Sanjay Ghodawat University, Kolhapur

2019-20

Established as State Private University under Govt. of Maharashtra. Act No XL, 2017

Year and Program: 2019-20 MBA | **School of Commerce and Management** | **Department: MBA**

Course Code MMC 507 | **Course Title: Business Numericals** | **Semester –III**

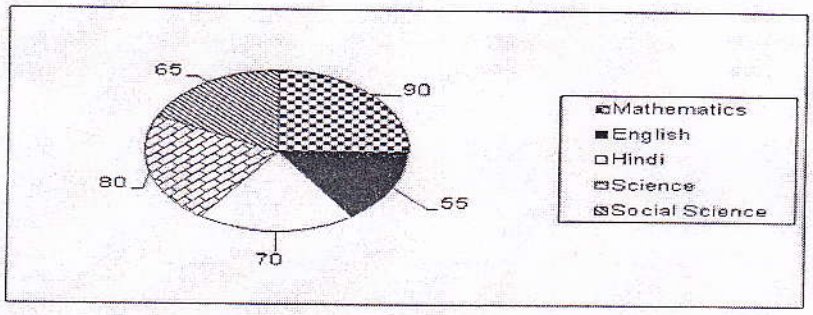
Day and Date Monday 9/12/19 | **End Semester Examination** | **Time: 3 hrs, Max Marks: 100** 10.30am to 1.30pm

Instructions: 1) All Questions are compulsory.
2) Figures to the right indicate full marks.

		Marks	Level	CO
Q.1	Solve the following			
a)	Define data classification and solve/draw a) Histogram from the following data and	10	L2	1

Marks (x)	10-19	20-29	30-39	40-49	50-59	60-69	70-79
No.of students	10	12	18	30	16	6	8

b) Total marks obtained in the examination are 900.



1.If the total marks were 3000, then marks in Mathematics would be
2. If the marks scored by the student are 137.5, then the subject is
3. Total marks scored in Social Science and English is?
4. The difference of marks scored in Social Science and Science is?

b) Determine the Arithmetic mean and median for the following data. L3 2

Class	15-30	30-45	45-60	60-75	75-90	90-105	105-120
F	12	18	23	30	27	20	10

OR

b) Solve for the following data: Range, Coefficient of range, Quartiles and coefficient of Q.D 10 L3 2
12,15,13,16,17,10,14,11

ESE

Q.2 Solve the following

a) Solve Spearman's Rank Correlation coefficient for the following data 10 L3 3

X	21	26	25	29	25	27	25	27
Y	42	49	47	52	49	50	48	51

b) 10 L3 4

Define Index numbers. Solve Quantity index number for 2014 by using Laspeyre's, Paasche's and Fisher's formulae.

	2012		2014	
Commodity	price	value	price	value
A	2	16	4	24
B	5	30	6	42
C	4	20	7	28
D	2	14	3	24

OR

b) Develop Fisher's Ideal price index number for the year 2017 by taking 2007 as base year. 10 L3 4

Product	I		II		III		IV	
	Price	Qty	Price	Qty	Price	Qty	Price	Qty
2007 (Base year)	2	4	3	5	1	10	5	7
2017 (Current year)	4	6	4	3	2	5	3	5

Q.3 Solve the following

a) Explain the rule of Additional probability and apply the rule to the following condition. 10 L4 5

A bag contains 6 red marbles and 4 black marbles. Two marbles are drawn without replacement from the bag. What is the probability that both of the marbles are black?

OR

a) Explain the Bernoulli distribution and solve the following 10 L3 5

The number of adults living in homes on a randomly selected city block is described by the following probability distribution. Determine what is the probability that 4 or more adults reside at a randomly selected home?

Number of Adults	Probability
1	0.25
2	0.50
3	0.15
4 or more	??

ESE

Q.4 Solve the following

a) Define sampling and determine which sampling technique you will apply along with the characteristics if you are conducting market survey for studying the customer preference for different brands in a city. Justify your answer — 10 L4 6

b) For the employees working in a company the level of education and satisfaction score is as follows. Test the independence level of education and satisfaction score.(Table value=12.59) — 10 L4 6

Level of education	Satisfaction score			
	Very-low	Low	High	Very-high
10^{th} standard	24	87	72	54
Undergraduate	21	28	32	41
Post graduate	35	10	11	20

c) The mean lengths and ranges of lengths of a finished product from10 samples each of size 5 are given below. The specification limits for the length are 200±5 cm. Construct an x chart and R charts and examine whether the process is under control and state your recommendations. Assume for n=5, A2=0.577,D3=0, D4=2.115 — 10 L6 6

Sample	1	2	3	4	5	6	7	8	9	10
Mean (x)	201	198	202	200	203	204	199	196	199	201
Range R	5	0	7	3	4	7	2	8	5	6

OR

c) Construct a control chart for mean and range for the following data on the basis of fuses, samples of 5 being taken every hour (each set of 5 has been arranged in ascending order of magnitude) .Comment on whether the production process seems to be under control. Assume for n=5, A2=0.58, D4=2.11, D3=0. — 10 L6 6

42	42	19	36	42	51	60	18	15	69	64	61
65	45	24	54	51	74	60	20	30	109	90	78
75	68	80	89	57	75	72	27	39	113	93	94
78	72	81	77	59	78	95	42	62	118	109	109
87	90	81	84	78	132	138	60	84	153	112	136

ESE

Q.5 Solve the following

a) A die is tossed 3 times. Measure what is the probability of- 10 L5 5
(a) No fives turning up?
(b) 1 five?
(c) 3 fives?

b) In each of 4 races, the Democrats have a 60% chance of winning. Assuming that the races are independent of each other, Measure what is the probability that: 10 L5 5
a. The Democrats will win 0 races, 1 race, 2 races, 3 races, or all 4 races?
b. The Democrats will win at least 1 race
c. The Democrats will win a majority of the races

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