

extra

27/11/19

VCD

FYBBI SEM I

QM-I

MARKS 75

2HRS30MIN

- N.B.:
1. All questions are compulsory.
 2. All questions carry equal marks.
 3. Figures to the right indicate maximum marks allotted to the sub-questions.
 4. Use of simple calculator is allowed.

Q.1] A] Attempt **any eight** multiple choice questions:

[8]

1. The method of plotting the points of the _____ graphs are similar.
a) frequency polygon and Ogive b) frequency polygon and histogram
c) frequency polygon and frequency curve d) None of these
2. _____ can not be determined graphically.
a) mean b) median c) mode d) None of these
3. For a frequency distribution, the relation between mean, median and Mode is _____.
a) $\text{Mode} = 3 \text{ Mean} - 2 \text{ Median}$ b) $\text{Mode} = 2 \text{ Median} - 3 \text{ Mean}$
c) $\text{Mode} = 3 \text{ Median} - 2 \text{ Mean}$ d) $\text{Mode} = 3 \text{ Median} + 2 \text{ Mean}$
4. The correlation coefficient is unaffected by change of _____.
a) Origin b) scale c) scale and Origin d) None of these
5. The data collected for the first time is known as _____.
a) Values b) Information c) Primary data d) Secondary data
6. The suitable measure of dispersion to indicate extreme variation in the data is _____.
a) range b) mean deviation c) standard deviation d) None of these
7. The correlation is positive if _____.
a) X increases as Y increases b) X decreases as Y decreases
c) X increases as Y decreases d) both a and b
8. Probability can be _____.
a) greater than 1 b) less than 0 c) between 0 and 1 d) None of these
9. Shape of normal curve is _____.
a) rectangular b) circular c) bell shape d) tree like
10. The part of profit added to the sum assured is called _____.
a) premium b) profit ratio c) bonus d) None of these

B] Attempt **any seven** True or False:

[7]

1. Insurance premium can be paid monthly.
2. Index number always carries unit of measurement.
3. Decision tree calculations never begins from left to right.
4. Variance is the square of standard deviation
5. Range is best measure of deviation
6. When r is negative, both variables are decreasing
7. The lines of regression do not exist if correlation between the variables is zero
8. The regression coefficient cannot be greater than unity
9. The year selected as a reference period for comparison is called base year.
10. Extra time given after the due date of premium is known as grace period

Q.2 A] Draw both the Ogives for following data. [8]

Expenditure in Rs.1000/-	0-5	5-10	10-15	15-20	20-25	25-30
Number of families	21	31	40	50	32	20

B] Calculate 3rd decile (D3) and 20th percentile (P20) for the following table. [7]

Marks	0-10	10-20	20-30	30-40	40-50
Number of Student	7	18	25	30	20

OR

P] Find Mode and Median for the following data [8]

Age	20-30	30-40	40-50	50-60	60-70	70-80
Number of Persons	3	7	14	16	8	2

Q] Draw multiple bar diagram for the following data [7]

Year	2010	2011	2012	2013
Income of company A	4500	5200	4000	5100
Income of Company B	5000	6500	3800	5000

Q.3) A] Find the mean deviation from the mean for the following data [8]

Class interval	0-100	100-200	200-300	300-400	400-500	500-600	600-700
Frequency	8	12	10	8	3	2	7

B] Calculate Karl-Pearson's coefficient of correlation X and Y [7]

X	1	2	3	4	5
Y	2	5	3	8	7

OR

P] Find two regression equations for the following data. Coefficient $r = 0.8$ [8]

	X	Y
Mean	65	67
Standard Deviation	2.5	3.5

Q] Calculate spearman's rank correlation coefficient for cost and sales. [7]

Cost in 10,000	35	23	47	17	10	43	9	6	28
Sales in Lacs	30	33	45	23	8	49	12	4	31

Q.4) A] For the following probability distribution. find $P(X = 2 \text{ OR } 3)$, $E(X)$, $V(X)$ [8]

X	-2	-1	0	1	2	3
P(X)	0.1	0.2	0.2	0.3	0.15	0.05

B] Calculate Laspeyre's, Paasche's and Fisher's index number for the following data [7]

Commodity	Base year		Current year	
	Price	Quantity	Price	Quantity
A	6	30	15	40
B	5	40	10	55
C	10	25	12	20
D	4	15	3	30
E	2	50	5	28

OR

P] For given pay-off table, find best action using Maximin, Maximax, Laplace criteria [8]

States of nature	S1	S2	S3
A1	30	60	20
A2	40	0	-20
A3	65	75	50

Q] Mr X took a policy of Rs.1,00,000/- with a tabulated premium rate of Rs.35.05/- [7]
per Rs. 1,000/-. He has to pay extra Rs.2/- per 1000 due to his physical impairment.
Company offers a reduction of Rs. Rs.3/- per 1000 for a policy with sum assured more
than Rs.50,000/-. Find the net quarterly premium that Mr. X has to pay.

Q.5) A] Explain various types of correlation [8]

B] State the properties of normal distribution [7]

OR

P] Attempt any three: [15]

- Properties of Arithmetic Mean
- Index number calculated in India
- Paid up value
- Complimentary event and Independent event
- Characteristic of good measure of dispersion
