STELLA MARIS COLLEGE (AUTONOMOUS) CHENNAI – 86
(For candidates admitted from the academic year 2004 – 05 & thereafter)

SUBJECT CODE : EC/AO/AS43

B. A. DEGREE EXAMINATION, APRIL 2009
BRANCH IV - ECONOMICS
FOURTH SEMESTER

COURSE   : ALLIED – OPTIONAL
PAPER   : APPLIED STATISTICS
TIME   : 3 HOURS.   MAX. MARKS : 100

SECTION – A
ANSWER ALL QUESTIONS   **(10X3= 30)**

1. Distinguish between mutually exclusive events and dependent events with an example.

2. State Baye's theorem.

3. What is a joint probability distribution ?

4. State the rules of expectations.

5. List the properties of Poisson distribution.

6. What are the conditions for normality ?

7. Distinguish between partial and multiple regression with an example.

8. What are the properties of 't' test ?

9. Mention the assumptions of ANOVA.

10. Discuss the use of Latin square design.

SECTION – B
ANSWER ANY FIVE QUESTIONS.
(5X6=30)

11. A bag contains 10 white and 6 black balls. Four balls are successively drawn out and not replaced. What is the probability that they are alternately of different colours ?

12. The mean weight of 500 male students in a certain college is 151 lbs and the standard deviation is 15 lbs. Assuming the weights are normally distributed, find how many students weigh a] between 120 and 155 lbs and b] more than 185 lbs. [Area 2.1 = 0.4821, 0.3 = 0.1179, 2.3 = 0.4893]

..2

13. Calculate $R_{1.23}$ and $R_{3.12}$ given : $r_{12} = 0.6$ $r_{13} = 0.7$ $r_{23} = 0.65$

14. The life time of electric bulbs for a random sample of 10 from a large consignment gave the following data : [$t_{0.05} = 2.262$]

Item	1	2	3	4	5	6	7	8	9	10
Life	4.2	4.6	3.9	4.1	5.2	3.8	3.9	4.3	4.4	5.6

[in '000hrs]
Test whether the sample could have come from a population with means Life of 4 hours.

15. What is randomized block design ? Explain the advantages of a completely randomized experimental design.

16. What are non-parametric tests ? Discuss the advantages of such tests.

17. A typing school claims that in a six week intensive course, it can train students to type on an average at least 60 words per minute. A random sample of 15 graduates is given a typing test and the median number of words per minute typed by each of these students is given below. Test the hypothesis that the median typing speed of graduates is at least 60 words.

Students	A	B	C	D	E	F	G	H	I
Words / minute	81	76	53	71	66	59	88	73	80

Students	J	K	L	M	N	O
Words / Minute	66	58	70	60	56	55

SECTION - C   **[2 X 20 = 40]**
Answer ANY TWO questions.

18. Three varieties A, B and C of a crop are tested in a randomized block design with four replications. The plot yields in kgs. are given below. Analyse the experimental yield and state your conclusion.

A6	C5	A8	B9
C8	A4	B6	C9
B7	B6	C10	A6

..3

19. a] Discuss the conditions for applying X^2 test. What are the uses of X^2 test?

b] The table below summarizes the results obtained in a study conducted by a research organization, with respect to the performance of four competing brands of toothpaste among the users. Test the hypothesis that incidence of cavities is independent of the brand of the toothpaste used . [Table value of X^2 =12.549]

No. of cavities	Brand of toothpaste			
	A	B	C	D
No cavity	9	13	17	11
1 to 5 cavities	63	70	85	82
More than 5 cavities	28	37	48	37

20. A test was given to 5 students chosen at random from the B.A [Economics] of three universities in Tamilnadu. Their scores are given below. Performance analysis of variance and show if there is any significant difference between the scores of students in the three universities [Table value of F = 3.44]

UNIVERSITY	Students				
	1	2	3	4	5
			Scores		
A	90	70	60	50	80
B	70	40	50	40	50
C	60	50	60	70	60

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