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St Aloysius (Deemed to be University)**Mangaluru****School of Information Science and Technology****(PG Programme)****Semester II – P.G. Examination – M.Sc. Software Technology****April/May - 2026****PROGRAMMING WITH PYTHON****Time: 2 ½ hrs.****Max Marks: 60****SECTION – A****Answer any FIVE of the following.****(2x5=10)**

1. What is tokenization in Python? Why is it important?
2. What is the purpose of the zip() function?
3. What is an anonymous (lambda) function? Write the syntax of a lambda function.
4. List the different types of inheritance in Python.
5. What is a parameterized constructor?
6. What is a Method overriding?
7. What is meant by array indexing?

SECTION - B**Answer any SIX of the following.****(5x6=30)**

8. Write a program showing multidimensional slicing.
9. Explain linear algebra functions in NumPy.
10. Write a program to generate Fibonacci numbers within a range.
11. Discuss different types of operators in Python with examples.
12. Explain keyword and positional arguments with examples.
13. Explain filter() function with suitable examples.
14. Write a program to print MRO using __mro__.
15. Explain basic matplotlib plots with examples.

SECTION – C**Answer any TWO of the following.****(10x2=20)**

16. Write a program to read and write Excel files with multiple sheets.
17. Explain array shape manipulation. Write programs to demonstrate reshape(), flatten(), transpose() and resizing.
18. Given two lists (names and marks): Combine them using zip(). Use lambda and map() to add 5 grace marks to each student

***********Mapping of Questions with Bloom's Level and Course Outcomes (COs)**

Section		A						B								C		
Q. No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
Blooms Level	1	1	1	2	2	1	2	3	2	3	2	2	2	3	2	3	3	3
Mapped CO(s)	1	1	2	4	4	4	5	2	5	1	1	1	1	4	5	5	5	3

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St Aloysius (Deemed to be University)**Mangaluru****School of Information Science and Technology****(PG Programme)****Semester II – P.G. Examination – M.Sc. Software Technology****April/May - 2026****MOBILE APPLICATION DEVELOPMENT WITH ANDROID****Time: 2 ½ hrs.****Max Marks: 60****SECTION – A****Answer any FIVE of the following.****(2x5=10)**

1. What is the Android Software Stack?
2. Define Android Development Tools (ADT).
3. What is a Content Provider?
4. What is an Intent?
5. What is a Service in Android?
6. Which method is called when a Service is first created? Explain it?
7. What is a Dialog in Android?

SECTION - B**Answer any SIX of the following.****(5x6=30)**

8. What is an Android Database? Explain its importance in application development.
9. Explain the history and evolution of Android as a mobile operating system.
10. Describe the Android SDK Manager and its functions.
11. Explain the concept and role of Adapters in Android.
12. What is a Broadcast Receiver? Explain its purpose with an example.
13. Explain the role of the onReceive() method in Broadcast Receiver.
14. Discuss the use of Compass sensor and its practical applications.
15. Describe Cursor and explain how it is used to retrieve database records.

SECTION – C**Answer any TWO of the following.****(10x2=20)**

16. Explain Shared Preferences in detail. Describe how to create, save, update, and retrieve data using Shared Preferences with suitable examples.
17. Discuss Sensors in Android. Explain the role of SensorManager and describe how to register and unregister sensor listeners.
18. Discuss Telephony and SMS services in Android. Explain the role of TelephonyManager, SmsManager, required permissions, and how to send and receive SMS programmatically.

***********Mapping of Questions with Bloom's Level and Course Outcomes (COs)**

Section		A						B								C		
Q. No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
Blooms Level	1	1	1	1	1	1	1	1	1	1	1	1	1	2	1	1	2	2
Mapped CO(s)	1	1	3	2	3	3	2	4	1	1	2	3	3	5	4	4	5	5

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ENTERPRISE LEVEL DATA WAREHOUSING AND DATA MINING

Time: 2 ½ hrs.

