

SASTRA DEEMED UNIVERSITY
(A University under section 3 of the UGC Act, 1956)

End Semester Examinations

Nov 2025

Course Code: MGT212

Course: INTRODUCTION TO FINANCIAL MANAGEMENT

QP No. :S1509-7

Duration: 3 hours

Max. Marks:100

PART – A

Answer all the questions

$10 \times 2 = 20$ Marks

1. Define the term financial management.
2. A fixed deposit receipt has a maturity value of Rs. 1,30,000. What is the amount at which a fixed deposit receipt has been initially purchased if the simple interest rate is 10% per year and the maturity period is 3 years?
3. Alex Industries Ltd offers 14% interest on fixed deposits. What is the effective rate of interest if compounding is done monthly?
4. What is combine leverage? How is it measured?
5. Mr. Kishore made investment in 12% bonds. Face value of Rs. 100 and the maturity period is 5 years. The opportunity cost rate is 12%. Bond will be realised after 5 years at a premium of Rs. 20 per bond. Compute the intrinsic value of a bond. Would you prefer to purchases tis bond at Rs.115?
6. The following information compute value of equity using CAPM.
Face value of the equity share = Rs. 20
Dividend paid = Rs. 5 per share
Interest in Govt. Securities = 8%
Beta = 1.3

$$\begin{array}{l} \text{Market Index} \\ \text{Growth rate of the company} \end{array} \quad \begin{array}{l} = 15\% \\ = 5\% \end{array}$$

7. What do you mean by weighted average cost of capital?
8. B Ltd. issues Rs. 1,00,000, 8% debentures at a premium of 10%. The tax rate applicable to the company is 50%. Compute the cost of debt capital.
9. A project costs Rs. 2,50,000 and yields an annual cash inflow of Rs. 50,000 for 7 years. Calculate Pay Back Period.
10. What are the two different concept of working capital?

PART - B

Answer all the questions

4 x 15 = 60 Marks

11. 'Wealth maximization as a decision criterion is regarded as a superior objective than profit maximization objective' – Justify.

(OR)

12. Mr. Kannan invested Rs. 3,00,000 at 12% p.a. for 6 years. What will be the value of investment if interest is compounded a) annually, b) semi-annually, c) quarterly, and d) monthly? Which is more beneficial to Mr. Kannan?
13. Mr. A is evaluating alternative investment opportunities to make investment bonds. The details are as follow:

Particulars	Bond Price Rs.	Coupon Rate (%)	Life of Bond (Years)	Redemption value	Frequency of Interest	Rate of Return (%)
Option-I	1,000	8	5	At par	Annually	10
Option-2	1,000	10	5	At par	Annually	8
Option-3	1,000	8	5	At par	Bi-annual	10
Option-4	1,000	10	5	At par	Bi-annual	8
Option-5	1,000	8	8	At par	Annual	10
Option-6	1000	8	5	At 10% Premium	Annual	10

Observe and Comment.

(OR)

14. What do you mean by valuation of bond and security? Briefly explain the process of valuation.
15. From the following capital structure of a company, calculate the overall cost of capital using a) book value weights and b) market value weights.

Source	Book Value (Rs.)	Market Value (Rs.)
Equity Share Capital @ Rs. 10 each	45,000	90,000
Retained Earnings	15,000	Nil
Preference Capital	10,000	10,000
Debentures	30,000	30,000
Total	1,00,000	1,30,000

The after-tax cost of different source of finance is as follows:

Equity Share Capital: 14%, Retained Earnings: 13%, Preference Share Capital; 10% and Debentures: 5%.

(OR)

16. Discuss the various methods of capital budgeting decisions.
17. Explain in detail the factors affecting working capital requirements.

(OR)

18. From the following information from the books of Ajay manufacturers, compute the operating cycle in number of days and the working capital requirement.

Period covered	365 days
Average period of credit allowed by suppliers	16 days
	Rs.in '000s
Average total of debtors outstanding	480
Raw material consumption	4,400
Total production cost	10,000
Total cost of sales	10,500

Sales for the year	16,000
Value of average stock maintained:	
Raw material	320
Work in progress	350
Finished goods	260

PART - C

Answer the following

1 x 20 = 20 Marks

19. From the following information, calculate the net present value of the two project and suggest which of the two projects should be accepted at the discount rate of 10%.

Particulars	Project X	Project Y
Initial Investment [Rs.]	20,000	30,000
Estimated Life	5 Years	5 Years
Scrap Value [Rs.]	1,000	2,000
Profits before dep. and after taxation (cash inflows)	Rs.	Rs.
1.	5,000	20,000
2.	10,000	10,000
3.	10,000	5,000
4.	3,000	3,000
5.	2,000	2,000

Note: The following are the present value factors @ 10% p.a.

