



**Part C: Essay Questions**

**Marks Allocation: 40 Marks**

1.

- a) Define the following terms and describe how they may be used in analyzing tourism statistics with relevant examples: Pearson's Correlation and Multiple Regression.

(05 Marks)

- b) In a certain day care class, 30% of the children have grey eyes, 50% of them have blue and the other 20%'s eyes are in other colors. One day they play a game together. In the first run, 65% of the grey eye ones, 82% of the blue eyed ones and 50% of the children with other eye color were selected. Now, if a child is selected randomly from the class, and we know that he/she was not in the first game, what is the probability that the child has blue eyes?

(10 Marks)

**(Total- 15 Marks)**

2.

- a) The operations manager of a large production plant would like to estimate the mean amount of time a worker takes to assemble a new electronic component. Assume that the standard deviation of this assembly time is 3.6 minutes. After observing 120 workers assembling similar devices, the manager noticed that their average time was 16.2 minutes. Construct 92% confidence interval for the mean assembly time.

(5 Marks)

- b) A manufacturer claims that the thickness of the spearmint gum it produces is 7.5 one-hundredths of an inch. A quality control specialist regularly checks this claim. On one production run, he took a random sample of  $n = 10$  pieces of gum and measured their thickness. He obtained following data.

Check the quality control specialist claims at 5% level of significance.

7.65	7.60	7.65	7.70	7.55
7.55	7.40	7.40	7.50	7.50

(8 Marks)

- c) The finish time of manufacturing process is normally distributed with a mean of 195 minutes and a standard deviation of 25 minutes.

- What is the probability that a processing time will be less than 3 hours? (4 marks)
- What proportion of the processing time will complete between 3 hours and 4 hours? (3 marks)
- Calculate to the nearest minute, the time by which the first 8% have completed the manufacturing process? (5 marks)

**(Total - 25 Marks)**