

 <b>Sanjay Ghodawat University, Kolhapur</b> Established as State Private University under Govt. of Maharashtra. Act No XL, 2017			2018-19 EXM/P/09/01
<b>Year and Program: 2018-19</b>	<b>School Commerce and Management</b>	<b>Department MBA</b>	
<b>Course Code: MMC507</b>	<b>Course Title: Business Numerical (QTM)</b>	<b>Semester – I</b>	
<b>Day and Date</b> Saturday, 24/11/2018	<b>End Semester Examination (ESE)</b>	<b>Time: 10.00AM to 1.00PM</b> <b>Max Marks: 100</b>	

**Instructions:**

- 1) All questions are compulsory.
- 2) Stepwise calculations will get full Marks

Q.1 Solve the following

Marks Bloom's CO  
Level  
07 L<sub>2</sub> CO1

- a) From the following data draw Histogram & Frequency polygon.

Class	0-10	10-20	20-30	30-40	40-50	50-60	60-70	70-80	80-90
Frequency	4	6	7	14	16	14	8	6	5

OR

- a) The monthly profits (Rs. Lakhs) earned by 100 companies during the financial year 2002-2003 are given in the table below:

07 L<sub>2</sub> CO1

Monthly Profits in Rs. Lakhs	0-20	20-40	40-60	60-80	80-100	100-120	120-140	140-160
Number of Companies	2	8	20	28	21	11	7	3

Draw OGIVE by Less than & more than method.

- b) Calculate the Mean, Median & Mode of the following data.

08 CO2

Class	Frequency
100-110	4
110-120	6
120-130	20
130-140	32
140-150	33
150-160	17
160-170	8
170-180	2

OR

- b) Compute the Coefficient Of Quartile Deviation of the following data

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L<sub>3</sub>

CO2

Size	Frequency
4-8	6
8-12	10
12-16	18
16-20	30
20-24	15
24-28	12
28-32	10
32-36	6
36-40	2

Q.2

Solve the following

- a) Calculate Karl Pearson's coefficient between expenditure on advertising and sales from the following data given below:

07

L<sub>3</sub>

CO3

Advertising expenses ('000Rs)	39	65	62	90	82	75	25	98	36	78
Sales (Rs. Lakhs)	47	53	58	86	62	68	60	91	51	84

OR

- a) Describe the term Regression & From the following data obtain two regression equations.

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L<sub>3</sub>

CO3

X	1	2	3	4	5	6	7	8	9
Y	9	8	10	12	11	13	14	16	15

- b) Calculate Laspeyre's, Paasche's & Fishers, price & quantity Index number from the following data:

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L<sub>3</sub>

CO4

Commodity	Base Year		Current Year	
	Price	Quantity	Price	Quantity
A	5	25	6	30
B	10	5	15	4
C	3	40	2	50
D	6	3	8	35

OR

- b) From the data given below calculate Laspeyre's, Paasche's & Fishers quantity index number for the year 2000 by considering 1999 as base year:

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L<sub>3</sub> CO4

Commodity	Year 1999		Year 2000	
	Price	Quantity	Price	Quantity
A	10	7	11	10.5
B	5	9	10	4.5
C	6	5	5	9

Q.3

**Solve any Two**

- a) Explain with Suitable example of the following:

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L<sub>2</sub> CO1

1) Types of Data

2) Pie Chart

- b) 1) Discuss the merits & demerits of Mean

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L<sub>2</sub> CO2

2) Essentials of Good averages

- c) 1) Describe the term Positive & Negative correlation

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L<sub>2</sub> CO2

2) What are the Essentials of Good averages in statistics

- d) Brief the following

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L<sub>2</sub> CO2

1) Index Number 2) Types of Index Numbers

Q.4

**Solve any Two**

- a) Four cards are drawn from a pack of 52 cards. Find the probability that

09

L<sub>3</sub> CO3

i. All are diamonds

ii. There is one card of each suit

- b) The probability that a contractor will get a plumbing contract is  $\frac{2}{3}$ , and the probability that he will not get an electric contract is  $\frac{5}{9}$ . If the probability of getting at least one contract is  $\frac{4}{5}$ , what is the probability that he will get both the contract.

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L<sub>3</sub> CO3

- c) A bag contains 8 black, 3 red and 9 white balls. What is the probability that,

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L<sub>3</sub> CO3

i. All are black

ii. Two black and 1 white

Q.5

Solve any Two

- a) 200 digits were selected at random from the set of table. The frequencies of digits were

Digits	0	1	2	3	4	5	6	7	8	9
Frequency	18	19	23	21	16	25	22	20	21	15

Use the Chi-square test to test the hypothesis that digits were distributed in equal numbers in the tables from which it chosen.  
( $\chi^2$  0.05 for 9 d.f. = 16.92)

- b) The following table gives the number of aircraft accidents that occur during various days of the week, test the hypothesis that accidents were uniformly distributed over the week. ( $\chi^2$  0.05 for 6 d.f. = 12.59)

Days	Sun	Mon	Tue	Wed	Thu	Fri	Sat
No. of Accidents	14	16	8	20	11	9	14

- c) 1000 students at college level were graded according to their IQ & economic condition of their home. Use the Chi-square test to test the hypothesis that whether there is any association between economic condition at home and IQ level. (for  $v=1$ ,  $\chi^2= 3.84$ )

Economic Condition At Home	IQ Level		Total
	High	Low	
Rich	460	140	600
Poor	240	160	400
Total	700	300	1000

Q.6

Solve any Three

- a) Brief the term Random Experiment from Probability  
b) Define the term Permutation & combination with formulas  
c) Discuss on Population & Sample with example  
d) Explain the term Simple Random Sampling with example

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