Year	Present value factors @ 10% p.a.
1.	0.909
2.	0.826
3.	0.751
4.	0.683
5.	0.621
6.	0.564

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End Semester Examinations

Nov 2025

Course Code: MGT211

**Course: FUNDAMENTALS OF HUMAN RESOURCE
MANAGEMENT**

QP No. :S1401-7

Duration: 3 hours

Max. Marks:100

PART - A

Answer any Four questions

4 x 20 = 80 Marks

1. Examine the changing role of HR managers in the modern business environment. How do HR policies, and practices shape organizational effectiveness?
2. Describe the process of human resource planning. Critically evaluate the challenges of talent management in the service sector with examples.
3. Discuss the process of TNA. Suggest suitable training methods for IT employees and justify your choice.
4. Compare and contrast different performance appraisal methods. Which method would you recommend for a start-up company and why?
5. Explain the factors influencing wage and salary administration. How can organizations balance internal equity and external competitiveness in compensation management?

6. Analyze the HR issues in the service sector with reference to attrition and retention. Suggest innovative HR practices to improve employee engagement and quality of work life.

PART - B

Answer the following

1 x 20 = 20 Marks

7. Case Study:

Recruitment and Training at FreshMart Retail

FreshMart, a rapidly growing supermarket chain, needed to hire 1,000 employees to support new store openings. HR launched a large-scale recruitment campaign through job fairs, online portals, and employee referrals. Although many candidates applied, the company struggled with high dropout rates during joining and early turnover in the first six months.

Exit interviews revealed that employees found the work stressful, hours long, and career prospects unclear. To address this, HR introduced pre-recruitment job previews, redesigned induction training, and launched career planning workshops to show clear growth paths. They also started skill development programs, such as customer handling and store management training.

Questions:

- a) Present the problems behind the case.
- b) Identify the main HR planning and recruitment challenges faced by FreshMart.
- c) How can realistic job previews reduce turnover?
- d) What role do training and career planning play in retaining employees in the retail sector?

SASTRA DEEMED UNIVERSITY
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End Semester Examinations

Nov 2025

Course Code: INT317

Course: DATA MINING AND ANALYTICS

QP No. :S1144-7

Duration: 3 hours

Max. Marks:100

PART – A

Answer any Four questions

4 x 20 = 80 Marks

1. a) A hospital has collected patient health records with over 200 attributes and 2 million entries. The data includes many redundant attributes (e.g., age in years and date of birth) and very detailed logs (e.g., second-by-second heart rate readings). As a data scientist, which data reduction techniques would you apply during preprocessing to make the dataset more manageable without losing critical medical information? (10)
b) Consider the following data (in increasing order) for the attribute age: 13, 15, 16, 16, 19, 20, 20, 21, 22, 22, 25, 25, 25, 25, 30, 33, 33, 35, 35, 35, 35, 36, 40, 45, 46, 52, 70. Using the data for age, answer the following:
 - i) Use min-max normalization to transform the value 35 for age onto the range [0.0,1.0]. (3)
 - ii) Use z-Score normalization to transform the value 35 for age, where the standard deviation of age is 12.94 years. (2)
 - iii) Use normalization by decimal scaling to transform the value 35 for age. (2)
 - iv) Apply binning by means method to smooth these data, using a bin depth of 3. (3)
2. A database has 9 transactions. Let min sup = 2 and min conf=70%.

TID	Items
1	{I1, I2, I5}
2	{I2, I4}
3	{I2, I3}
4	{I1, I2, I4}
5	{I1, I3}
6	{I2, I3}
7	{I1, I3}
8	{I1, I2, I3, I5}
9	{I1, I2, I3}

- a) Find all frequent item sets using Apriori algorithm. (15)
 b) List all the strong association rules. (5)
3. a) Create the dissimilarity matrix between the items using a simple distance measure based on the various forms of data. The ordinal traits are ranked as follows: Perfect - 1, Good - 2, and Poor - 3. (10)
- | Object1 | Attribute 1
(nominal) | Attribute 2
(ordinal) | Attribute3
(Numerical) |
|---------|--------------------------|--------------------------|---------------------------|
| 1 | A1 | Perfect | 23 |
| 2 | A2 | Good | 45 |
| 3 | A1 | Poor | 78 |
| 4 | A3 | Perfect | 31 |
- b) Describe multiple logistic regression and how the forward and backward methods are used for variable selection in multiple logistic regression. Specify the statistical criteria used in the selection procedure. (10)
4. a) 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. (10)

