

School of Management
Second CIA Test – September 2024
Class: B.Tech Course Code: MGT212
Semester: VII
Course Name: Introduction to Financial Management
Duration: 90 minutes Max Marks: 50

PART A $5 \times 2 = 10$ Marks**Answer all the Questions**

1. Write the meaning of volatility
2. Explain the difference between CML and SML?
3. Five years ago, Chandi Limited issued 12% irredeemable debentures at ₹ 103, at ₹ 3 premium to their par value of ₹ 100. The current market price of these debentures is ₹95. If the company pays corporate tax at a rate of 35 per cent calculate its current cost of debenture capital?
4. A portfolio consists of four securities with expected returns of 12%, 15%, 18% and 20% respectively. The proportions of portfolio value invested in these securities are 0.2, 0.3, 0.3, and 0.20 respectively. Calculate expected return on the portfolio.
5. Calculate P/V ratio. Contribution – ₹6 lakhs and sales – ₹15 lakhs.

PART B $2 \times 12 = 24$ Marks**Answer all the questions**

The return on individual security (R_i) and market return (R_m) is given below. Compute Alpha and Beta.

6.

Ri	14	18	6	12	13	14	11	6	9	8
Rm	16	20	9	8	10	9	11	18	17	15

- / S
- (a) A debenture holder is to receive an annual interest of Rs.100 for perpetuity on his debenture of ₹1,000. Calculate the value of the debenture if the required rate of return is (i) 15% (ii) 8% (iii) 10%
7. (a) (8 Marks)
- (b) Explain the concept of the opportunity cost of capital.
(4 Marks)

PART C $1 \times 16 = 16$ Marks

Answer the following Question

- 8 (a) A firm sells its only product at ₹12 per unit. Its variable cost is ₹8 per unit. Present sales are 1000 units. Calculate the operating leverage in each of the following situations.

(i) When fixed cost is ₹ 1,000

(ii) When fixed cost is ₹1,200

(iii) When fixed cost is ₹1,500 (12 Marks)

- (b) Securities M and N are equally risky, but they have different expected returns:

	M	N
Expected return (%)	16.00	24.00
Weight	0.50	0.50
Standard deviation (%)	20.00	20.00

What is the portfolio risk (variance) if (a) $\text{Cor}_{mn} = +1.0$ (b) $\text{Cor}_{mn} = -1.0$ (4 Marks)

$$OL = \sqrt{P^2 C^2}$$



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School of Computing

Second CIA Exam - Sep 2024

Course Code: INT318

Course Name: IT WORKSHOP

SCILAB/MATLAB

Duration: 90 minutes Max Marks: 50

PART-A

10 x 2 =20 Marks

Answer all the questions

1. State the features of matlab files and functions.
2. List out the input and output functions.
3. Create a lower-right sub image of 200 x 200 using the image 512x512.
4. How to turn black background of the image m x n into white background?
5. Write a user defined function to find and replace element in an array.
6. Differentiate between while and do while in matlab.
7. Write a program to find factorial of a given number using recursion.
8. Create a user defined function to return the maximum number when three numbers are given as arguments.
9. Find the sum of numbers divisible by 5 from 1 to 100 using continue statement.
10. How to read and write a text file?

PART-B

3 x 10=30 Marks

Answer any THREE questions

11. Design an app to extract the various texture features from the images.
12. Illustrate the various types of plotting methods.
13. a) Create a user defined functions for binary and multi thresholding. (5)

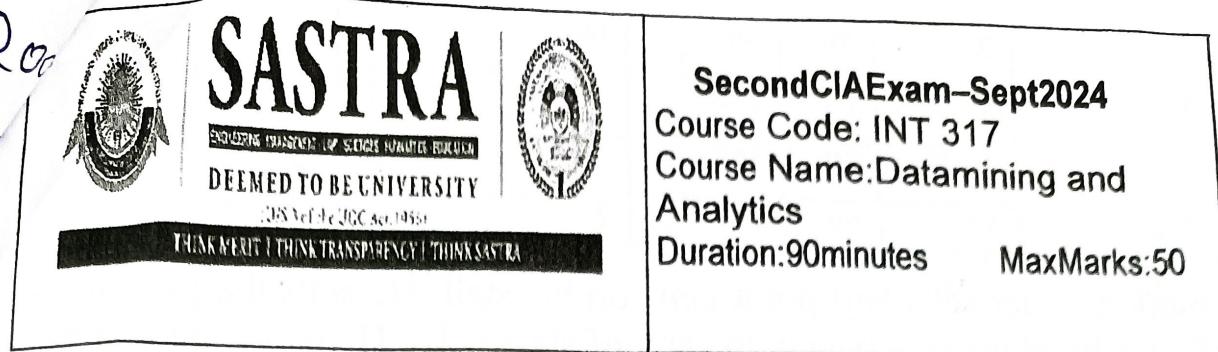
b) Write a program to compute the following using nested function

$$\text{sum} = 1 + 1 + \frac{3}{6} + \frac{4}{24} + \frac{5}{120} + \dots \quad (5)$$

14. a) Write a program to remove duplicate elements in an array. (5)
b) Outline the convolution and pooling operations with example. (5)

6. Explain Sequence Classification using

models. Example: Spam
Why should someone select



PART A

LTC 116 | DMA-14

$$4 \times 10 = 40$$

Answer any four of the following questions

- Consider the given training data and apply Naïve Bayes algorithm to test the data, {Age<=30, Income=Medium, Student=yes, Credit Rating=fair} and predict the Buy Computer is yes or no.

