RAMAKRISHNA MISSION VIVEKANANDA COLLEGE (AUTONOMOUS)
SEMESTER END EXAMINATIONS, NOVEMBER - 2021
20UCSAL03 / 20UCAAL03
COMPUTER ORIENTED STATISTICAL METHODS (THEORY)

TIME: 3 HRS. MAX. MARKS: 75

SECTION - A

ANSWER ANY TEN QUESTIONS. (10X2=20)

1. One card is drawn from a standard pack of 52. What is the probability that is either a king or a queen?
2. In a throw of a die 5 or 6 is considered a success. Find the mean of success and the standard deviation in eight throws a die.
3. State Multiplication theorem.
4. Determine the binomial distribution for which the mean is 9 and standard deviation is $\sqrt{3}$
5. If 3% of a electric bulbs manufactured by a company are defective, find the probability that in a sample of 100 bulbs exactly five bulbs are defective (e^{-3}=.0498)
6. State the types of hypothesis.
7. Write the formula for standard error of the mean.
8. State any two uses of chi-square test.
9. Define Null hypothesis.
10. Define positive correlation.
11. Write down the equation of regression lines.
12. State the types of ANOVA.

SECTION - B

ANSWER ANY FIVE QUESTIONS. (5X5=25)

13. Five men in a group of 20 are graduates. If 3 men are picked out of 20 at random (i) what is the probability that all are graduates and (ii) what is the probability of atleast one being graduates.
14. The mean and variance of a binomial variate are 8 and 6. Find P[x≥2].
15. A manufacturer of pins knows that 2% of his products are defective. If he sell pins in boxes of 100 and guarantees that not more than 4 pins will be defective. What is the probability that a box will fail to meet guaranteed quality? (e^{-2}=0.13534).
16. A sample of 400 male student is found to have mean height of 171.38 cms. Can it be reasonably regarded as a sample from a large population with mean height 171.17 cms and standard deviation 3.30 cms.
17. A sample of ten house owners is drawn.and the following values of their incomes are obtained. Mean Rs.6,000: standard deviation Rs.650. Test the hypothesis that the average income of house owners of the town is Rs.5,000.
18. Compute the coefficient of correlation between x and y from the following data

x	1	2	3	4	5	6	7
y	9	8	10	12	11	13	14

19. Find the line of regression of y on x

x	1	2	3	4	5	8	10
y	9	8	10	12	14	16	15

SECTION - C

ANSWER ANY THREE QUESTIONS. (3X10=30)

20. A bag contains 5 white and 8 red balls. Two drawings of 3 balls are made such that (a) the balls are replaced before the second trail and (b) the balls are not replaced before the second trail. Find the probability that the first drawing will give 3 white and the second 3 red balls in each case.
21. In a distribution exactly normal 7% of the items are under 35 and 89% are under 63. What are the mean and standard deviation of the distribution?

$$\begin{bmatrix} P(0 < Z < 1.475 = 0.43 \\ P(0 < Z < 1.225) = 0.39 \end{bmatrix}$$

22. The means of two samples of 1000 and 2000 members are respectively 67.5 and 68 inches. Can they be regarded as drawn from the same population with S.D. 2.5 inches?
23. Two random samples gave the following results

$n_1=10 \ \sum (x_i - \bar{x})^2 = 90$

$n_2=12 \ \sum (y_i-\bar{y})^2 = 108$

(Table Value of F(9,11) is 2.9).

Test whether the samples came from the population with the same variance.

24. The following table gives the yields of 15 samples of plot under three varieties of seed

A	B	C
20	18	25
21	20	28
23	17	22
16	15	28
20	25	32

Test using analysis of variance whether there is a significant difference in the average yield of seeds. (Table Value of F(2,12) is 3.89).

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RAMAKRISHNA MISSION VIVEKANANDA COLLEGE (AUTONOMOUS)
SEMESTER END EXAMINATIONS, APRIL - 2021
18UCAAL03
COMPUTER ORIENTED STATISTICAL METHODS (THEORY)

TIME: 3 HRS. MAX. MARKS: 75

SECTION - A

ANSWER ANY TEN QUESTIONS (10X2=20)

1. State Baye's theorem.
2. A card is drawn from a well-shuffled pack of 52 cards. Find the probability that the card drawn is face card.
3. $P(A)=\frac{1}{4}$, $P(B)=\frac{1}{5}$, $P(A\cap B)=\frac{1}{3}$ find $P(A\cup B)$.
4. Find the binomial distribution for which the mean is 9 and variance being 2.25.
5. If a random variable X follows a poison distribution such that $P(X=2) = P(X=1)$. Find $P(X=0)$.
6. State the properties of Normal distribution.
7. Define sampling distribution and standard error.
8. Define Chi-square test.
9. What are the uses of t-statistics in test for significance?
10. Calculate the coefficient of correlation from the following data.
    $n=10$, $\sum x^2=290$, $\sum x=50$, $\sum y= -30$, $\sum y^2= 300$, $\sum xy= -115$.
11. Write down the regression equation X on Y.
12. Define ANOVA.

