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# MBA I Semester Supplementary Examinations October 2022 STATISTICS FOR MANAGERS

### (Common to all) For Students admitted in 2021 only

Time: 3 hours

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9. Of the 1,000 workers in a factory exposed to an epidemic, 700 in all were attacked, 400 had been inoculated and 10M of these, 200 were attacked. On the basis of this information, can it be said that inoculation and attack are independent?

	Inoculated	Not inoculated	Total
Attacked	200	500	700
Not attacked	200	100	300
Total	400	600	1,000

On the basis of this information, can it be said that inoculation and attack are independent? Carry out the chi-square test as per testing procedure at 5% level.

OR

10. Use the sign test to see if there is any difference between the number of days until 10M collection of an account receivable before and after a new collection policy. Use the 0.05 significance level 45 Before: 30 42 38 34 28 34 35 40 33 28 27 25 41 36 29 38 After: 32 33 32 37 43 40 41 37 44 27 33 30 38

### SECTION-B (Compulsory question, 01 X 10 10 Marks)

### 11. Case Study/Problem:

A test was given to 5 students chosen at random from the MBA class of each of the three universities in Andhra Pradesh. Their scores were found to be as follows:

University			Scores		
A ·	90	70	60	-50	80
B	70	40	50	40	50
С	60	50	60	70	60

Carry out Analysis of Variance and show if there is any significant difference between the scores of students in the three universities (Given F5% = 3.44). 10M

10M

ode: 21E00105

MBA I Semester Regular & Supplementary Examinations February 2024 STATISTICS FOR MANAGERS

(Common to MBA, Finance, Fintech, Business Data Analytics, Big Data Analytics, B&FS and H&HM)

Time: 3 hours

All questions carry equal marks +++++

#### SECTION - A

#### (Answer the following: 05 X 10 = 50 Marks)

Discuss the significance of statistics in business. 1 (a)

- (b) What are the characteristics of an ideal average?
  - OR
- 100 executives working in MNC were contacted to know their annual salary (Rs. In lakhs). 10M 2 When summarised the raw data resulted in the distribution given below:

		Annual salary	2-6	6 - 10	10 - 14	14 - 18	18 - 22	22 - 26	26-30	
		No.of	10	15	30	18	12	09	06	
		executives								,
	Y	ou are required	to find	ine;						0,
	(1	ii) Mode								5
	(,									.0
	E	Explain the follow	ving:							10M
8 69_	(i	i) Utility of regres	ssion ar	nalysis,					1	
	(	ii) Types of corre	elation.							
					OF			- ware abt	inode	1014
	F	-or 10 observation $\nabla = 120$	ons on p	Drice (X) a $X = 3467$	$\nabla X^2 = 228$	(Y), the following $\Sigma Y^2 = F$	iowing dai	a were obta	ameu.	TON
	(	i) Obtain the requ	ression	line of X	on Y.	0,21				
	(	ii) Obtain the reg	ressior	line of Y	on X.					
1	(a) V	What is Poisson	distribu	tion? Stat	e its condit	ions.	•			5M
1	(b) \	What are the pro	perties	of normal	curve?					5M
					OF	2				EM
1	(a) E	Explain the multip	plication	n theory o	t probability	/.	handa			SM
1	(b)	t 3 coins were to	ssed. F	Ind the pr	opability of	getting 2	neads.			SIVI
	(2)	The average dail	v food	evnenses	of person y	was Rs 20	0 with a st	andard dev	iation of Rs.	5 5M
	(a)	in a sample of 8	1 peop	le in a cit	y. For ano	ther samp	le of 81 p	ersons, the	average da	1
	f	food expenses	was Rs	s.210 with	a standa	rd deviatio	on of Rs.	12. Test th	ne significan	;
	t	between two mea	ans @	1% level.						
	(b) \	What is ANOVA?	? What	are its ass	sumptions?					5M
					O	<b>X</b>				514
	(a) 1	What do you und	terstand	d by type-	and type-	il errors?				5M
	(b) I	Describe the pro	ceaure	or testing	paired t-te	SL.	A			JIVI
							19 <sup>10</sup>		Contd. in P	ge 2
					Page	1 of 2				
					18					

Max. Marks: 60

5M

5M

#### Code: 21E00105

11

9 (a) Distinguish between parametric and non-parametric tests. (b) Explain the procedure of testing sign test for one sample data.