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

- b) A university wants to predict whether a student will Pass or Fail an exam based on their Hours of Study and Number of Absences. The following dataset is available: (10)

Student	Hours of Study	Absences	Result
S1	2	7	Fail
S2	3	6	Fail
S3	4	4	Fail
S4	5	2	Pass
S5	6	2	Pass
S6	7	1	Pass
S7	8	0	Pass
S8	9	1	Pass
S9	4	5	Fail
S10	6	3	Pass

Now, a new student S11 studies for 5 hours and has 3 absences. Using K = 3 (3-Nearest Neighbors) and Euclidean distance, classify whether S11 will Pass or Fail.

5. a) 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.

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

- i) Calculate the least square regression line y on x. (3)
ii) Predict the number of pens when he sells for 45. (3)
iii) Calculate the coefficient of determination R². (4)
- b) Compare linear and logistic regression. Derive the equation for sigmoid function in logistic regression. (10)

6. a) The annual salaries (in thousands of dollars) of 8 men in middle management at a given company are: 55.5, 64.8, 68.2, 70.2, 52.4, 56.8, 60.6, 72.5 while those for 6 women are: 56.2, 48.8, 58.4, 50.9, 60.2, 54.5. Let X and Y denote the salaries of the men and women respectively. Assuming normal distribution and equal standard deviation, test the null hypothesis $\mu_x = \mu_y$ against the alternative hypothesis $\mu_x > \mu_y$ at 5 percent level of significance and the critical value at 5% significance is 1.78. (10)

- b) Explain the following:

- i) Semiparametric regression model. (5)
ii) Non-Parametric regression methods. (5)

PART - B

Answer the following

1 x 20 = 20 Marks

7. a) Find the Root node of the decision tree for the following Dataset. (15)

ID	Age	Income	Credit History	Loan Approval
1	Young	Low	Bad	No
2	Young	Medium	Bad	No
3	Young	Medium	Good	Yes
4	Young	High	Good	Yes
5	Middle-aged	Low	Bad	No
6	Middle-aged	Medium	Good	Yes
7	Middle-aged	High	Bad	Yes
8	Middle-aged	High	Good	Yes
9	Senior	Low	Good	No
10	Senior	Medium	Bad	No
11	Senior	Medium	Good	Yes
12	Senior	High	Good	Yes

- b) Describe the Yule-Walker equations and explain how they are used for parameter estimation in autoregressive (AR) models of time series analysis. (5)

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End Semester Examinations

Nov 2025

Course Code: INT318

Course: IT WORKSHOP SCILAB / MATLAB

QP No. :S1267-7

Duration: 3 hours

Max. Marks:100

PART - A

Answer all the questions

$10 \times 2 = 20$ Marks

1. State the difference between who and whos command.
2. What is the function of diary command in command window?
3. Illustrate how the format command affects the display style of floating-point numbers.
4. Write a matlab script to check if a given input is a valid phone number (10 digits).
5. Design an app that uses push buttons to display entered number is positive or negative.
6. Write a user defined functions to generate a vector of even integers between 2 and 20.
7. Create a matlab script to access a text file and show the stored information.
8. List the line styles, marker symbols, and color specifications used in MATLAB plots.

9. How a breakpoint helps during debugging process?
10. Mention any two functions automatically generated when creating a new GUI.

PART - B

Answer any FOUR questions

4 x 15 = 60 Marks

11. Design an app to extract the statistical features and image information from the 2D gray scale image in the size of 224 x 224.
12. Write a program for the following.
 - a) Extract the elements that appear only once in a given vector and check if a given vector is sorted in ascending order. (8)
 - b) Outline the vector statistical functions. (7)
13. a) Write a MATLAB function that takes the measured diameter (in mm) and mass (in g) of a coin and returns its value in dollars. The nominal measurements of the coins are: Cent (19.05 mm, 2.50 g), Nickel (21.21 mm, 5.00 g), Dime (17.91 mm, 2.50 g), Quarter (24.26 mm, 6.25 g), Half-dollar (30.61 mm, 11.34 g), and Dollar (26.50 mm, 8.10 g). (8)
b) Evaluate the sum of series using nested function:
$$sum = \frac{1}{1} + \frac{2}{3} + \frac{3}{5} + \frac{4}{7} + \frac{5}{11} \dots + n \quad (7)$$
14. a) Develop a recursive MATLAB function to generate the nth Fibonacci number. (7)
b) Design a MATLAB program to extract the diagonal elements of a square matrix and compute sum of their factorial using recursive functions. (8)
15. Design a MATLAB app to classify fruit images into four categories. The app should include options for image browsing, resizing, feature extraction, and classification using a trained model.