SECTION - B

ANSWER ANY FIVE QUESTIONS (5X5=25)

13. If a pair of dice is thrown, find the probability that the sum is neither 7 nor 11.

14. Determine the binomial distribution for which the mean is 4 and variance 3. Also find $P(X=15)$.

15. If 3% of the electric bulbs manufactured by a company are defective, find the probability that in a sample of 100 bulbs exactly five bulbs are defective ($e^{-3}=0.0498$).

16. A random sample of 200 tins of coconut oil gave an average weight of 4.95Kgs with a standard deviation of 0.21Kg. Do we accept the hypothesis of net weight 5 Kgs. per tin at 1% level?

17. Two random samples gave the following results $n_1=10$, $\sum(x_1-\bar{x})^2 = 90$
    $n_2=12$, $\sum(y_1-\bar{y})^2 = 108$
    Test whether the samples came from the population with the same variance.
    (Table value $F(9,11) = 2.9$ at 5 % level)

18. Find the coefficient of correlation between x and y.

x	1	2	3	4	5	6	7	8	9
y	12	11	13	15	14	17	16	19	18

19. Find the line of regression of y on x.

x	1	2	3	4	5	8	10
y	9	8	10	12	14	16	15

SECTION - C

ANSWER ANY THREE QUESTIONS (3X10=30)

20. The first of three urns contains 7 white and 10 black balls, the second contains 5 white and 12 black balls and the third contains 17 white balls and no black balls. A person chooses an urn at random and draws a ball from it. The ball is white find the probabilities that the ball comes from (i) the first (ii) the second (iii) the third urn.

21. In a distribution exactly normal, 7% of the items are under 35 and 89% are under 63. What are the mean and standard deviation of the distribution?

22. A sample of 900 items has mean 3.4 and standard deviation 2.61 can the sample be regarded as drawn from a population with mean 3.25 at 5% level of significance?

23. Five coins are tossed 256 times. The number of heads observed is given below. Examine if the coins are unbiased by employing chi-square goodness of fit.

No. of heads	0	1	2	3	4	5
Frequency	5	35	75	84	45	12

(Table value = 11.07)

24. The following figures state to production in Kgs. of three variables A,B,C of wheat sawn of 12 plots.

A	14	16	18		
B	14	13	15	22	
C	18	16	19	19	20

Is there any significant difference in the production of the varieties?

(Table value = 19.38)

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RAMAKRISHNA MISSION VIVEKANANDA COLLEGE (AUTONOMOUS)
SEMESTER END EXAMINATIONS, NOVEMBER - 2020

18/19UCSAL03 / 18/19UCAAL03
COMPUTER ORIENTED STATISTICAL METHODS

TIME: 3 Hrs. Max. Marks: 75

Section – A

Answer any Ten questions (10x2=20)

1. Define probability.
2. State Baye's theorem.
3. State standard deviation of a binomial distribution.
4. State binomial distribution.
5. Define Sampling.
6. What are the two types of hypothesis?
7. Define F test.
8. Write the formula for Chi-square test.
9. Write the regression line X on Y.
10. State Karl Pearson's coefficient correlation formula.
11. Write two types of ANOVA.
12. Define Poisson distribution.

Section – B (5x5=25)

Answer any Five questions

13. Explain the nature and scope of statistical methods.

14. The mean of a binomial distribution in 5 and standard deviation is 2. Determine the distribution.

15. Explain the types of Sampling

16. A company keeps record of accidents. During a recent safety review, a random sample of 60 accidents was selected and classified by the day of the week on which they occurred.

Day:	Mon	Tue	Wed	Thu	Fri
No. of accidents:	8	12	9	14	17

Test whether there is any evidence that accidents are more likely on some days than others (Table value 9.488)

17. Explain ANOVA

18. Calculate correlation coefficient for the following data

X	1	2	3	4	5	6	7	8	9
Y	12	11	13	15	14	17	16	19	18

19. Explain the two types of hypothesis

Section – C

Answer any Three questions **(3x10=30)**

20. The probabilities of 3 students A, B, C, solving a problem in statistics are ½, ⅓, and ¼. A problem is given to all the 3 students. What is the probability that,
    1. no one will solve the problem,
    2. only one will solve the problem,
    3. atleast one will solve the problem.

