S–3918

Sub. Code
23MIT1C1

M.Sc. DEGREE EXAMINATION, NOVEMBER 2024

First Semester

Information Technology

PYTHON PROGRAMMING

(CBCS – 2023 onwards)

Time : 3 Hours Maximum : 75 Marks

Section A (10 × 2 = 20)

Answer **all** the questions.

1. Define Identifiers.
2. What is Tuples?
3. Write the Syntax for creating functions.
4. Quote Length arguments.
5. Enumerate Namespace.
6. Spell out Encapsulation.
7. How to create radio button?
8. Specify Scroll bar
9. Apply Read operations.
10. Write down the syntax for Insert.

Section B (5 × 5 = 25)

Answer **all** the questions choosing either (a) or (b).

11. (a) Describe lists.

Or

(b) Classify loops.

12. (a) Analyze Calling functions.

Or

(b) What is recursion? Give example.

13. (a) Categorize Built in functions.

Or

(b) Explain inheritance with example.

14. (a) How do you create List box? Explain.

Or

(b) Discuss core widgets.

15. (a) How to create a database in MongoDB?

Or

(b) Write down the syntax for delete and update.

Section C (3 × 10 = 30)

Answer any **three** questions.

16. Explain Operators.

17. Analyze creating functions.

18. Summarize Polymorphism.

19. Write a python program for factorial using widgets.

20. Create a student table and insert a value of 5 records.

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S–3919

Sub. Code
23MIT1E1

M.Sc. DEGREE EXAMINATION, NOVEMBER 2024

First Semester

Information Technology

Elective – DATA STRUCTURES

(CBCS – 2023 onwards)

Time : 3 Hours Maximum : 75 Marks

Section A (10 × 2 = 20)

Answer **all** the questions.

1. Define Data structure. Give example.
2. Define stack.
3. Define the terms Queue and Dequeue.
4. How do you represent a Polynomial?
5. Define complete binary tree.
6. What are binary tree?
7. What is quick sort?
8. Define linear search.
9. What is graph? What are the different types?
10. Define forest.

Section B (5 × 5 = 25)

Answer **all** the questions choosing either (a) or (b).

11. (a) Write short notes on primary data types

Or

(b) Write short notes on Arrays.

12. (a) Write about the singly Linked list in brief.

Or

(b) Explain the operations of Queue?

13. (a) What are the applications of Binary Tree?

Or

(b) Write a detail note on Tree traversal algorithm,

14. (a) Explain Heapsort with example.

Or

(b) Discuss the merge sort algorithm with an example.

15. (a) Explain Kruskal's algorithm with neat example.

Or

(b) Give short notes on eight Queens problem.

Section C

(3 × 10 = 30)

Answer any **three** questions.

16. Explain the operations of stack in detail.

17. Explain in detail Linked list and its types.

18. Explain about different traversal of binary tree with example.

19. Give the detail notes on Insertion sort with example.

20. Explain about Dijikstra's algorithm with example.

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S–3924

Sub. Code
23MIT1E6

M.Sc. DEGREE EXAMINATION, NOVEMBER 2024

First Semester

Information Technology

Elective: HUMAN COMPUTER INTERACTION

(CBCS – 2023 onwards)

Time : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** the questions

1. Define HCI.
2. What is short term memory?
3. Spell out User focus.
4. Point out Design rules.
5. Define Tool kit.
6. List the use of evaluation method.
7. Classify the approaches to user support.
8. Define diversity.
9. What is cognitive model?
10. Write the challenge of display based system.

Part B (5 × 5 = 25)

Answer **all** questions, choosing either (a) or (b).

11. (a) Explain context of the interaction.

Or

(b) Discuss the capabilities limitations of the visual processing.

12. (a) Analyze the screen design and layout.

Or

(b) Describe guidelines.

13. (a) Summarize user interface management systems.

Or

(b) Differentiate qualitative vs quantitative.

14. (a) Express knowledge representing user modeling.

Or

(b) Evaluate requirements of user support.

15. (a) Sketch the cognitive architecture.

Or

(b) Explain BNF.

Part C

(3 × 10 = 30)

Answer any **three** questions.

16. Discuss Elements of WIMP interface.

17. Write down Golden rules and heuristics.

18. Summarize the factors distinguishing evaluation techniques.

19. List the various techniques for knowledge representation. Explain.

20. Describe GOMS.

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S–3933

Sub. Code
23MIT3C1

M.Sc. DEGREE EXAMINATION, NOVEMBER 2024

Third Semester

Information Technology

ADVANCED JAVA

(CBCS – 2023 onwards)

Time : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** questions

1. Java is platform independent. Justify.
2. Define JVM.
3. What is a string?
4. What is calendar class in Java?
5. What is the difference between is Alive () and join () method?
6. What does combining two or more servlets do?
7. What is persistence?
8. Define Appletlnitializer.
9. What are sessions in Java?
10. Define cookies.

Part B (5 × 5 = 25)

Answer **all** questions choosing either (a) or (b).

11. (a) Discuss in brief about the components of java classes.

Or

(b) Write a Java program to compute the sum of diagonals of a matrix.

12. (a) Explain the hierarchy of collection framework.

Or

(b) Explain JDBC metadata classes.

13. (a) Briefly explain the join () method with suitable example.

Or

(b) Write a program to demonstrate multithreading in Java.

