B.Com (Business Analytics) CBCS Semester - II W.E.F.2021-22

Data Analytics Essentials - Paper: DSC - 203

Time: 60 Minutes

Record	*: 10*
Viva-voce	: 10
Skill Test	*: 15*
Total Marks	: 35

Using Excel solve the following:

1. The weekly income(in rupees) of 10 employees working in a firm is as follows:

4487	4493	4503	4446	447	4592	4863	4958	5064	6395

Using MS-Excel, find the average weekly income.

2. The number of defective components of 1000 boxes are given as follows:

No. of defective components	0	1	2	3	4	5	6	7	8
No. of boxes	25	296	402	122	78	51	20	10	6

Using MS-Excel, calculate the Arithmetic mean of the defective components for the whole of the production line.

3. An examination was held to decide the awarding of a scholarship. The weights of various subjects were different. The marks obtained by 3 candidates (out of 100 in each subject) are given below:

Subject	Weight	Students		
		A	B	C
Mathematics	4	60	57	62
Physics	3	62	61	67
Chemistry	2	55	53	60
English	1	67	77	49

Using MS-Excel, calculate the Weighted Arithmetic Mean to award the scholarship.

4. The annual rate of growth of a company in the last five years is

Year	1998	1999	2000	2001	2002
Growth rate(%)	5.0	7.5	2.5	5.0	10.0

Using MS-Excel, calculate the Geometric Mean of the growth rate of the company.

5. Using MS-Excel, find the Harmonic Mean Wages from the data.

Job	Wages (In Rupees)
Electrician	200
Nurse	500
Sales Manager	540
Manufacturing engineer	610
Celebrity	450
Beautician	480

Data entry operator	350
Plumber	240

6. The marks of 15 students is given as follows:

Student	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
Marks	46	47	48	49	64	74	89	32	12	45	24	86	93	67	71

Using MS-Excel, find the Median.

7. Using MS-Excel, calculate the Median of the following data.

X	5	10	15	20	25	30	35	40	45	50
f	6	17	28	34	42	48	18	11	9	7

8. Using MS-Excel, calculate First Quartile, Third Quartile and Inter Quartile Range of the following data.

65	55	75	95	85	45	56	70	38	92

9. Using MS-Excel, calculate First Quartile, Third Quartile and Inter Quartile Range of the following data.

Height (in Inches)	58	59	60	61	62	63	64	65	66	67
No. of Persons	2	3	9	12	18	20	15	10	8	4

10. Sales during 20 days of a month are given.

Products	Quantity	MRP
Tang Orange flavour	5	1050
Rasna Orange	6	1200
RoohAfza	5	1800
Tang Apple	10	1200
Rasna Green Apple	5	1700
Tang Cocktail	5	1400
Jaljeera	15	120

Using MS-Excel, find the Mode of the sales.

11. Using MS-Excel, find the Range of the marks of the English subject.

Name of the student	Marks In English
Anuradha	34
Siddu K	29
Shyam B	91
Riya S	70
Manga K	50
Somya G	67
Raju T	9
Jai L	88
Kalyani A	65
Sam Joseph	97

Poter K	48
Sailaja S	50
Geeta L	56
Lavanya P	46
Hema B	65

12. Find the Range of the following data using Ms-Excel.

X	5	10	15	20	25	30	35	40
F	4	7	21	47	53	24	12	6

13. Using MS-Excel, calculate the Standard Deviation of the following data that relates to the number of patients examined per hour in out-patient ward in a hospital.

15	30	12	24	17	28	22	18	10	11

14. A Collar manufacturer is considering the production of a new collar to attract young men. The table given below gives the neck circumference based on the measurement of a group of students.

Circumference of the neck	12.0	12.5	13.0	13.5	14	14.5	15	15.5	16	16.5
Number of students	2	16	36	60	76	37	18	3	2	1

Using MS-Excel, calculate the Standard Deviation for the following data.

15. Compute Mean, Standard Deviation and Variance for the following data using MS-Excel.

19	9	15	21	4	3	23	11	7	26	14

16. Compute Standard Deviation and Variance for the following data using MS-Excel.

X	5	10	15	20	25	30	35	40
F	16	32	36	44	28	18	12	14

17. Compute the Coefficient of variation for the following data using MS-Excel.

105	120	115	118	130	127	109	110	104	112	108
112	117	120	130	100	105	125	110	135	140	107

18. Compute the skewness for the following data using MS-Excel.

145	170	120	110	70	70	45	65	68	130
150	146	134	115	85	98	72	88	92	87

19. Compute the Kutosis for the following data using MS-Excel.

188	178	173	164	172	184	184	185	211	217

131	130	140	129	120	127	150	151	183	196

20. Use "RANDBETWEEN" function to generate 50 random numbers and use descriptive statistics to describe data.

Unit III

21. calculate the Mean and Standard Deviation of the Probability Distribution in MS-Excel.