21. Derive mean and standard deviation for Binomial and Poisson distributions.

22. Certain pesticide is packed into bags by a machine. A random sample of 8 bags is drawn and their contents are found to weigh (in kgs) as follows
    50, 49, 52, 44, 45, 48, 46, 45
    Test if the average packing can be taken to be 50kgs
    (Table value for 7 degrees of freedom 2.37)

23. Explain Chi-square test.

24. Obtain two regression lines for the following data

X	57	58	59	60	61	62	64
Y	77	78	75	82	82	79	81

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RAMAKRISHNA MISSION VIVEKANANDA COLLEGE (AUTONOMOUS)
SEMESTER END EXAMINATIONS, NOVEMBER - 2020
16UCSAL03 / 16UCAAL03
COMPUTER ORIENTED STATISTICAL METHODS

TIME: 3 HRS. MAX. MARKS: 75

PART - A (10X2=20 MARKS)

Answer any TEN questions:

1. Define statistics.
2. Differentiate between mutually exclusive events and independent events.
3. State the Axiomatic theorem.
4. What is meant by normal distribution?
5. Define Poisson distribution.
6. Write a note on standard error in sampling.
7. Differentiate between type 1 and type 2 error.
8. Hint on (i) significant level (ii) critical level
9. Define small sample test.
10. Write a note on chi-square goodness of fit.
11. Differentiate between correlation and regression.
12. Write assumption of ANOVA.

PART – B (5X5=25 MARKS)

Answer any FIVE questions:

13. Discuss – Multiplication theorem.
14. A manufacture of pins knows that 2% of his products are defective. If he sells pins in boxes of 100 and guarantees that not more than 4 pins will be defective, what is the probability that a box will fail to meet the guaranteed quality? (e^{-2}=0.13534).
15. Write a brief note on types of sampling.
16. Time taken by workers in performing a job are given below (5% level=4.28)

Method 1	20	16	26	27	23	22	
Method 2	27	33	42	35	32	34	38

17. In 120 throws of a single die, the following distribution of face was observed. (5% evel=11.07)

Face	1	2	3	4	5	6
Frequency	30	25	18	10	22	15

18. The means of two samples of 1000 and 2000 members are respectively 67.5 and 68 inches. Can they be regarded as drawn from the same population with S.D 2.5 inches? (1% level=2.58)
19. Find the coefficient of correlation between industrial production and export using the following data and comment on the result.

Product	27	28	29	30	32	32	33
Exports	17	18	19	19	21	20	21

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SEMESTER END EXAMINATIONS, NOVEMBER - 2020
16UCSAL03 / 16UCAAL03
COMPUTER ORIENTED STATISTICAL METHODS

TIME: 3 HRS. **MAX. MARKS: 75**

PART - A (10X2=20 MARKS)

Answer any TEN questions:

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4. What is meant by normal distribution?
5. Define Poisson distribution.
6. Write a note on standard error in sampling.
7. Differentiate between type I and type 2 error.
8. Hint on (i) significant level (ii) critical level
9. Define small sample test.
10. Write a note on chi-square goodness of fit.
11. Differentiate between correlation and regression.
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PART – B (5X5=25 MARKS)

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13. Discuss – Multiplication theorem.
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19. Find the coefficient of correlation between industrial production and export using the following data and comment on the result.

Product	27	28	29	30	32	32	33
Exports	17	18	19	19	21	20	21

PART - C (3X10=30 MARKS)

Answer any THREE questions:

20. State and prove the addition and multiplication theorem of probability.
21. Obtain mean and variance from the moments of the binomial distribution.
22. Random sample of 400 men and 600 women were asked whether they would like to have a fly-over near their residence. 200 men and 325 women were in favour of it. Test the equality of proportion of men and women in the proposal? (5% level=1.96)
23. The marks obtained by a group of 9 regular course students and another group of 11 part time course students in attest are given below.

Regular	56	62	63	54	60	51	67	69	58		
Part time	62	70	71	62	60	56	75	64	72	68	66

Examine whether the marks obtained by regular students and part time students differ significantly at 5% level of significance and 1% level of significance.(5%level=2.101).

24. Discuss – Correlation with an example.

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RAMAKRISHNA MISSION VIVEKANANDA COLLEGE (AUTONOMOUS)
SEMESTER END EXAMINATIONS, NOVEMBER - 2022
21UCSAL03 / 21UCAAL03
COMPUTER ORIENTED STATISTICAL METHODS

TIME: 3 HRS. MAX. MARKS: 75

Section - A

(10 X 2 = 20)

Answer any TEN Questions.

1. Define Statistics.
2. A coin is tossed twice. Find the Probability of getting atleast one head.
3. Define Poisson distribution.
4. The mean of a binomial distribution is 5 and standard deviation is 2. Determine the distribution.
5. Define the word test of hypothesis.
6. What is confidence interval?
7. Write the formula for 't' test for paired observations.
8. State any two uses of χ^2 test.
9. Define positive correlation.
10. What is regression analysis?
11. Explain the types of ANOVA.
12. Write any two axioms of probability.

