(2024 Batch Onwards)

IT3AUDC200 Reg. No.: | | | | | | | | |

St Aloysius (Deemed to be University)

Mangaluru

School of Information Science and Technology

(UG Programme)

B.C.A. - Semester III – Degree Examination

October/November - 2025

OBJECT ORIENTED CONCEPTS USING JAVA

Time: 2 ½ Hours **Max Marks: 60**

SECTION – A

Answer any FIVE of the following. **(5x2=10)**

1. What is method overloading?
2. Differentiate between byte stream and character stream.
3. What is object-oriented programing?
4. List any two key features of Java programming language.
5. Define superclass and subclass.
6. How do you declare a class in Java, and what is the naming convention for classes?
7. Write the syntax of Exception Handling.
8. What is a thread in Java, and how does it differ from a traditional process?

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SECTION - B

Answer any TEN of the following. **(10x5=50)**

9. Explain the purpose of while and do while loop in Java and its syntax and give program example.
10. What is method overriding? Explain with suitable example.
11. Explain two dimensional Array with example.
12. Explain Parameterized constructor with example.
13. What are objects in java? Explain how objects are created in java with syntax and example.
14. Explain string comparison methods with syntax and example.
15. Explain how to create user-defined exceptions in java with an example.
16. Explain single inheritance with suitable example.
17. Explain how to create and use a package in Java with suitable example.
18. What are Generics in Java? What is the use of generics? Give example.
19. With example explain file input stream class to read the context of a file.
20. Explain the process of creating a thread by implementing runnable interface with suitable example.

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(2024 Batch Onwards)

IT3AUDC201 Reg. No.: | | | | | | | | |

St Aloysius (Deemed to be University)

Mangaluru

School of Information Science and Technology
(UG Programme)
B.C.A. - Semester III – Degree Examination

October/November - 2025
STATISTICAL DATA ANALYSIS AND VISUALIZATION USING R AND TABLEAU

Time: 2 ½ Hours **Max Marks: 60**

SECTION – A

Answer any FIVE of the following. **(5x2=10)**

1. What is a scatter plot?
2. What is the difference between a bar chart and a histogram?
3. Mention the use of filters in Tableau worksheets.
4. What are the main features of R as a programming language?
5. What is the difference between a matrix and an array in R?
6. Define standard deviation. Write the formula to calculate the standard deviation for the raw data.
7. Define Aggregation with an example.
8. Define null and alternative hypothesis.

SECTION - B

Answer any TEN of the following. **(10x5=50)**

9. What is the significance of factor? How do you create a factor in R Language? How do you add a level to an existing factor?
10. How do you define and invoke function in R? Write a function in R that finds the factorial of a number.
11. How do you create a matrix in R? Provide an example and explain how to access its rows and columns.
12. Write a R program to read n values and perform the following operations.
    1. Find the range.
    2. Find the 35^{th} and 78^{th} percentile.
    3. Find the sample variance.
    4. Find coefficient of quartile deviation.
    5. Find the z-score for each value.

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13. Explain the importance of measures of central tendency in data analysis.
14. Describe the steps for constructing a pie chart using a dataset.
15. Calculate the regression equation of Y on X

Price(Rs)	10	12	13	12	16	15
Amount demanded	40	38	43	45	37	43

    1. Estimate the likely demand when the price is Rs.20.
    2. Write R script to implement the same
16. Calculate Karl Pearson's coefficient of correlation from the following data:

X	10	20	30	40	50
Y	15	25	35	45	55

    Interpret the result.
17. Write a note on one sample t-testing.
18. Explain the steps to create a calculated field in Tableau with example.
19. Explain the advantages and disadvantages of Tableau.
20. Demonstrate the steps to connect Tableau to a CSV file.

