F.Y.BCom/MKT/QNT METH FOR BUS-I/AUG 20

Time : 2 hrs. **CODE - HELSINKI** Mar

Note : **1) All questions are compulsory.**
2) Each questions carries equal marks.
3) Only simple calculators are allowed.
4) Figures to the right indicate full marks.

Q.1 a) The following table gives marks in statistics (X) & Marks in accountancy (Y) of 30 students. Then the data (X,Y) is **6**

(45,60), (50,55), (55,57), (35,40), (40,37), (43,50), (60,57), (61,69), (57,60), (44,45), (57,55), (54,60), (33,45), (28,35), (46, 55), (65,60), (66,69), (25,22), (52,50), (53,56), (24,21), (26,30), (54,50), (52,47) (51,49) (61,69), (63,62), (55,61) (29,21), (22,26)

Prepare bivariate frequency table taking class intervals 20-30, 30-40, etc for X & Y.

Construct the marginal frequency table for X & Y.

b) Define : i) Median **6**
ii) Mode
iii) Weighted Mean.

c) Using the following figures calculate Arithmetic mean of sales.

Sales :	200	232	450	315	462
No. of Companies :	3	6	10	8	4

3

OR

Q.1 a) The numbers 3.2, 5.8, 7.9 & 4.5 have frequencies x (x + 2) , (x–3), & (x+6) respectively. If the arithmetic mean is 4.876, find x. 3

b) For the following data which gives the profit of 30 companies in the last yr. Prepare frequency distribution using Stug's formula.

Profit (in '000 Rs.)

42	74	40	60	75	41	53	110	76	84	56
78	68	69	104	80	59	54	66	49	77	90
69	42	72	50	78	52	78	51			

Also plot histogram for this distribution. **6**

c) Represent the following data by histogram & frequency polygon. **6**

No. of units of electricity consumed	0-200	200-400	400-600	600-800	800-1000	1000-1200
No. of consumers	18	27	32	40	36	15

Q.2 a) Find Merits & Demerits of Mean.

b) Find the harmonic mean of the following raw data.

x : 15 25 28 33 43

c) From the following distribution calculate Q_1 & Q_3. Also calculate the number of persons who have their income between Rs. 330 & Rs. 560

Income in Rs.	**100-200**	**200-300**	**300-400**	**400-500**	**500-600**	**600-700**
No. of persons	120	200	170	220	100	90

OR

Q.2 a) Find the median for the following distribution.

Expenditure in Rs.	**3000-4000**	**4000-8000**	**8000-12000**	**12000-16000**	**16000-20000**
No. of employes	20	20	25	15	10

Also plot less than ogive curve for the above distribute & locate median graphically.

b) What are the requirements of good measure of central tendency ?

c) Find the weighted mean for the following :

x : 1500 800 500 250 100

y: 10 20 70 100 150

Q.3 a) Define i) Quartile Derivation

ii) Standard Deviation.

b) Calculate the quartile deviation for the following data giving the wages of 200 workers.

Wages in in Rs.	**1000-1200**	**1200-1400**	**1400-1600**	**1600-1800**	**1800-2000**	**2000-2200**
No. of workers	20	40	60	50	20	10

c) Calculate the mean deviation from median for the following series.

60,63,65,67,67,69,70

Q.3 a) Define : i) Value index No.
ii) Fishers index No. 4

b) Calculate the standard deviation of the heights of 40 babies given below : 6

Height in cm.	10-12	12-14	14-16	16-18	18-20
No. of babies	9	12	10	8	1

c) Calculate the derivative w.r.t. .x. by using first principle where $f(x) = x^2 - x + 1$. 5

Q.4 **a)** Find variance & standard deviation of following distribution. 6

Measurement in cm.	16-18	18-20	20-22	22-24	24-26
No. of units	50	250	350	225	25

b) Find index numbers for the following data using weighted average of relatives method. 5

Commodity	Price in Rs.		Quantity
	Base yr	Current yr	Base yr.
P	20	25	100
Q	23	25	60
R	30	32	50
S	35	40	40

c) Fill in the blanks : 4

i) If $y = 5x$ then $\frac{d^2y}{dx^2} =$ _____

ii) Derivative of a constant no is _____.

iii) There is _____ % of distribution below Q_3.

iv) If $y = 2x^3 + 5$ then $\frac{d^3y}{dx^3} =$

OR

a) Find Fisher's & Marshall Edgeworth index No. from the following data : 6

Commodity	1998		2000	
	Price	Quantity	Price	Quantity
A	2	74	3	82
B	5	925	4	140

b) Following data give group indices & group weights for the weight for the group C. If the overall index no. is 176, what is the weight for group C ? 5

Group	A	B	C	D	E
Index	200	250	190	150	90
Weight	5	3	-	2	5

c) Find derivative w.r.t. .x. 4

i) $y = 5x^2 - 7x + \frac{2}{\sqrt{x}} - 2$

ii) $y = 3\sqrt{x} + \frac{4}{\sqrt{x}} + \sqrt{5} - \sqrt{\frac{5}{x}}$

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