%
  - C. 32%
  - D. 25%

## Ans: D

238. The sum of 20 terms of the series 12 + 22, 32 + 42, 52 + 62 is:

- A. 210
- B. 519
- C. 190
- D. None of these.

Ans: A

- 239. A tank is fitted with 8 pipes, some of them that fill the tank and others that are waste pipe meant to empty the tank. Each of the pipes that fill the tank can fill it in 8 hours, while each of those that empty the tank can empty it in 6 hours. If all the pipes are kept open when the tank is full, it will take exactly 6 hours for the tank to empty. How many of these are fill pipes?
  - A. 2
    B. 4
    C. 6
    D. 5

Ans: B

- 240. If A and B work together, they will complete a job in 7.5 days. However, if A works alone and completes half the job and then B takes over and completes the remaining half alone, they will be able to complete the job in 20 days. How long will B alone take to do the job if A is more efficient than B?
  - A. 20 days
  - B. 40 days
  - C. 30 days
  - D. 24 days

Ans: C

# **Profit and Loss**

- 241. A trader makes a profit equal to the selling price of 75 articles when he sold 100 of the articles. What % profit did he make in the transaction?
  - A. 33.33%
  - B. 75%
  - C. 300%
  - D. 150%

Ans: C

242. A merchant buys two articles for Rs.600. He sells one of them at a profit of 22% and the other at a loss of

8% and makes no profit or loss in the end. What is the selling price of the article that he sold at a loss?

- A. Rs. 404.80
- B. Rs. 440
- C. Rs. 536.80
- D. Rs. 160

## Ans: A

- 243. A trader professes to sell his goods at a loss of 8% but weights 900 grams in place of a kg weight. Find his real loss or gain per cent.
  - A. 2% loss
  - B. 2.22% gain
  - C. 2% gain
  - D. None of these

## Ans: B

- 244. Rajiv sold an article for Rs.56 which cost him Rs.x. If he had gained x% on his outlay, what was his cost?
  - A. Rs. 40
  - B. Rs. 45
  - C. Rs. 36
  - D. Rs. 28

## Ans: A

- 245. A trader buys goods at a 19% Aount on the label price. If he wants to make a profit of 20% after allowing a Aount of 10%, by what % should his marked price be greater than the original label price?
  - A. +8%
  - B. -3.8%
  - C. +33.33%
  - D. None of these

## Ans: A

- 246. If apples are bought at the rate of 30 for a rupee. How many apples must be sold for a rupee so as to gain 20%?
  - A. 28
  - B. 25

C. 20

D. 22

Ans: B

247. One year payment to the servant is Rs. 200 plus one shirt. The servant leaves after 9 months and recieves Rs. 120 and a shirt. Then find the price of the shirt.

A. Rs. 80

B. Rs. 100

C. Rs. 120

D. Cannot be determined

Ans: C

248. Two merchants sell, each an article for Rs.1000. If Merchant A computes his profit on cost price, while Merchant B computes his profit on selling price, they end up making profits of 25% respectively. By how much is the profit made by Merchant B greater than that of Merchant A?

- A. Rs.66.67
- B. Rs. 50
- C. Rs.125
- D. Rs.200

Ans: B

- 249. A merchant marks his goods in such a way that the profit on sale of 50 articles is equal to the selling price of 25 articles. What is his profit margin?
  - A. 25%
  - B. 50%
  - C. 100%
  - D. 66.67%

### Ans: C

250. A merchant marks his goods up by 75% above his cost price. What is the maximum % Aount that he can offer so that he ends up selling at no profit or loss?

- A. 75%
- B. 46.67%
- C. 300%

Ans: D

21. If .2t = 2.2 - .6s and .5s = .2t + 1.1, then s = A. 1 B. 3 C. 10 D. 11 E. 30



22. Five years ago, Beth's age was three times that of Amy. Ten years ago, Beth's age was one half that of Chelsea. If C repre- sents Chelsea's current age, which of the following represents Amy's current age?

- A. c/6 + 5
- B. 2c
- C. (c-10)/3
- D. 3c-5
- E. 5c/3 10

Ans : A

- 23. A portion of \$7200 is invested at a 4% annual return, while the remainder is invested at a 5% annual return. If the annual income from both portions is the same, what is the total income from the two investments?
  - A. \$160
  - B. \$320
  - C. \$400
  - D. \$720

E. \$1,600

Ans: B

24. An empty swimming pool can be filled to capacity through an inlet pipe in 3 hours, and it can be completely drained by a drainpipe in 6 hours. If both pipes are fully open at the same time, in how many hours will the empty pool be filled to capacity?

- A. 4 B. 4.5
- C. 5
- D. 5.5
- E. 6

#### Ans : E

25. If r = (3p + q)/2 and s = p - q, for which of the following values of p would  $r^2 = s^2$ ?

A. 1q/5
B. 10 - 3q/2
C. q - 1
D. 3q
E. 9q/2 - 9

#### Ans:A

- 26. At 10 a.m. two trains started traveling toward each other from stations 287 miles apart. They passed each other at 1:30 p.m. the same day. If the average speed of the faster train exceeded the average speed of the slower train by 6 miles per hour, which of the following represents the speed of the faster train, in miles per hour?
  - A. 38
  - B. 40
  - C. 44
  - D. 48
  - E. 50

#### Ans:C

27. On the xy-coordinate plane, points A and B both lie on the circumference of a circle whose

center is O, and the length of AB equals the circle's diameter. If the (x,y) coordinates of O are (2,1) and the (x,y) coordinates of B are (4,6), what are the (x,y) coordinates of A?

- A. (3, 3/2) B. (1, 2/2)
- C. (0, -4)
- D. (2/2, 1)
- E. (-1, -2/2)

#### Ans : C

- 28. If a rectangle's length and width are both doubled, by what percent is the rectangle's area increased?
  - A. 50
  - B. 100
  - C. 200
  - D. 300
  - E. 400

## Ans : D

- 29. A rectangular tank 10" by 8" by 4" is filled with water. If all of the water is to be transferred to cube-shaped tanks, each one 3 inches on a side, how many of these smaller tanks are needed?
  - A. 9
  - B. 12
  - C. 16
  - D. 21
  - E. 39

## Ans : B

30. Point Q lies at the center of the square base (ABCD) of the pyramid pictured above. The pyramid's height (PQ) measures exactly one half the length of each edge of its base, and point E lies exactly halfway between C and D along one edge of the base. What is the ratio of the surface area of any of the pyramid's four triangular faces to the surface area of the shaded triangle?

A. 3 :√2

B.  $\sqrt{5:1}$ C.  $4\sqrt{3:3}$ D.  $2\sqrt{2:1}$ E.  $8:\sqrt{5}$ 

Ans : D