Code : 302304

BBA 3rd Semester Exam., 2018

BUSINESS MATHEMATICS AND STATISTICS—2

Time : 3 hours *Full Marks* : 60

Instructions :

(i) The marks are indicated in the right-hand margin.

*(ii) There are **SEVEN** questions in this paper.*

*(iii) Attempt **FIVE** questions in all.*

*(iv) Question Nos. **1** and **2** are compulsory.*

1. Choose the correct answer (any *six*) : 2×6=12

(a) The number of observations are 30 and value of arithmetic mean is 15, then sum of all values is

(i) 15

(ii) 450

(iii) 200

(iv) 45

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(b) Arithmetic mean is multiplied to coefficient of mean absolute deviation to calculate the

(i) absolute mean deviation

(ii) absolute median deviation

(iii) relative mean deviation

(iv) relative median deviation

(c) The method in which previously calculated probabilities are revised with new probabilities is classified as

(i) updating theorem

(ii) revised theorem

(iii) Bayes' theorem

(iv) dependency theorem

(d) The mean of binomial probability distribution is 857·6 and probability is 64%, then the number of values of binomial distribution is

(i) 1040

(ii) 1340

(iii) 1240

(iv) 1140

(e) If the value of success in binomial probability distribution is 0·40 and failure is 0·60 and the number of values in distribution are 5, then the moment coefficient of skewness is

(i) 0·467

(ii) 0·167

(iii) 0·267

(iv) 0·367

(f) The value of Σfx is 180, $A = 22$ and width of class interval is 5, arithmetic mean is 120, then the observations are

(i) 59

(ii) 30

(iii) 39·5

(iv) 49·5

(g) Frequency distribution is considered as negatively skewed if all the values of distribution move to

(i) lower tail

(ii) median tail

(iii) variance tail

(iv) upper tail

(h) If the number of trials are 8 and probability of success are 0·65, then the mean of negative probability distribution is

(i) 8·65

(ii) 12·31

(iii) 5·2

(iv) 7·35

(i) If z-score of normal distribution is 2·5, mean of distribution is 45 and standard deviation of normal distribution is 3, then the value of x for a normal distribution is

(i) 97·5

(ii) 47·5

(iii) 37·5

(iv) 67·5

(j) If a brown sack consists of 4 white balls and 3 black balls, then the probability of one randomly drawn ball will be white is

(i) 4/7

(ii) 1/7

(iii) 4/4

(iv) 4/3

2. Answer any *three* of the following : 4×3=12

(a) The number of motor accidents in a city follows Poisson distribution with mean 4. What is the probability that in a particular day there will be 6 or 7 accidents?

(b) Differentiate between correlation and regression.

(c) The Statistics test marks of a university are as follows :

52, 45, 25, 75, 63, 86, 72, 85, 55, 65, 70, 82, 90, 48, 68, 86, 65, 64, 78, 75, 32, 42

Find the interquartile range.

(d) Calculate the variance and standard deviation for the following values :

1, 3, 5, 6, 6, 8, 9, 10

(e) A box of candies has many different colors in it. There is a 15% chance of getting a pink candy. What is the probability that exactly 4 candies in a box are pink out of 10?

(Turn Over)

Answer any *three* of the following (long answer-type questions) : 12×3=36

3. 20 cars are tested for their mileage. The mileages follow a normal distribution with an average of 12 km/hr and a standard deviation of 3 km/hr.

(a) What is the probability of a car having a mileage more than 15 km/hr?

(b) What is the probability of a car having a mileage of not more than 14 km/hr?

(c) What are the chances that the mileage lies between 8 km/hr and 13 km/hr?

4. The average number of homes sold by the Acme Realty Company is 2 homes per day. What is the probability that exactly 3 homes will be sold tomorrow?

5. Five children aged 2, 3, 5, 7 and 8 years old weigh 14, 20, 32, 42 and 44 kilograms respectively.

(a) Find the equation of the regression line of age on weight.

(b) Based on this data, what is the approximate weight of a six-year-old child?

(Continued

6. The success of a shopping center can be represented as a function of the distance (in miles) from the center of the population and the number of clients (in hundreds of people) who will visit. The data is given in the table below :

No. of customer (x)	:	8	7	6	4	2	1
Distance (y)	:	15	19	25	23	34	40

(a) Calculate the linear correlation coefficient.

(b) If the mall is located 2 miles from the center of the population, then how many customers should the shopping center expect?

(c) To receive 5 customers, at what distance from the center of the population should the shopping center be located?

7. John took two tests last week. The average for the Statistics test was 61·3 and the standard deviation was 2·94. The average for the Economics test was 81·5 and the standard deviation was 3·14. Compare the variation for the two tests. Which test marks are more variable?

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