Total No. of Questions: 6 *Total No. of Printed Pages:3*

Enrollment No.....

Faculty of Management Studies
End Sem Examination Dec-2023
MS3CO32 Elementary Mathematics & Statistics

Programme: BBA Branch/Specialisation: Management / Business Analytics

Duration: 3 Hrs. **Maximum Marks: 60**

Note: All questions are compulsory. Internal choices, if any, are indicated. Answers of Q.1 (MCQs) should be written in full instead of only a, b, c or d. Assume suitable data if necessary. Notations and symbols have their usual meaning.

Q.1 i. What is 20% of 150? **1**

(a) 25 (b) 30

(c) 35 (d) 40

ii. If the cost price of a chair is ₹800 and it is sold at a loss of 10%, what is the selling price? **1**

(a) ₹720 (b) ₹740

(c) ₹760 (d) ₹780

iii. Let A= {1,2,3,4} and B= {3,4,5,6}. What is A∩B? **1**

(a) {1,2,3,4,5,6} (b) {3,4}

(c) {1,2} (d) {5,6}

iv. If U={1,2,3,4,5}, A={1,3,5}, and B={2,4}, what is the complement of A? **1**

(a) {1,3,5} (b) {2,4}

(c) {1,2,3,4,5} (d) {2,3,4}

v. If A={1,2,3,4} and B={3,4,5,6}, what is A×B? **1**

(a) {(1,3),(2,4),(3,5),(4,6)}{(1,3),(2,4),(3,5),(4,6)}

(b) {(1,3),(2,4),(3,5),(4,6),(1,4),(2,3),(3,4),(4,5)}{(1,3),(2,4),(3,5),(4,6),(1,4),(2,3),(3,4),(4,5)}

(c) {(1,3),(2,4),(3,5),(4,6),(3,1),(4,2),(5,3),(6,4)}{(1,3),(2,4),(3,5),(4,6),(3,1),(4,2),(5,3),(6,4)}

(d) {(1,3),(2,4),(3,5),(4,6),(3,4),(4,5),(5,6),(6,4)}{(1,3),(2,4),(3,5),(4,6),(3,4),(4,5),(5,6),(6,4)}

vi. Let A={1,2,3}. Which of the following relations on set A is reflexive? **1**
(a) {(1,2),(2,3),(3,1)}{(1,2),(2,3),(3,1)}
(b) {(1,1),(2,2),(3,3)}{(1,1),(2,2),(3,3)}
(c) {(1,3),(2,1),(3,2)}{(1,3),(2,1),(3,2)}
(d) {(2,1),(2,3),(3,2)}{(2,1),(2,3),(3,2)}

vii. How many ways can you choose a shirt and a pair of jeans from a wardrobe that contains 5 shirts and 4 pairs of jeans? **1**
(a) 5 (b) 9 (c) 20 (d) 45

viii. A pizza restaurant offers 4 different crusts, 5 types of sauce, and 3 choices of cheese. How many different pizzas can you create by choosing one crust, one sauce, and one cheese? **1**
(a) 9 (b) 12 (c) 20 (d) 60

ix. The arithmetic mean of 5, 10, and 15 is: **1**
(a) 10 (b) 12 (c) 15 (d) 20

x. What is the common ratio of the geometric progression 2, 6, 18, 54, _____? **1**
(a) 2 (b) 3 (c) 4 (d) 6

Q.2 i. Evaluate: 6×2+8÷4. **2**

ii. Riya scored 344 marks out of 400 marks and his elder brother Ben scored 582 marks out of 600 marks. Whose scored percentage is better? **3**

iii. Priya borrows ₹12,000 from a relative at a simple interest rate of 5% per annum. If she pays back the loan after 3 years, how much interest will she have to pay? **5**

OR iv. In a bag of coloured balls, the ratio of red to blue balls is 3:5. If there are 24 red balls, how many blue balls are there? **5**

Q.3 i. Let A={1,2,3} and B={1,2,3,4,5}. Determine whether A is a subset of B. **2**

ii. If U= {1,2,3,4,5,6,7,8,9,10,11,12,13,14,15}, A = {2, 4, 6, 8} and B = {6, 8, 10, 12}. Find **8**
(a) A ∪ B (b) A ∩ B
(c) A^1 (d) B^1
(e) Express (A^1 & B^1) with Venn Diagram

OR iii. If A = {1, 3, 5} and B = {2, 3}, then, find: **8**
(a) A × B (b) B × A (c) A × A (d) (B × B)

Q.4 i. Relation **2**
R= {(1,1), (2,2), (3,3), (4,4), (4,5)} is not a function. Justify the statement.

ii. Given: A= 3,4,5,6,8 **8**
B=2,7,1,0,1
find
(a) R (b) Domian
(c) Range (d) Mapping
(e) Derive symmetric and reflexive set from the above relation.

OR iii. Explain impact of functions in Business and Economics with an example. **8**

Q.5 i. Nirvana store is an ice cream shop, and they offer 4 Flavors of ice cream and 3 choices of toppings. How many different ice-cream sundaes can you create with one flavour and one topping? **2**

ii. Obtain the value of: **8**
(a) $^5C_3$ (b) $^6C_4$ (c) 4! – 3! (d) $^8C_2$
and discuss application of Binomial Theorem in Business

OR iii. Find the middle term(s) in the expansion of $(x + 3)^8$ and explain permutation and combination with an example. **8**

Q.6 Attempt any two:

i. The first term of an arithmetic progression (AP) is 5, and the common difference is 3. Find the 8^{th} ,$11^{th,}$ 17^{th} of AP. **5**

ii. The Geometric Progression series 5, 10, 20, 40 _____. **5**
(a) The common ratio of the progression.
(b) The ninth term of the progression.
(c) The sum of the first 5 terms of the progression.

iii. Find the sum of the terms 1/9 + 1/27 + 1/81 + ... to ∞? **5**

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