16. Create a suitable MATLAB plots for the following.

- a) Frequency of words in a paragraph
- b) Distribution of exam scores
- c) Relationship between study hours and marks
- d) Marks obtained by students in five subjects using a horizontal display
- e) Market share of five smart phone companies in percentage form.

PART - C

Answer the following

1 x 20 = 20 Marks

17. a) Create a MATLAB function to search for a given element in a list using the linear search technique and return its index.

(5)

b) Explain the steps involved in debugging a script using the MATLAB Editor.

(5)

c) Write a MATLAB script to display different types of matrix generation using switch case.

(10)

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End Semester Examinations

Nov 2025

Course Code: CSE332

Course: USABILITY DESIGN OF SOFTWARE APPLICATIONS

QP No. :S1032-7

Duration: 3 hours

Max. Marks:100

PART – A

Answer all the questions

$4 \times 5 = 20$ Marks

1. Describe what makes a good and a bad interaction design for the speech recognition technology used for gas cylinder reservations.
2. Describe the key elements of communication and collaboration that are taken into consideration when designing a public survey application.
3. How to apply a lifecycle that reflects the qualities of effective interface design for marketing a pharma product.
4. A public health organization has released a pilot-tested mobile App in rural areas with limited digital literacy. It helps users track their daily water intake and receive hydration reminders. Outline the evaluation paradigms and techniques.

PART – B

$4 \times 15 = 60$ Marks

Answer all the questions

5. A university is developing an online learning platform to support remote education. The design team follows the interaction design

process, starting with user login access, reading materials, listening to lecture videos and submitting assignments. Discuss how the interaction design process supports both students and faculty in the achievement of design goals and usability principles.

(OR)

6. A game studio is developing a real-time multiplayer strategy game for tablets. Early testing revealed confusion over controls and difficulties navigating the interface during fast gameplay. Define the problem space, interaction design principles, interface metaphors, and interaction paradigms that can enhance user understanding and improve the gameplay experience.
7. An online education platform is creating a mobile application for student course registration, enabling students to enroll in courses, communicate with instructors, and handle their enrollments. The design team's framework for the concept outlines that users can browse, filter, and acquire any course while learning. They guarantee that users can explore categories, utilize filters, and finalize purchases promptly. Describe a communication and collaboration framework with key user activities and goals.

(OR)

8. A smart retail shop helps customers find products and complete the checkout process by using smartphone Apps and digital kiosks. However, many users, especially older individuals, report experiencing difficulty navigating the environment and understanding how digital elements relate to real-world objects. How users create cognitive maps and mental models in hybrid digital and physical contexts. Provide suggestions on how users' spatial awareness and cognitive processes might be integrated with digital interfaces.
9. For rural consumers with low financial literacy, a Fintech startup is creating a mobile application for microloan lending and repayment. The team conducts interviews with local borrowers and

undertakes field visits to assess customer needs. Simple loan application procedures, unambiguous repayment plans, prompt reminders, and multilingual assistance are all requested by users. How determining requirements and needs helps the app succeed.

(OR)

10. Explain the kind of life cycle model that can be used to guarantee the activities of interaction design in the construction of a web application for module-specific models, such as employee profile management and payroll processing modules for both accounts and HR departments.
11. You are leading a diverse team of data analysts, financial advisers, and UX designers to develop a mobile financial app. As the lead product strategist, you need to decide whether to prioritize a gamified savings feature or a real-time fraud alarm. Set up a structured meeting to gather feedback on the technical feasibility, market demand, and user impact of each option. Focus the discussion on user needs and teamwork to weigh the benefits of both features and reach an agreement that aligns with your strategic goals.

(OR)

12. Design a prototype for a public health analyst to examine survey results from a rural area regarding vaccine hesitancy. vaccine hesitancy in a rural population by targeting three key dimensions—misinformation, logistical challenges, and cultural beliefs. The health department aims to create targeted interventions. Formulate a strategic survey plan focused on four key phases: Conceptual design, survey construction, physical design and tool support.

PART - C

Answer the following

1 x 20 = 20 Marks

13. ABC Motors, a leading automobile manufacturer, wants to develop an ERP system to optimize its car manufacturing process. The system should track vehicles from design to final delivery, ensuring smooth transitions through different production stages.
- a) Critically analyze the good design of usability goals.
 - b) Draw a conceptual framework for software development.
 - c) Propose a hybrid life cycle model for efficient team performance.
 - d) Frame DECIDE evaluation strategies.
