

Register No : ..... Name : .....



**SAINTGITS COLLEGE OF ENGINEERING  
KOTTAYAM, KERALA**

(AN AUTONOMOUS COLLEGE AFFILIATED TO  
APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY, THIRUVANANTHAPURAM)

**FIRST SEMESTER MBA DEGREE EXAMINATION (S), JULY 2021**

**Course Code:** 20MBA103

**Course Name:** QUANTITATIVE TECHNIQUES FOR MANAGERS

**Max. Marks:** 60

**Duration :** 3 Hours

**PART A**

*(Answer all questions. Each question carries 2 marks)*

1. Explain the concept of moving average.
2. Explain the terms Type 1 error and Type 2 error
3. Differentiate between Relative frequency approach and Classical theory approach in probability
4. Define classification of data? Discuss in brief the basis of classification?
5. Distinguish between correlation and regression?

**PART B**

*(Answer any 3 questions. Each question carries 10 marks)*

6. To investigate the consumer's perception, spontaneous associations are frequently used. That means consumers are exposed to different products and asked what comes to their mind when they see or hear of this product. A study was conducted to determine whether "safety" or "sporty" comes to a person's mind when they see or hear of a particular type of automobile: BMW, Mercedes, or Lexus. The result is given in the table below. Is there any association between the automobile type and customers' perception of the car as being known for being sporty or being known for its safety at 5% level of significance? (Table Value= 5.99)

AUTOMOBILE	SPORTY	SAFETY	TOTAL
BMW	256	74	330
Mercedes	41	42	83
Lexus	66	34	100
Total	363	150	513

7.
  - a) A manufacturing firm produces pipes in two plants I & II with daily production 1500 and 2000 pipes respectively. The fraction of defective pipes produced by 2 plants I & II are 0.006 and 0.008 respectively. If a pipe selected at random from that day's production is found to be defective, what is the chance that it has come from plant I, plant II.
  - b) "This theorem describes the probability of an event, based on prior knowledge of conditions that might be related to the event." Describe the theorem in detail?

# 133A2

8. A corporation administers an aptitude test to all new sales representatives. Management is interested in the extent to which this test is able to predict sales representatives' eventual success. The accompanying table records average weekly sales (in thousands of dollars) and aptitude test scores for a random sample of eight representatives. Calculate correlation coefficient and interpret it.

Weekly Sales	10	12	28	24	18	16	15	12	12
Test Score	55	60	85	75	80	85	65	60	60

9. In many manufacturing processes, the term work-in-process (often abbreviated WIP) is used. In a book manufacturing plant, the WIP represents the time it takes for sheets from a press to be folded, gathered, sewn, tipped on end sheets, and bound. The data represent samples of 10 books at each of two production plants and the processing time (operationally defined as the time, in days, from when the books came off the press to when they were packed in cartons) for these jobs:

Plant A

5.62	5.29	16.25	10.92	11.46	21.62	8.45	8.58	5.41	11.42
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Plant B

9.54	11.46	16.62	12.62	25.75	15.41	14.29	13.13	13.71	10.04
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Which plant shows more variation?

10. A sample of the height of 6400 English men has a mean of 67.85 inches and standard deviation of 2.56 inches while a sample of heights of 1600 Australians has a mean of 68.55 inches and standard deviation of 2.52 inches. Do the data indicate that the Australians are on an average taller than English men?

## PART C

**(Compulsory question, the question carries 20 marks)**

11. Suppose the National Transportation Safety Board (NTSB) wants to examine the safety of compact cars, midsize cars, and full-size cars. It collects a sample of three for each of the treatments (cars types). Using the hypothetical data provided below, test whether the mean pressure applied to the driver's head during a crash test is equal for each types of car. Use  $\alpha = 5\%$ . (Critical value at  $\alpha = 5\%$ . = 3.68)

Compact	Midsize	Full-size
643	469	484
655	427	456
702	525	402
604	462	480
712	470	500
590	500	490

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