

**STELLA MARIS COLLEGE (AUTONOMOUS) CHENNAI – 86**

**(For candidates admitted from the academic year 2004 – 2005 & thereafter)**

**SUBJECT CODE: EC/AC/SE23**

**B. A. DEGREE EXAMINATION, APRIL 2007**

**BRANCH IV - ECONOMICS**

**SECOND SEMESTER**

**COURSE : ALLIED – CORE**

**PAPER : STATISTICS FOR ECONOMICS – II**

**TIME : 3 HOURS.**

**MAX. MARKS: 100**

**SECTION – A**

**ANSWER ALL QUESTIONS. EACH ANSWER NOT TO EXCEED 50**

**WORDS:**

**(10 X 3 = 30)**

1. State the principle of least squares.
2. Define coefficient of determination.
3. What is seasonal variation?
4. What are the factors that account for secular trends in time series analysis?
5. Distinguish between 'A – Priori' and 'A – Posteriori' probabilities.
6. Define mutually exclusive events.
7. If  $b_{xy} = -0.8$ ,  $b_{yx} = -1.2$ , calculate the value of  $r_{xy}$ . Interpret.
8. For  $\bar{x} = 36$ ;  $\bar{y} = 85$ ;  $\sigma_x = 11$ ;  $\sigma_y = 8$ ;  $r = 0.66$ , estimate the value of X when Y = 75.
9. Given that the probability of a price of a certain stock not going up =  $\frac{2}{3}$ ;  
remaining the same =  $\frac{1}{4}$ , calculate the probability of the price of stock to go  
down or decrease.
10. State the addition theorem of probability.

**SECTION – B**

**ANSWER ANY FIVE QUESTIONS. EACH ANSWER NOT TO EXCEED 300**

**WORDS:**

**(5 X 6 = 30)**

11. Enumerate the ways of classifying correlation.
12. Fit a straight line trend to these figures of production ( in thousand quintals) of a sugar factory. Plot these figures.  
Year : 1997 1998 1999 2000 2001 2002 2003  
Production : 80 90 92 83 94 99 92
13. Calculate  $b_{xy}$  and  $b_{yx}$ .  
 $\sum x = 50$ ;  $\bar{x} = 5$ ;  $\sum y = 60$ ;  $\bar{y} = 6$ ;  $\sum xy = 350$ ; variance of x = 4; variance of y = 9.
14. The male population of the state of Bihar is 331 lakhs males approximately. The number of literate males is 66 lakhs on an average and the number of male criminals is 33 thousand. Prepare a 2x2 table from the following information and calculate the coefficient of association between literacy and criminality in the state if the number of literate male criminals is 6,000. Does the value help to conclude that literacy reduces criminality?

15. A fair dice is tossed twice. Find the probability of getting 4,5 or 6 on the first toss and 1,2,3 or 4 on the second toss.
16. Distinguish between correlation and Regression.
17. State and prove Baye's theorem.

**SECTION – C**

**ANSWER ANY TWO QUESTIONS. EACH ANSWER NOT TO EXCEED**

**1200 WORDS:**

**(2 X 20 = 40)**

18. The following is the seasonal data pertaining to the amount of contaminants in the air observed during Chennai air quality survey conducted by an agency.

Year	Winter	Spring	Summer	Fall
1992	452	385	330	385
1993	474	397	356	399
1994	494	409	375	415
1995	506	429	398	437
1996	527	454	421	482

Determine seasonal indices.

19. Explain in detail the basic types of variations in time series data.
20. Is there a negative relationship between percentage changes in wage rates and unemployment rates?

Year	:	1957	1958	1959	1960	1961	1962	1963
		1964	1965	1966				

% change		5.0	3.2	2.7	2.1	4.1	2.7	2.9
in wage	:	4.6	3.5	4.4				

% change		1.6	2.2	2.3	1.7	1.6	2.1	2.6
in attempt	:	1.7	1.5	1.6				

21. A manufacturing firm produces pipes in plant I & plant II. The daily production of pipes from plant I & plant II are 1500 & 2000 respectively. The probability of defective pipes being produced by plant I & plant II are 0.006 and 0.008 respectively. What is the probability that if a pipe selected at random from the daily production is found to be defective.

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