

School of Computer Applications and Technology
Bachelor of Computer Applications
Mid Term Examination – March 2024
Duration: 90 Minutes
Max Marks: 50
Sem 6 – Data Analytics with Python (E1UA601T)

- 1) Define sample space, random experiment, event, population in context of probability. K2 (2)
- 2) If A and B are two independent events with $P(A) = 3/5$ and $P(B) = 4/5$ then calculate $P(A' \cap B')$? K1 (3)
- 3) Discuss the characteristics of data that make it suitable for analysis. How do these characteristics differ across structured, semi-structured, and unstructured data? K2 (4)
- 4) What are mean and variance. Write their expressions and calculate both by taking an example. K2 (6)
- 5) You're a telemarketer selling service contracts for Macy's. You've sold 20 in your last 100 calls ($p = .20$). If you call 12 people tonight, what's the probability of
 - A. No sales?
 - B. Exactly 2 sales?
 - C. At most 2 sales?
 - D. At least 2 sales?K3 (6)
- 6)
 - (a) Explore some of the modern data analytic tools commonly used in the industry. Compare and contrast their features, strengths, and limitations. (4 marks) K3 (9)
 - (b) Given the probabilities of three events A, B and C occurring are 0.35, 0.45 and 0.2. Assuming that A, B or C has occurred, the probabilities of another event, X occurring are $P(X|A) = 0.8$, $P(X|B) = 0.65$, $P(X|C) = 0.3$. Find $P(X)$ and $P(A|X)$. (5 marks)
- 7)
 - (a) Identify the types of the identifier of the following: K4 (8)
 - I. 15.859
 - II. 125
 - III. True
 - IV. 'True'
 - V. "None".
 - (b) What is the role of indentation in Python?
 - (c) Calculate mode of the following data: 0,1,6,7,2,3,7,6,6,2,6,0,5,6,0?
- 8) Write Python programs for K4 (12)
 - a) Calculating simple interest.
 - b) Area of a triangle
 - c) Volume of a cylinder when radius and height of the cylinder is given by user.

OR

"In a sample of 100 students enrolling in a university, a questionnaire indicated that 45 of them studied English, 40 studied French, 35 studied German, 20 studied both English and French, 23 studied both English and German, 19 studied both French and German, and 12 studied all three languages.

Using a Venn diagram, find the probability that a randomly chosen student studied only one of the three languages."