

# Mid Term Assessment

Started: Oct 23 at 3:32pm

## Quiz Instructions

 <https://lms.vitonline.in/courses/527/modules/items/106304>

   <https://lms.vitonline.in/courses/527/modules/items/106305>

It is now time for a mid-term assessment of your understanding of the concepts covered so far in this module.

### Instructions

- The time limit for this quiz is 90 mins. Kindly complete and submit this quiz within this time.
- Additional 10 minutes will be available for uploading the Final PDF.
- **You have only one attempt to answer the quiz and the time starts as soon as you click the "Take the Quiz" button.**
- The answers should be in **handwritten format**. Write your answers **clearly on paper using a pen**.
- For responses to be accepted you have to upload a single document (PDF, less than 500 MB)
- This assessment must be attempted by **Friday, October 31, 2025, by 11:59 PM IST**.

**Note:** This is a graded quiz and counts towards programme completion.



### Answer all questions



Question 1 10 pts

A husband and wife appear in an interview for two vacancies in the same post. The probability of husband's selection is  $\frac{1}{7}$  and that of wife's selection is  $\frac{1}{5}$ . What is the probability that

- a) both of them will be selected
- b) Only one of them will be selected
- c) none of them will be selected.

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Question 2 10 pts

Fifteen fourth-grade students were randomly assigned to three groups to experiment with three different methods of teaching arithmetic. At the end of the semester, the same test was given to all 15 students. The table gives the scores of students in the three groups.

Method I	Method II	Method III
48	55	84
73	85	68
51	70	95
65	69	74
87	90	67

Apply Analysis of variance and calculate the value of the test statistic  $F$ . Assume that all the required assumptions mentioned earlier hold true

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Question 3 10 pts

a) A company is planning to improve plant safety. For this, accident data for the last 50 weeks was compiled. These data were grouped into the frequency distribution as shown below. Calculate the AM, median and mode of the number of accidents per week.

No. of Accidents	0-5	5-10	10-15	15-20	20-25
No. of weeks	5	8	22	13	2

b) A school administrator wants to compare the consistency of exam scores between two classes, Class A and Class B. The administrator believes that a class with more consistent scores may indicate a more effective teaching method or a more cohesive learning environment. The exam scores for Class A and Class B are as follows:

Scores	80	70	90	85	75	95
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Class A						
Scores						
Class B	60	40	100	80	50	90

1. What does the coefficient of variation (CV) indicate about the consistency of scores in each class?
2. Based on the CV values, which class appears to have more consistent scores?
3. What implications might the consistency of scores have for teaching methods or learning environments?

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Question 4 10 pts

a) The lines of code written by a programmer are monitored to measure the productivity of the programmers. The human capital department of Prudent Technology Solutions (PTS) had initiated a study on the lines of codes written by its programmers. The company had two development centres, one in the San Francisco Bay Area of California and the other in the Cyber City Area of Hyderabad. The Director of Human Capital wanted to know if there is any difference in the lines of code written by engineers in the development centres. For this reason, samples of 300 programmers from each development centre were taken. The mean lines of code written from the sample were 600 and 695, respectively. It was also noted that the standard deviation of lines of code written by the programmers in the two development centres was 62 and 64, respectively. Using significance level 0.05, make a statistical inference on whether there are any lines of code written by programmers in the two development centres.

b) Iceberg an ice cream parlour in Vellore. Mr.Dinesh , the entrepreneur who started Icebreg , knows that the turnover of the outlet is directly proportional to the amount of time spent in the parlour by the customers. If a customer spends more time in the ice cream parlour by these customers is given in the following table. His experience shows that if customer spent 56 minutes or more, then the turnover of the parlour would be good. Based on the sample data, Can Mr.Dinesh conclude that the turnover of Iceberg would be good?

Time spent in minutes	62	58	60	59	56	50	52	55
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Question 5 0 pts

**Please upload a single PDF file of your responses to the questions here.**

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Quiz saved at 3:33pm

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