Age	Income	Student	Credit Rating	Buy Computer
<=30	High	No	Fair	No
<=30	High	No	Excellent	No
31...40	High	No	Fair	Yes
>40	Medium	No	Fair	Yes
>40	Low	Yes	Fair	Yes
>40	Low	Yes	Excellent	No
31...40	Low	Yes	Excellent	Yes
<=30	Medium	No	Fair	No
<=30	Low	Yes	Fair	Yes
>40	Medium	Yes	Fair	Yes
<=30	Medium	Yes	Excellent	Yes
31...40	Medium	No	Excellent	Yes
31...40	High	Yes	Fair	Yes
>40	Medium	No	Excellent	No

- Write a pseudo code for KNN classification also classify for the new patient-5 using KNN with k=3, using both Euclidean distance and Manhattan distance. How does the choice of distance metric impact the classification?

Patient	Age	Glucose level	Diabetes(Yes/No)
1	45	85	No

2	50	90	No
3	65	150	Yes
4	70	160	Yes
5	60	130	?

3. A market trader sells ball-point pens on his stall. He sells the pens for a different fixed price, x pence, in each of six weeks. He notes the number of pens, y , that he sells in each of these six weeks. The results shown in the following table

Price	x	10	15	20	25	30	35
Pens.	y	68	60	55	48	38	32

- i. Calculate the least square regression line y on x .
- ii. Predict the number of pens when he sells for 45
- iii. Calculate the coefficient of determination R^2

4. Compare linear and logistic regression. Derive the equation for sigmoid function in logistic regression.

5. Explain the following:

- i. Multiple Logistic Regression Forward and backward method
- ii. Generalized Linear Model

PART B

Answer all the Questions

1*10=10

1. The following data consists of training data from the Car Company database. Find the root node of the decision tree.

	Age Group	Income Level	Credit Rating	Buy Car
1	Young.	Low	Fair	No
2	Young	Medium	Fair	Yes
3	Young	Medium	Good	Yes
4	Middle	Medium	Good	Yes
5	Old	High	Fair	Yes
6	Old	Low	Fair	No
7	Middle	High	Good	Yes
8	Middle	Low	Good	No
9	Young	Low	Good	No
10	Old	High	Good	Yes
11	Old	Medium	Fair	Yes



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School of Computing Second CIA Exam – Sept 2024

Course Code: CSE332

Course Name: Usability Design of
Software Applications

Duration: 90 minutes Max Marks: 50

PART A

Answer all the questions

(10*2=10)

1. Describe the three basic rules of conversation analysis.
2. Give two examples of non-verbal communication used in coordination mechanisms
3. Imagine designing an electronic calendar for personal use. It could help plan time, record meetings, appointments, and note birthdays. Draw a sketch showing its functionality and overall appearance.
4. Write the rules and constraints a university may take into account to coordinate people within it with its available resources?
5. Differentiate the star life cycle model in comparison with the Waterfall model?
6. List the conceptual frameworks that address design concerns of social mechanism-oriented interactive products with suitable applications.
7. City-U is considering a self-service café where students can pay for food using credit cards like City-U or Octopus cards. Suggest one requirement for each of the following categories: functional, data, environmental, user, and usability.
8. Explain the categories of users in the ecommerce application.
9. Discuss the importance of the requirement analysis phase in software app development.
10. Explain how interaction design, as a user-centered approach, leverages the three core activities of understanding users, designing interactions, and evaluating interactions to create effective and satisfying user experiences.

models. Example: SP
someone

PART B

Answer any three of the following questions

(3*10=30)

11. Explain the classification of computer-mediated communication with suitable examples.
12. Demonstrate the lifecycle models of software engineering in detail, incorporating relevant diagrams to illustrate each model
13. Describe the iterative process of gathering user expectations and translating them into well-defined objectives for the proposed software application.
14. Illustrate the hierarchical task analysis plot for retrieving student grades in mark entry applications.



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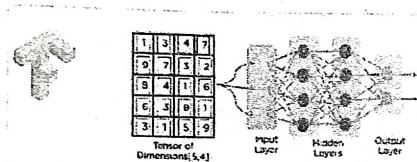
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School of Computing
CIA II Test – September 2024
Course Code: CSE425

Course Name: Machine Learning Essentials
Duration: 90 minutes Max Marks: 50

PART-I 2*5 = 10 (Answer any 2)

1. Explain the K-Nearest Neighbor Algorithm.
2. Explain the regularization concept in Regression.
3. Tensorflow is a popular framework for deep learning and ML applications.



A tensor is a mathematical object represented as arrays of higher dimensions. These arrays of data with different dimensions and ranks fed as input to the neural network are called "Tensors." Explain your experiences building an artificial neural network using tensor flow and how was the performance compared to using scikit-learn or any other ML library?

PART-II 4*10= 40 (Answer any 4)

4. Explain different hidden markov model Inference methods using dishonest casino example
5. Explain Forward Backward Hidden Markov Model algorithm
6. Explain Sequence Classification using Viterbi Algorithm
7. Explain parts of Speech Tagging using a hidden markov model or conditional random field.
8. Explain Naive Bayes theorem, pros and cons using the Spam Filtering. and the need to switch to Bayesian Network

How does classification differ from using Naive Bayes and Bayesian Network.

BONUS (5 points)

9. Match the following

Classifier	Description
A. Bayesian Network, Naive Bayes Classification	(i) Classifies based on the majority class among the k-nearest neighbors.
B. Decision Tree Classification	(ii) Find the hyperplane that best separates classes.
C. Random Forest Classification	(iii) Combines multiple decision trees to improve accuracy.
D. K-Nearest Neighbour Classification	(iv) Splits data into branches based on feature values.
E. Support Vector Machine	(v) Features are independent given the class.

Give examples of applications that can benefit from using these 5 different classification models. Example: Spam Filtering for Bayes. Why should someone select a particular model for a given application?

Eval
Decod
Learning
F
Viterbi
Raum
Welch