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2504E148

Candidate's Seat No : _____

IMBA (Rep) Semester-2 Examination

IIS_IMBA-14

Essential Mathematics-II

Time : 2-30 Hours]

April-2024

[Max. Marks : 70

Instruction:

- 1) The figures on right hand side indicates marks.
- 2) Use of calculators is **NOT allowed**.

Q:1 Solve the following

1. Find the following missing numbers. (14 Marks)

i) $2, 3, 4, 15, 56, 285, ?$

iii) $8, 10, 24, 78, 320, 1610, ?$

ii) $?, 256, 215, 172, 125, 72$

iv) $36, 18, 18, 27, 54, ?$

OR

2. Find the Solution. (14 Marks)

i) $110 \times 2200 + 165 \times 124 - 481 / 13 = X$

iii) $523 - 65\% \text{ of } 360 - 45\% \text{ of } 520 = X$

ii) $15\% \text{ of } 620 + 22\% \text{ of } 550 - 1235 \div 19 = X$

iv) $(792 \div 12) + 1134 \div 18 - 728 \div 13 = X$

Question:2 Solve the following

1. A bag contains 3 Red 5 Blue 8 Green and 4 Yellow marbles. If three marbles picked up random, Find the probability that..... (14 Marks)

- i) that it is neither red nor blue ?
- iii) that two are red, one is blue or green?
- iv) that either all are green, or all are red.?
- v) that none is green?
- vi) one ball is Yellow, and other two is blue?
- vii) that neither blue nor green?
- viii) at least one is blue?

OR

2. Solve the following (14 Marks)

- (i) In how many different ways can the letter of the word "AHMEDABAD" be arranged so that vowels always occur together

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- (ii) In how many ways 4 Cat, 5 Dogs and 7 Mouse be seated in a row so that all animals of same groups sits together.
- (iii) In how many ways the letters of the word 'ALLIGATION' be arranged taking all the letters?
- (iv) In how many ways all the letters of the word 'MAXIMUM' be arranged such that all vowels are together?
- (v) Two cards are drawn together at random. What is the probability of both the cards being kings?
- (vi) One card is drawn at random. What is the probability that the card drawn is a ten or a spade?
- (vii) 3 cards are chosen at random. What is the probability that all are face cards?

Question:3 Solve the following

[14 Marks]

1. In each of these following questions, two equations (I) and (II) are given. You have to solve both the equations and give answer. (14 Marks)

a) if $x > y$

c) if $x \geq y$

e) if $x = y$ or no relation can be established

b) if $x < y$

d) if $x \leq y$

i) I. $9x^2 - 27x + 20 = 0$

II. $6y^2 - 5y + 1 = 0$

ii) I. $x^2 - 6x + 9 = 0$

II. $y^2 - 11y + 24 = 0$

iii) I. $5x^2 + 29x + 20 = 0$

II. $25y^2 + 25y + 6 = 0$

OR

1. Find the Following (14Marks)

(i) $2x + y - 6 = 0$, and $4x - 2y - 4 = 0$

(ii) $3x + 4y = 10$ and $2x - 2y = 2$

(iii) $0.2x + 0.3y = 1$ and $0.4x + 0.5y = 2.3$

(iv) $x + y = 5$ and $2x - 3y = 4$

(v) $2(x - 1) - 6x = 10 - 2(x - 4)$

(vi) $(x - 3)/4 + (x - 1)/5 - (x - 2)/3 = 1$

(vii) $(3y - 2)/3 + (2y + 3)/3 = (y + 7)/6$

Question:4

[14Marks]

1. Solve the following.

- (i) A shopkeeper sells Marker at the rate of Rs.35 each and earns a commission of 10%. He also sells Gel pens at the rate of Rs. 65 each and earns a commission of 20%. How much amount (in rupees) of commission will he earn in 2 weeks, if he sells 12 markers and 8 Gel pens a day?
- (ii) A product costs a company Rs 60 to manufacture, and it sold the product to a dealer for Rs 70, who in turn sold it to a shopkeeper for Rs 85, who sold to a customer for

Rs 102. What is the percentage of profit for the company and who made the highest profit on selling the product?

- (iii) A man travels at a speed of kmph for 6hrs and next 3hrs at a speed of 6kmph
What is his Avg. speed?
- (iv) A car travels a distance of 540km in 6 hours What formula should be used?
And What is the speed did it travels at?

OR

2. Solve the following (14 Marks)

- (i) Two numbers are in the ratio 3:5. By adding 10 to each of them, the new numbers are in the ratio 5:7. Find the two numbers.
- (ii) The two numbers are in the ratio 4:5 respectively. If each number is subtracted by 25, then the ratio becomes 3:4. Find the two numbers.
- (iii) How much time will it take for an amount of Rs. 450 to yield Rs. 81 as interest at 4.5% per annum of simple interest?
- (iv) A man took loan from a bank at the rate of 12% p.a. simple interest. After 3 years he had to pay Rs. 5400 interest only for the period. The principal amount borrowed by him was
- (v) A sum of Rs. 12,500 amounts to Rs. 15,500 in 4 years at the rate of simple interest. What is the rate of interest?

Question:5 Attempt any seven MCQ out of Eight

[14Marks]

- 1) A purchased a machine at Rs 13,000, then got it repaired at Rs 3500, they gave its transportation charges Rs500. Then he sold it at 50% profit. At what price he actually sold it?
A) Rs18500
B) Rs25500
C) Rs22200
D) Rs19600
- 2) From a pack of 52 cards, 1 card is drawn at random. What is the probability of the card being red or ace?
A) $\frac{5}{18}$
B) $\frac{7}{13}$
C) $\frac{15}{26}$
D) $\frac{9}{13}$
E) $\frac{17}{26}$
- 3) The ratio of the number of boys and girls in a college is 7: 8. If the percentage increase in the number of boys and girls is 20% and 10% respectively, what will be the new ratio?
A) 8: 9
B) 17: 18
C) 21: 22
D) Cannot be determined.
- 4) $54\% \text{ of } 650 - 1050/14 - 1118/13 = X$
A) 159
B) 190
C) 173
D) 186
- 5) $35\% \text{ of } 580 + 28\% \text{ of } 250 - 32\% \text{ of } 450 = x$
A) 251
B) 146
C) 137

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D)129

E) 239

- 6) A dealer allowed two successive discounts of 20% and 25% to a customer. What is discount percentage to the customer?
- A) 45 %
B) 40%
C) 50%
D) 60%
- 7) A and B together have Rs. 1210. If $\frac{4}{15}$ of A's amount is equal to $\frac{2}{5}$ of B's amount, how much amount does B have?
- A) Rs. 460
B) Rs. 484
C) Rs. 550
D) Rs. 664
- 8) Three Bananas and three oranges are kept in a box. If two fruits are chosen at random, Find the probability that one is Banana and another one is orange?
- A) $\frac{1}{5}$
B) $\frac{3}{5}$
C) $\frac{4}{5}$
D) $\frac{2}{5}$
E) None of these