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(2024 Batch Onwards)

IT3AUDC202 Reg. No.: | | | | | | | | |

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Mangaluru

School of Information Science and Technology

(UG Programme)

B.C.A. - Semester III – Degree Examination

October/November - 2025

OPERATING SYSTEM CONCEPTS

Time: 2 ½ Hours **Max Marks: 60**

SECTION – A

Answer any FIVE of the following. **(5x2=10)**

1. Define Kernel.
2. Define job queue and ready queue.
3. Distinguish between CPU bound and I/O bound process.
4. Write wait and signal operations with pseudo code.
5. Define segmentation.
6. Define the term race-condition.
7. Define best fit and worst fit.
8. What is compaction?

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SECTION - B

Answer any TEN of the following. **(10x5=50)**

9. Distinguish among the following terminologies associated with the operating system and explain each of them in detail. i) Multiprogramming systems ii) Multiprocessor systems.
10. Explain the states of a process with a transition diagram.
11. Explain any five operating system services.
12. Consider the set of processes with arrival time (in milliseconds), CPU burst time (in milliseconds), and priority (Higher number represents highest priority) shown below.

Process ID	Arrival Time	Burst Time	Priority
P1	0	4	2
P2	1	3	3
P3	2	1	4
P4	3	5	5
P5	4	2	5

Draw Gantt Chart using Non-Preemptive priority scheduling algorithm
Calculate the average waiting time and average turn around time.

13. Illustrate how Dining-Philosophers problem can be solved using Semaphores.
14. Explain the various criteria's for evaluating the CPU scheduling algorithm.

Contd...2

15. Consider the following snapshot of a system:

Process	Allocation				Max				Available			
	A	B	C	D	A	B	C	D	A	B	C	D
P1	2	0	0	1	4	2	1	2	3	1	3	1
P2	3	1	2	1	5	2	5	2				
P3	2	1	0	3	2	3	1	6				
P4	1	3	1	2	1	4	2	4				
P5	1	4	3	2	3	6	6	5				

Answer the following using Banker's algorithm.

i) Write the content of need matrix.
ii) Is the system is in safe state? If so, what is the safe sequence?
iii) If request from process P3 (0, 1, 1, 1) is considered immediately, what is the system state and sequence?

16. How do you detect deadlock using wait-for-graph? Explain.
17. What is fragmentation? Explain the different types of fragmentation.
18. Explain the different operations to be performed on a directory.
19. Write a note on demand paging.
20. Consider the reference string 7,0,1,2,0,3,0,4,2,3,0,3,2,1,2,0,1,7,0,1. For memory with 3 frames find the number of page faults using LRU and FIFO algorithm.

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(2024 Batch onwards)

IT3AUSE227 Reg. No.: | | | | | | | | |

St Aloysius (Deemed to be University)

Mangaluru

School of Information Science and Technology

(UG Programme)

B.Sc. (Data Science) / B.C.A. - Semester III – Degree Examination

October/November - 2025

OPEN-SOURCE TOOLS

Time: 1 ½ Hours **Max Marks: 30**

SECTION – A

Answer any FIVE of the following. **(5x2=10)**

1. What type of software is Joomla primarily used for?
2. What is the primary advantage of using version control systems like Git in collaborative software development?
3. What is the Apache HTTP Server commonly used for?
4. In what scenarios would developers and organizations benefit from using LibreOffice as an office suite?
5. Name one of the operating systems in the Berkeley Software Distribution (BSD) family.
6. Why is there a need for Open Source Software?
7. What is GPL?

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SECTION - B

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

8. Explain the usage and benefits of Argo UML in software development.
9. Compare Free Software and Open Source Software.
10. Discuss how reverse engineering in Argo UML helps understand legacy systems.
11. Write a note on Wikipedia.

SECTION – C

Answer any ONE of the following. **(1x10=10)**

12. Explain the principles of Open Source Software and discuss its advantages in the industry.
13. Compare BugZilla and Trac in terms of features, usability, and integration with development tools.

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(2024 Batch onwards)

AH4GUVE281 Reg. No.