#### OR

- 10 (a) What is contingency table? Illustrate with an example.
  - (b) The number of automobile accidents per week that took place during peak traffic hours in a city reported for 10 weeks were 12, 8, 20, 2, 14, 10, 15, 6, 9, 4. Are the frequencies in agreement with the belief that accident conditions were the same during this 10 week period?

#### SECTION - B

#### (Compulsory question, 01 X 10 = 10 Marks)

#### Case Study/Problem:

Which one of the two distribution series given below is more consistent?

Class interval	10-20	20-30	30-40	40-50	50-60	60-70
Series-A	10	16	34	38	24	18
Series-B	18	22	38	34	20	80

10M

5M

5M

5M

5M

#### Code: 21E00105

MBA I Semester Supplementary Examinations July 2024
STATISTICS FOR MANAGERS
(Common to all branches)

Time: 3 hours

4

#### Max, Marks: 60

5M 5M

10M

5M 5M

10M

5M

5M

#### All questions carry equal marks \*\*\*\*\*

#### SECTION - A

#### (Answer the following: 05 X 10 = 50 Marks)

1	(a)	State the nature of statistics to business.	
	(b)	Explain various measures of dispersion.	

#### OR

Marks	20	30	40	50	60	70
No. of students	08	12	20	10	06	04
You are required to co (i) Arithmetic mean, (i	ompute; ii) Mode.					

- What are the properties of regression co-efficient. (b) OR
- Write about the: (i) Methods of measuring correlation.

# (ii) Working rule of rank correlation.

#### 5 (a) What is the significance of probability in business applications?

(b) Explain the addition theory of probability. OR

- 6 (a) What are the characteristics of Binomial distribution. (b) Find the probability of getting 2 diamonds, if you draw 2 cards at random from a pack of 52 5M cards.
- 7 (a) The following table gives the biological value of protein from 6 cow's milk and 6 buffalo's 5M

Cow's milk	1.8	2.0	1.9	1.6	1.8	1.5
Buffalo's milk	2.0	1.8	1.8	2.0	2.1	1.9
vamine whether	the differe	nce in mil	k are signi	ficant @ 5	% level of	significance

### (b) What are the different types of hypotheses?

- OR
- 8 (a) In a sample of 400 parts manufactured by a factory, the number of defective parts was 5M found to be 30. The company, however, claim that only 5% of their products are defective. Is the claim tenable? 5M -

(b) Describe the various steps in the computation of one-way ANOVA.

Contd. Page 2

#### Code: 21E00105

11

- 9 (a) A sample of 300 students of B.Tech and 300 students of MBA classes of a University were 5M asked to give their opinion toward the autonomous colleges. 190 of the B.Tech and 210 of the MBA students favored the autonomous status. Present this data in the form of a frequency table and test at 5% levels, the opinions of B.Tech and MBA students on autonomous status of colleges are independent. (Table value of  $\chi^2$  at 5% level for 1 d.f. is 3.84)
  - (b) Describe the procedure of testing sign for one sample data.
    - OR
- 10 (a) Discuss the precautions to be kept in mind while using Chi-square test statistic. (b) Distinguish between parametric and non-parametric tests.

#### SECTION - B

(Compulsory question, 01 X 10 = 10 Marks)

5M

5M

5M

10M

#### Case Study/Problem:

The following data relates to marketing expenditure (Rs. In lakhs) and the corresponding sales (Rs.in crores) of a product. Estimate the marketing expenditure to attain a sales target of Rs.40 cores.