Max Marks: 60

SECTION – A

Answer any FIVE of the following. **(2x5=10)**

1. Define a Dimensional Model and Data Mart.
2. Describe the structure of a Star Schema.
3. Why are surrogate keys assigned during dimension staging?
4. Why is data quality important in a data warehouse?
5. What is a data mining prototype system?
6. Name any two methods to handle missing data.
7. What is hierarchical clustering?

SECTION - B

Answer any SIX of the following. **(5x6=30)**

8. Explain the basic concepts of Association Rule Mining.
9. Explain the structure of a Dimensional Model with suitable example.
10. Explain the stages involved in the Data Cleaning Process.
11. Explain the functions of Back Room Data Stores in a data warehouse system.
12. Explain the role of staging in the ETL process.
13. Explain the different methods used to handle Missing Values.
14. Explain the different measures of dispersion.
15. Explain the Apriori Algorithm step-by-step with a suitable transaction dataset and show how frequent itemsets are generated.

SECTION – C

Answer any TWO of the following. **(10x2=20)**

16. Describe Decision Tree classification with an example. Explain measures used for splitting attributes.
17. Describe different Spatial Clustering and Classification Methods with suitable diagrams.
18. Explain the complete ETL process (Extract, Transform, Load) carried out in the Data Staging Area with a neat diagram.

Mapping of Questions with Bloom's Level and Course Outcomes (COs)

Section	A							B								C		
Q. No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
Blooms Level	1	2	1	2	1	1	1	2	3	3	2	2	2	2	4	3	3	3
Mapped CO(s)	1	1	2	2	3	3	3	4	1	2	2	2	3	3	4	4	5	2

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FOUNDATIONS OF MACHINE LEARNING

Time: 2 ½ hrs.

Max Marks: 60

SECTION – A

Answer any FIVE of the following. (2x5=10)

- 1. What is model selection?
- 2. Define Bayesian Decision Theory.
- 3. Define clustering in machine learning.
- 4. What is Analysis of Variance (ANOVA)?
- 5. What is the role of an activation function in neural networks?
- 6. List any two applications of Machine Learning.
- 7. Define nonparametric density estimation.

SECTION - B

Answer any SIX of the following. (5x6=30)

- 8. Differentiate between classification and regression.
- 9. Explain rule extraction from decision trees.
- 10. Explain entropy and information gain.
- 11. Explain the concept of reinforcement learning with an example.
- 12. Describe the working principle of Recurrent Neural Networks.
- 13. Discuss Linear Discriminant Analysis (LDA) and its applications.
- 14. Describe the role of gradient descent in training linear models.
- 15. Explain the concept of cross-validation in machine learning.

SECTION – C

Answer any TWO of the following. (10x2=20)

- 16. Discuss generalization techniques in reinforcement learning and their significance.
- 17. Explain the historical development of deep learning and its importance in modern AI.
- 18. Discuss association rule mining and explain support, confidence, and lift with examples.

Mapping of Questions with Bloom’s Level and Course Outcomes (COs)

Section		A						B								C		
Q. No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
Blooms Level	1	1	1	1	1	1	1	1	2	2	2	2	2	2	2	2	2	2
Mapped CO(s)	1	1	2	1	4	1	2	1	2	2	3	5	1	5	3	3	4	2

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Semester II – P. G. Examination

April - 2026

OPEN ELECTIVE

STATISTICAL DATA ANALYSIS USING R

Time: 1 ½ Hours

Max. Marks: 30

Answer any FIVE of the following.

(5x6=30)

1. Define summary() command in R with proper example.
2. Explain different types of plots in statistical analysis with suitable example.
3. How are contingency tables created and analyzed? Illustrate with suitable example.
4. Explain stem and leaf plot with example.
5. How do you carry out some basic hypothesis tests? Explain.
6. Define Packages. How do you Load and Install packages in R? Explain briefly.
7. Explain Data Distribution in R. Describe different types of data distribution.

Mapping of Questions with Bloom’s Level and Course Outcomes (COs)

Q. No.	1	2	3	4	5	6	7
Blooms Level	2	3	4	2	3	3	3
Mapped CO(s)	3	4	4	4	5	2	3