Section - B

(5 X 5 = 25)

Answer any FIVE Questions.

13. State and prove addition theorem on probability.
14. If 3% of the electric bulbs manufactured by a company are defective find the probability that in a sample of 100 bulbs exactly five bulbs are defective.
15. Explain the different types of hypothesis.
16. A sample of 10 house owners is drawn and the following values of their income are obtained. Mean Rs.6000, standard deviation Rs.650.Test the hypothesis that the average income of house owners of the town is Rs.5, 500. ($t_{9,0.05} = 2.62$)
17. Calculate the coefficient of correlation from the following data $n = 10, \sum x^2 = 290$, $\sum x = 50$, $\sum y = -30$, $\sum y^2 = 300$, $\sum xy = -115$.
18. Explain the two-way ANOVA procedure.
19. Write the properties of normal distribution.

Section - C

Answer any THREE Questions. **(3 X 10 = 30)**

20. A company has three machines M_1, M_2, M_3 which produces 20%, 30% and 50% of the products respectively. Their respective defective percentages are 7, 3 and 5. From these products one is chosen and inspected. It is defective. What is the probability that it has been made by machine M_3.

21. Let X is normally distributed with mean 8 and standard deviation 4. Find (i) $P(5 \le X \le 10)$, (ii) $P(10 \le X \le 15)$, (iii) $P(X \ge 15)$.

22. Random samples of 400 men and 600 women were asked whether they would like to have a fly-over near their residence. 200 men and 325 women were in favour of it. Test the equality of proportion of men and women in the proposal?

23. Out of 8000 graduates in a town, 800 are females and out of 1600 graduate employees 120 are females. Use χ^2 test to determine if any distinction is made appointment on the basis of sex $\chi_{1,0.05}^{\ 2} = 3.84$

24. Using the appropriate regression line find y when x=64 from the following data

X	65	66	67	67	69	71	72	70	65
Y	67	68	69	68	70	70	70	69	70

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RAMAKRISHNA MISSION VIVEKANANDA COLLEGE (AUTONOMOUS)
SEMESTER END EXAMINATIONS, NOVEMBER - 2017
14/15//16UCSAL03 / 15/16UCAAL03
COMPUTER ORIENTED STATISTICAL METHODS (THEORY)

ME: 3 HRS. MAX. MARKS: 75

Section – A

swer any Ten Questions (10x2=20)

1. State Addition theorem of probability.
2. State Baye's theorem.
3. Define Binomial Distribution.
4. Define Poisson distribution.
5. Define Sampling.
6. Define Null hypothesis.
7. State any two uses of Chi-Square test.
8. State the uses of t-test.
9. Define ANOVA.
10. State the two classification of ANOVA.
11. Define conditional probability.
12. The mean of a binomial distribution in 5 and standard deviation is 2. Determine the distribution.

Section – B

swer any Five Questions (5x5=25)

13. Explain the Nature and Scope of statistical methods.
14. Explain Normal distribution.
15. Explain the two types of hypothesis.
16. Explain chi-Square test.
17. State the difference between correlation and Regression.
18. Explain One way classification of ANOVA.
19. Explain the classical definition of probability.

Section – C

swer any Three Questions (3x10=30)

20. There are 3 boxes containing respectively 1 while 2 red. 3 black balls. 2 white 3 red 1 black ball, 3 white 1 red and 2 black balls. A box is chosen at random and from it two balls are drawn at random. The two balls are 1 red and 1 white. What in the probability that they come from the first box

	White	Red	Black
B_1	1	2	3
B_2	2	3	1
B_3	3	1	2

21. Explain Binomial and Poisson distribution.
22. Explain the types of sampling.
23. Explain F – test.
24. Calculate the correlation coefficient for the following data

X	35	40	60	79	83	95
y	17	28	30	32	38	49

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RAMAKRISHNA MISSION VIVEKANANDA COLLEGE (AUTONOMOUS)
SEMESTER END EXAMINATIONS, NOVEMBER - 2017
14/15//16UCSAL03 / 15/16UCAAL03
COMPUTER ORIENTED STATISTICAL METHODS (THEORY)

TIME: 3 Hrs. MAX. MARKS: 75

Section – A

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1. State Addition theorem of probability.
2. State Baye's theorem.
3. Define Binomial Distribution.
4. Define Poisson distribution.
5. Define Sampling.
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7. State any two uses of Chi-Square test.
8. State the uses of t-test.
9. Define ANOVA.
10. State the two classification of ANOVA.
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Section – B

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Section – C

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	White	Red	Black
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B_2	2	3	1
B_3	3	1	2

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