Expenditure	10	12	15	20	23	
Sales	14.	17	23	21	25	100 Back

#### Page 2 of 2

Page 1 of 2

## Code: 17E00105

# MBA I Semester Supplementary Examinations October 2020 STATISTICS FOR MANAGERS

(For students admitted in 2017, 2018 & 2019 only)

Time: 3 hours

Dr4

2

3

Max. Marks: 60

#### All questions carry equal marks \*\*\*\*\*

#### SECTION - A

# (Answer the following: 05 X 10 = 50 Marks)

What are the uses of statistics in business decision making? (a)

(b) Discuss the merits and demerits of range, quartile deviation and mean deviation.

#### OR

- (a) What is meaning of standard deviation? Explain why standard deviation is the most preferred and widely used tool of measure of dispersion.
- (b) An HR manager of a company finds that teenagers frequently change jobs. The dissatisfaction with their present jobs is a major factor in the decision they make. Thus, she selects a sample of interviews of 15 teenagers from the past six months. She records the number of months the teenagers spent on their previous jobs:

20 24 16 12 5 1 6 11 8 23 19 25 14 4

- (i) Calculate the range of months that the teenagers spent on their jobs.
- (ii) Calculate the median months that each spent at their previous job.
- (iii) Calculate the interquartile range for the months each teenager spent at his or her previous job.
- (a) What is 'correlation'? Explain positive and negative correlations.
  - (b) State the properties of regression coefficients.

#### OR

- (a) Explain the concept of regression sum of squares (SSR) and error of squares (SSE) in a 4 regression model. 28551
  - (b) Consider the following set of data:

X	48	27	34	24	49	29	39	38	46	32
y	47	23	31	20	50	48	47	47	42	47

Calculate the correlation coefficient of these two variables.

- (a) Explain the concept of normal distribution. Analyse why it is a widely used probability distribution. 5
  - (b) Define the mean, standard deviation and variance of an exponential distribution.

### OR

- (a) What is a Poisson distribution? State the main assumptions of a Poisson distribution 6
  - (b) A consumer electronics company has 24 showrooms located across India. Out of these 24 showrooms, 12 are located in Gujarat. If five showrooms are selected at random from the entire list, what is the probability that one or more randomly selected showrooms are located in Gujarat?

Contd. in page 2

# Code: 17E00105

8

9

Discuss the procedure of testing hypothesis for difference between two sample means 7 using t-test.

OR

Explain the different types of ANOVA. What are the steps involved in carrying out ANOVA?

- What is the difference between parametric tests and non-parametric tests?
- Discuss the procedure of conducting Chi-square test for independence of attributes. (a)(b)

OR

- (a) Explain the assumptions and significance of sign test. 10
  - The table below gives the scores obtained from a random sample of 8 customers before and after the demonstration of a product. Is there any evidence of difference in scores before and after (b) demonstratio

Scores before product	Scores after product demonstration					
	28					
32	40					
31	44					
34	30 41 42					
30						
32						
34	43					
31	29					

# SECTION - B

(Compulsory question, 01 X 10 = 10 Marks)

#### Case Study/Problem: 11

A company is concerned about the high rates of absenteeism among its employees. It organised a training programme to boost the morale of its employees. The following table gives the number of days that sixteen randomly selected employees have received training, and the number of days they have availed leave:

Training days Employee

Employee	Training days	Leave	
1	12	20	
2	14	18	0
3	16	16	2
1	13	22	5
5	11	18	
6	10	19	19
7	15	14	0
8	17	12	
0	18	10	
10	19	9	
11	17	11	locosta ni
12	15	16	a brand
12	13	19	
14	15	17	
14	17	15	
15	12	21	

#### Questions:

(i) Develop a regression model to predict leaves based on training days.

(ii) Calculate the coefficient of determination and interpret it.

(iii) Calculate the standard error of the estimate.

(iv) Predict the leaves when the training days are 25.

\*\*\*\*\* Page 2 of 2



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