23/11/2019

VCD FYBMS STATS I-SEMESTER EXAM 2019-2020 75 MARKS $2^{1/2}$ HOURS

1 attempt both the sub-part A and B.

2. Figure to the right indicate full marks.

3.Use of non-programmable calculater is allowed.

4.Graph papers will be provided on request .

**Q.1) Attempt Both Sup-part (A) and(B):**

**A) Fill in the blank with correct alternative (Answer any eight)** (8)

1.When the data is classified with reference to time it is called _____ classification.

a) Quantitative b)Geographical C) Chronological d) None of these

2. When two or more characteristics are to be represented simultaneously_____ bar diagram is used.

a) Sub-divided b) Simple c) Multiple d) Percentage

3. If a fair coin is toss which of the following statement is false?

a)Head and tail are mutually exclusive outcomes
b)Head and tail are equally likely outcomes
c)Head and tail are dependent outcomes
d) Head and tail are exhaustive outcomes

4.Which of the following are not particulars of useful table?

a) Title b) Caption, Stub ,Footnote c)Frequency density d) Source

5.The difference between lower and upper limit of a class is called _____.

(a) Class mark (b) length of class interval (c) Class limit (d) Mid-point of a class

6.The Coefficient of Correlation always lies between.

(a) 0 and 1 (b) -1 and 1 (c) -1 (d)None of these

7.The requirement of good measure of dispersion should be _____.

a) Rigidly defined b) Based on all observation

c) Capable of further algebraic treatment d)All of the above

8.P(A)=

a) $1+P(\bar{A})$ b) $1+P(A)$ c) $1-P(\bar{A})$ d) $P(\bar{A})$

9._____ variation occur due to weather or customs.

a) cyclic b) Irregular c) Seasonal d) None of these

10.Maximum criterion is a decision making under _____.

a) Risk b) Uncertainty c) certainty d) none of these .

**B) State whether the following statement are true or False (Answer any 7)** (7)

1. Quartile deviation is an obsolute measure of dispersion.
2. If the correlation coefficient is zero then the association between the two variable is perfect positive
3. $r = \sqrt{bxy \, . \, byx}$
4. There are four components of time series.
5. If events A and B are exhaustive event then $A \cup B$ is a null set.
6. A random variable which can take all possible value over an interval is called a discrete random variable.
7. There are always two lines of regression for a paired set of data .
8. Collection ,Presentation ,Analysis and Interpretation of data are the four component of Statistic.
9. If the variable are independent then they are correlated .
10. Future trend value can be estimated with the help of straight line trend.

**Q2. Attempt either (A ) or (B):**

2A) P) Yields of grains in quintal in three consecutive year is given below . (8)

| Year | Rice | Wheat | Jowar |
|---|---|---|---|
| 2002 | 37 | 28 | 35 |
| 2003 | 15 | 45 | 90 |
| 2004 | 18 | 60 | 42 |

Represent the above information by percentage bar diagram.

) The following are the marks of 3-student in 4-subject.the weight of the subject are given . (7)

Decide which of the three student is the best

| Student | Marks | | | |
|---|---|---|---|---|
| | A | B | C | D |
| Amar | 28 | 30 | 40 | 20 |
| Akbar | 35 | 25 | 20 | 15 |
| Anthony | 30 | 35 | 30 | 20 |
| Weight | 4 | 3 | 2 | 1 |

OR

2B) P) Draw 'less than' cumulative frequency curve for the following data. (8)

| Wages | 30-40 | 40-50 | 50-60 | 60-70 | 70-80 | 80-90 | 90-100 |
|---|---|---|---|---|---|---|---|
| No of workers | 1 | 3 | 11 | 21 | 43 | 32 | 9 |

Hence find (i) 2-quartiles (ii) No of worker having between 75 and 95.

Q) The following table show frequency distribution of body weight (in gms) of fish in pound is given below: (7)

| Weight(in gms) | 200-201 | 201-202 | 202-203 | 203-204 | 204-205 | 205-206 |
|---|---|---|---|---|---|---|
| No of fish | 12 | 26 | 20 | 9 | 2 | 1 |

Find modal body weight of fish in a pond.

**Q3. Attempt either (A )or (B):**

3A)P) Compute lower and upper quartiles and hence find the quartile deviation and Coefficient of quartiles deviation for the following frequency distribution . (8)

| No of e-transaction per day | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|---|---|---|---|---|---|---|---|---|
| No of day | 10 | 35 | 45 | 95 | 64 | 32 | 10 | 9 |

Q) Calculate Mean Deviation from mean and its Co-efficient for the following data. (7)

| Age | 20-22 | 22-24 | 24-26 | 26-28 | 28-30 | 30-32 | 32-34 |
|---|---|---|---|---|---|---|---|
| No of employees | 70 | 90 | 110 | 140 | 130 | 80 | 80 |

OR

3B)P) Find standard deviation for the following data: (8)

| class interval | 0-10 | 10-20 | 20-30 | 30-40 | 40-50 |
|---|---|---|---|---|---|
| Frequency | 11 | 15 | 25 | 12 | 7 |

Q) There are 2-groups of children having 50 and 70 children respectively .the arithmetic mean of Weight of children in 2-groups are 30kgs and 40kgs with standard deviation 16 kgs and 5kgs respectively. Find the combined mean and standard deviation of entire group containing 120 children. (7)

**Q4. Attempt either (A )or (B):**

4A)P) Fit a trend line by the method of least squares and estimate the trend for the year 2009. (8)

| Year | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 |
|---|---|---|---|---|---|---|---|---|---|
| Export in lakhs | 8 | 10 | 12 | 11 | 13 | 15 | 14 | 17 | 17 |

4Q) For the following data ,find Price Index Number Using simple Aggregate Method. (7)

| Commodity | P | Q | R | S | T |
|---|---|---|---|---|---|
| Price in1995 | 10 | 25 | 14 | 20 | 30 |
| Price in 2000 | 32 | 40 | 20 | 45 | 70 |

OR

4B)P)Calculate Laspeyre's and Paasche's ,Fisher's Index number . (8)

| Commodity | Base Year | | Current Year | |
|---|---|---|---|---|
| | Price | Quantity | Price | Quantity |
| A | 4 | 5 | 15 | 20 |
| B | 8 | 12 | 20 | 18 |
| C | 6 | 8 | 25 | 20 |
| D | 14 | 12 | 10 | 10 |

Q) Calculate Kelley's Index Number from the following data. (7)

| Commodity | Price in Rs. Per Unit | | Quantity |
|---|---|---|---|
| | 1995 | 2000 | |
| A | 20 | 30 | 76 |
| B | 45 | 40 | 120 |
| C | 60 | 70 | 40 |
| D | 65 | 60 | 35 |

Q5. Attempt either (A )or (B):

5A)P) Calculate EVPI for the following (8)

| Act | Payoff in Rs '000' | | |
|---|---|---|---|
| | High | Medium | Low |
| A1 | 60 | 25 | -10 |
| A2 | 70 | 30 | -5 |
| A3 | 30 | 20 | 5 |
| Probability | 0.3 | 0.4 | 0.3 |

Q ) The Probability distribution function (pdf) of a discrete random variable X , (7)

obtain P(x>2) ,P(x<1),P(X= 2 or 3)

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

OR

B) Attempt (Any three): (15)

i) Distinguish between primary and secondary data.

(ii) Merit and demerits of Median.

(iii)Describe the Component of Decision-making

(iv) What are the limitation of index number .

(v) What are the function of statistics