Number of persons (X)	2	3	4	5	6	7	8
Probability P(X)	0.22	0.48	0.25	0.05	0.04	0.32	0.34

22. One ticket is drawn at random from bag containing 30 tickets numbered from 1 to 30. Find the probability that is a multiple of 5 or 7 using MS-Excel.

23. Find the probability of getting a total of 7 or 11 in a single roll of two dice.

24. In a school there are 200 students who play either cricket, football or badminton. No. of students who play Cricket is 70, Football is 60, and Badminton 40. 20 students play Cricket and Football, 15 students play Football and Badminton, 10 students play Badminton and Cricket. 5 students play all the three games and 30 students play none of the games. Draw Venn-Diagram in MS-Excel.

25. A problem in business statistics is given to five students : A, B, C, D and E. Their chances of solving it are –,–,–,–,–. What is the probability that the problem will be solved. Use Ms-Excel to solve the above problem.

26. A University examination paper has 12 questions and candidates are required to answer 4 questions. How many combinations of 4 questions are there.

27. In how many ways first, second and third prizes can be distributed to three contestants out of 10 contestants.

28. The Human Resources department of a company has records which show the following analysis of its 200 engineers.

Age	Bachelor's Degree only	Master's degree	Total
Under 30	90	10	100
30-40	20	30	50
Over 40	40	10	50
	150	50	200

If one engineer is selected at random from the company, find:

(a) The probability he has only a bachelor's degree
(b) The probability he has a master's degree, given that he is over 40
(c) The probability he is under 30, given that he has only a bachelor's degree.

29. A study of speeding violations and drivers who use cell phones produced the following data.

Phone Usage	Speeding violations in the last year	No speeding violations in the last year
Use cell phones while driving	25	280
Does not use cell phone while driving	45	405

Use contingency table and find

a. The probability of the driver who is a cell phone user.
b. The probability who had no speed violations in the last year.
c. The probability of Driver who has not violation in the last year and was a cell phone user.
d. The probability of driver is a cell phone user or has no violation in the last year.
e. The probability of the driver is a cell phone user and had a violation last year.
f. The probability of the driver has no violation last year and driver was not a cell phone user.

30. Bayes' theorem Problem:

A manufacturing firm produces pipes in three plants, plant A produces 50% of total output, plant B produces 25% and plant C produces 25% of total output. From the past experience the fraction of defective items in the output of these plants were 0.005, 0.008 and 0.010. Find out the probability of a defective item selected at random is from A , B and C plants using MS-Excel.

Unit IV

31. Find the distribution function for the frequency function given below. Also show the graph of the frequency and distribution functions.

X	1	2	3	4	5	6	7	8	9	10
F(X)	0.12	0.25	0.08	0.14	0.09	0.17	0.06	0.27	0.4	0.28

32. A pair of fair dice is rolled. Let 'X' denote the sum of the number of dots on the top faces. Construct the probability distribution of X for a pair of fair dice along with a histogram diagram in Ms-Excel.

33. A coin is flipped 10 times. Calculate the probability of getting 5 heads using a Binomial distribution formula using MS-Excel.

34. Ten unbiased coins are tossed simultaneously. Find the probability of
   a. Exactly 6 heads
   b. At-least one head

35. Fit a binomial distribution for the following data using MS-Excel.

X	0	1	2	3	4	5	6	7
f	7	6	19	35	30	23	7	1

36. Fit a poison distribution for the following data using MS-Excel.

X	0	1	2	3	4
Y	211	90	19	5	0

37. Six coins are tossed 6400 times. Find the probability to get 6 heads in 2 tosses using poisson distribution using MS-Excel.

38. From the data given below calculate probability distribution function in Excel.

Employee	Weight
Emp113	30
Emp 112	35
Emp105	40
Emp101	45
Emp103	50
Emp111	55
Emp109	60
Emp102	65
Emp110	70
Emp107	75
Emp 106	80
Emp 108	85
Emp 104	90

39. The distribution of heights of Indian women aged 18 to 24 is approximately normally distributed with a mean of 65.5 inches and a standard deviation of 2.5 inches. What percentage of these women is taller than 68 inches? Show

the steps in MS-Excel to calculate Normal Distribution using NORM.S.DIST function.

40. The golf scores for a school team were normally distributed with a mean of 68 and a standard deviation of 3. Find the probability that a golger scored between 66 and 70 in MS-Excel.

Unit V:

41. Determine mean of the data using R

3	5	7	4	10	11	8	6	2	9

42. Determine median of the data using R.

56	89	23	45	12	89	90	34	78

43. Create a vector using R
44. Compute the mean of the vector created in Q.No.43.
45. Calculate Geometric mean using R.

13	25	10	14	10	11	8	6

46. Determine Variance using R.

34	56	78	20	89	45	67	29

47. Determine the Standard Deviation using R.

68	29	89	56	78	34	14	65

48. Determine Mean Deviation using R.

33	72	25	39	40	79	30	21	90

49. Calculate the mean and variance of the data using R.

56	89	47	20	45	63

50. Write a R program to create a data frame from two given vectors

Aliya	Dany	Katherine	Sudha23.4
23.4	13.5	19.2	54.2

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