

Enrollment No.....



Faculty of Management
End Sem (Odd) Examination Dec-2017
MS3C010 Quantitative Techniques

Programme: BBA

Branch/Specialisation: Management

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.

- Q.1 i. When the correlation coefficient between x and y is positive, then as variable x decreases, variable y **1**
(a) Remain the Same (b) Increases
(c) Decreases (d) None of these
- ii. A process by which we estimate the value of dependent variable on the basis of one or more independent variables is called: **1**
(a) Correlation (b) Regression
(c) Positive Correlation (d) Slope
- iii. A time series consists of: **1**
(a) Short-term variations (b) Long-term variations
(c) Irregular variations (d) All of the above
- iv. Increase in the number of patients in the hospital due to heat stroke is: **1**
(a) Secular trend (b) Irregular variation
(c) Seasonal variation (d) Cyclical variation
- v. Index for base period is always taken as: **1**
(a) 100 (b) One (c) 200 (d) Zero
- vi. An index number is used: **1**
(a) To measure changes in price
(b) To measure changes in a variable over time
(c) To measure changes in demand
(d) To measure changes in quantity
- vii. Special rule of multiplication of probability, the events must be: **1**
(a) Independent (b) Dependent
(c) Mutually exclusive (d) None of these

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viii. In a throw of coin what is the probability of getting head: **1**

- (a) 1 (b) 1/2 (c) 2 (d) Zero

ix. To perform a chi square test: **1**

- (a) Data conform to a normal distribution
 (b) Data be measured on nominal scale
 (c) Both (a) and (b)
 (d) None of these

x. F test is used for: **1**

- (a) Comparison of two mean (b) Comparison of two variance
 (c) To test single mean (d) None of these

Q.2 i. What do you mean by regression? **2**

ii. What are the Properties of Regression Coefficients? **3**

iii. Find the rank correlation coefficient for following: **5**

Rank of X	10	4	2	5	8	5	6	9
Rank of Y	10	6	2	5	8	4	5	9

OR iv. Obtain the two lines of regression. **5**

X	1	2	3	4	5
Y	7	8	10	12	13

Q.3 i. Define Time Series? Name its all components. **2**

ii. Fit a straight line trend to the following data using the method of least square and estimate the demand for the year 2010: **8**

Year	2002	2003	2004	2005	2006	2007	2008
Sales	70	75	90	98	84	91	100

OR iii. Explain the Components and Importance of Time Series? **8**

Q.4 i. What is the meaning of Index Number? **2**

ii. Calculate Price Index for the year 1996 with 1986 as the base year **8**
 from the following data using:

- (a) Laspeyre method (b) Paasche method
 (c) Fisher Index method (d) Marshall Edgeworth method

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Commodities	1986		1996	
	Prices	Quantity	Prices	Quantity
A	10	150	11	160
B	12	90	13	100
C	15	60	16	60
D	9	50	12	40

OR iii. Define Index Number. Explain its characteristics, importance and limitations? **8**

Q.5 i. Define probability? Explain mutually exclusive event, trial event and independent event with example. **4**

ii. A card is randomly selected from a deck of 52 cards. Find the probability in each of the following cases: **6**

- (a) Card drawn is the king.
 (b) Either a heart or the queen of spades
 (c) Card drawn is a diamond.

OR iii. Explain the meaning, assumptions, properties of Normal Distribution **6**

Q.6 Attempt any two:

i. What is Hypothesis Testing? Difference between a sample and a population. **5**

ii. A die is thrown 132 times with the following results: **5**
 Number turned up: 1 2 3 4 5 6
 Frequency: 16 20 25 14 29 28
 Find the value of Chi-Square variate.

iii. Difference between Parametric and Non- Parametric Tests? **5**

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Marking Scheme

Q.1	i.	(c) Decreases	1
	ii.	(b) Regression	1
	iii.	(d) All of these	1
	iv.	(c) Seasonal variation	1
	v.	(a) 100	1
	vi.	(b) To measure changes in a variable over time	1
	vii.	(a) Independent	1
	viii.	(b) 1/2	1
	ix.	(b) Data be measured on nominal scale	1
	x.	(b) Comparison of two variance	1
Q.2	i.	Meaning of Regression	2
	ii.	Any 3 Properties of Regression Coefficients. 1 mark for each (1 mark * 3 = 3 marks)	3
	iii.	Ans: 0.827	5
OR	iv.	(Ans: $Y=1.61X+5.17$, $X=0.607Y-3.07$)	5
Q.3	i.	Any 2 definition of Time Series 1 mark for each (1 mark * 2 = 2 marks)	2
	ii.	6 marks for Trend equation & correct trend value 2 marks for the value of 2010	8
OR	iii.	4 marks for Components 4 marks for Importance of Time Series	8
Q.4	i.	Meaning of Index Number	2
	ii.	Ans: Two marks for each correct answer (2 marks * 4 = 8 marks) (a) Laspeyre method =111.45 (b) Paasche method = 110.84 (c) Fisher Index method = 149.6 (d) Marshall Edgeworth method =111.14	8
OR	iii.	2 marks for definition 2 marks for characteristics 2 marks for importance 2 marks for limitations	8

Q.5	i.	1 mark for definition of probability 1 mark for each event (1 * 3 = 3 marks)	4
	ii.	2 marks for each point (2 marks * 3 = 6 marks) (a) Card drawn is the king. Ans:4/52 or1/13 (b) Either a heart or the queen of spades Ans:14/52 or7/26 (c) Card drawn is a diamond. Ans:13/52 or1/4	6
OR	iii.	2 marks for meaning 2 marks for assumptions 2 marks for properties of Normal Distribution	6
Q.6		Attempt any two:	
	i.	2 marks for Hypothesis Testing 3 marks for Difference between a single sample and a population.	5
	ii.	Ans: The value of Chi-Square = 9	5
	iii.	1 mark for each difference (any five) (1 mark * 5 = 5 marks)	5