14. (a) Write an Applet code to display an image.

Or

(b) Discuss the various features of AWT package.

15. (a) Write a server side code to implement ServerSocket class in java.

Or

(b) Draw a state diagram and explain the life cycle of servlet.

Part C

$(3 \times 10 = 30)$

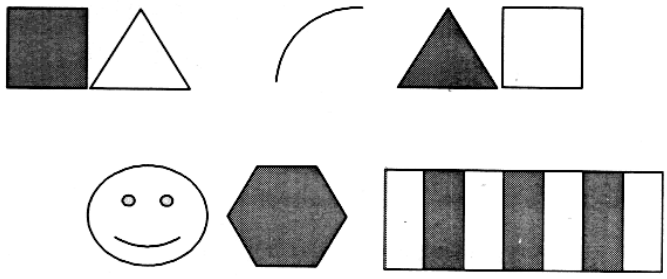
Answer any **three** questions.

16. With a suitable example code explain the inheritance in java.

17. Write a Java program to display time in different country format.

18. Discuss various types of exceptions in java with suitable example.

19. Write a program to display the following output :



20. What are the classes defined in java.beans package? Explain.

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Sub. Code
23MIT3C2

M.Sc. DEGREE EXAMINATION, NOVEMBER 2024

Third Semester

Information Technology

R PROGRAMMING

(CBCS – 2023 onwards)

Time : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** questions

1. Specify the system requirements for installing R?

2. How do you start a new R script in R Studio?

3. State the role of else-if nested-if statements.

4. Delineate the importance of a base case in a recursive function.

5. Differentiate the c() and seq() functions and when creating vectors?

6. Write how can you create a Three-dimensional array? Specify a simple example.

7. Which function is used to create a matrix? Provide an example.

8. What function is used to load a package into the R session? Write down an example

9. How do you read a CSV file into R? Give an example of the function used.

10. Which R function is used to create a basic scatter plot with an example?

Part B $(5 \times 5 = 25)$

Answer **all** questions choosing either (a) or (b).

11. (a) Enlighten the Essentials and Features of R Language.

Or

(b) Elucidate the difference between numeric, integer, character, and logical data types with examples.

12. (a) Discuss the purpose of the while and For loop? Provide an example of its usage.

Or

(b) Describe the main components of a function. Provide an example of a function that includes all these components.

13. (a) Describe various methods to manipulate and transform vectors. Include examples of operations such as indexing and applying functions.

Or

(b) Explain the process of converting a list to a vector. What are the primary functions used for this conversion, and what are the key considerations? Provide examples.

14. (a) Discuss the various ways to create matrices. Provide detailed examples for each method.

Or

(b) Differentiate library () and require () functions. Provide an example of each and describe a scenario where you might prefer one over the other.

15. (a) Illuminate the process of reading and writing CSV files. Write the example code for reading a CSV file into a data frame and then writing it back to a CSV file.

Or

(b) Explain the process of creating a pie chart in R using base R functions. Include details on how to label segments, adjust colors and add a legend.

Part C ($3 \times 10 = 30$)

Answer any **three** questions.

16. Illustrate the different types of operators available with examples.

17. Explain how to define and call a function with an example. Include a discussion on passing arguments and returning values.

18. Elaborate how to perform element-wise operations across arrays of the same dimensions. Provide an example program that demonstrates element-wish addition and multiplication of two arrays.

19. Elucidate how to create data frames. Illustrate the process with a detailed example that includes:

    (a) Create a data frame from vectors.

    (b) Creating a data frame from a list.

    (c) Adding new columns and rows to an existing data frame.

    (d) Setting row names and column names.

    (e) Displaying the structure and summary of data frame.

20. Discuss the different types of plots available for data visualization. Provide examples of how to create a scatter plot, a bar chart, and a line graph using base R plotting functions.

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S–3938

Sub. Code
23MIT3S1

M.Sc. DEGREE EXAMINATION, NOVEMBER 2024

Third Semester

Information Technology

PROFESSIONAL COMMUNICATION SKILL

(CBCS – 2023 onwards)

Time : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** the questions

1. What is meant by communication?
2. Write any two importance of communication.
3. Define listening.
4. Why does body language important in communication?
5. Define purpose of reading skills.
6. What is accent?
7. How do you prepare a good presentation?
8. What are the important elements included in presentation?
9. State any four types of interview.
10. Define interview.

Part B $(5 \times 5 = 25)$

Answer **all** questions choosing either (a) or (b).

11. (a) Write a short note on "purpose of communication".

Or

(b) Write a paragraph on 'Barriers to communication'.

12. (a) What are the significance of body language in communication.

Or

(b) Write a paragraph on listening and self-awareness.

13. (a) Describe 'Methodologies of reading skills'.

Or

(b) Write a paragraph on Articulation of English speech sounds.

14. (a) What are the guidelines for delivering the presentation.

Or

(b) Write a paragraph on 'speech occasion speeches'.

15. (a) What we do before interview?

Or

(b) Write a note on dress code during the interview.

Part C

(3 × 10 = 30)

Answer any **three** questions.

16. What is a role of communication? Explain.

17. Write an essay on listening and it's types.

18. Explain: Reading and how to develop reading skill.

19. What are the methodologies we use before, during and after presentation?

20. Explain: importance of group discussion in interview.

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