ST. ALOYSIUS (DEEMED TO BE UNIVERSITY)
Mangaluru
SCHOOL OF ARTS AND HUMANITIES
(UG Programme)
B.A./B.Sc./B.C.A. – Semester III - Degree Examination
October / November - 2025
FOUNDATION COURSE IN GENDER EQUITY AND VALUE EDUCATION

Time: 2 Hrs. Max Marks: 50

I. Answer any FIVE of the following questions in just one sentence each. (5×1=5)
ಕೆಳಗಿನ ಯಾವುದಾದರೂ ಐದು ಪ್ರಶ್ನೆಗಳನ್ನು ಉತ್ತರಿಸಿ.

1. What is Gender Equity?
   ಲಿಂಗ ಸಮಾನತೆ ಎಂದರೇನು?
2. What is POSH?
   POSH ಎಂದರೇನು?
3. When was the Domestic violence act passed?
   ದೇಶೀಯ ಹಿಂಸಾಚಾರ ಕಾಯ್ದೆ ಯಾವಾಗ ಜಾರಿಗೆ ಬಂದಿತು?
4. What is sex ratio?
   ಲಿಂಗ ಅನುಪಾತ ಎಂದರೇನು?
5. What are the reasons for female feticide or infanticide in India ?
   ಭಾರತದಲ್ಲಿ ಹೆಣ್ಣು ಭ್ರೂಣಹತ್ಯೆ ಅಥವಾ ಶಿಶುಹತ್ಯೆಗೆ ಕಾರಣಗಳೇನು?
6. Mention two objectives of National commission for women.
   ರಾಷ್ಟ್ರೀಯ ಮಹಿಳಾ ಆಯೋಗದ ಎರಡು ಉದ್ದೇಶಗಳನ್ನು ತಿಳಿಸಿ.
7. Expand PNDT.
   PNDT ಅನ್ನು ವಿಸ್ತರಿಸಿ.

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II. Answer any FIVE of the following questions in about two sentences each. (5×2=10)
ಕೆಳಗಿನ ಯಾವುದಾದರೂ ಐದು ಪ್ರಶ್ನೆಗಳನ್ನು ಉತ್ತರಿಸಿ.

8. Give examples for femininity and masculinity.
   ಸ್ತ್ರೀತ್ವ ಮತ್ತು ಪುರುಷತ್ವಕ್ಕೆ ಉದಾಹರಣೆಗಳನ್ನು ನೀಡಿ.
9. Difference between sex and gender
   ಲಿಂಗ ಮತ್ತು ಲಿಂಗದ ನಡುವಿನ ವ್ಯತ್ಯಾಸ
10. Name the social reformers who worked to empower women during pre-independent period.
    ಸ್ವಾತಂತ್ರ್ಯ ಪೂರ್ವದಲ್ಲಿ ಮಹಿಳೆಯರ ಸಬಲೀಕರಣಕ್ಕಾಗಿ ಶ್ರಮಿಸಿದ ಸಮಾಜ ಸುಧಾರಕರನ್ನು ಹೆಸರಿಸಿ.
11. What is honor killing?
    ಗೌರವ ಹತ್ಯೆ ಎಂದರೇನು?
12. Which is the law that prevents the detection of sex of the fetus during pregnancy?
    ಗರ್ಭಾವಸ್ಥೆಯಲ್ಲಿ ಭ್ರೂಣದ ಲಿಂಗ ಪತ್ತೆ ಮಾಡುವುದನ್ನು ತಡೆಯುವ ಕಾನೂನು ಯಾವುದು?
13. What is maternal mortality?
    ತಾಯಂದಿರ ಮರಣ ಪ್ರಮಾಣ ಎಂದರೇನು?
14. What are the offences related to marriage.
    ಮದುವೆಗೆ ಸಂಬಂಧಿಸಿದ ಅಪರಾಧಗಳು ಯಾವುವು?

Contd...2

III. Answer any <u>TWO</u> of the following questions in 20 lines each. (2x10=20)

ಕೆಳಗಿನ ಯಾವುದಾದರೂ <u>ಎರಡು</u> ಪ್ರಶ್ನೆಗಳನ್ನು ಉತ್ತರಿಸಿ.

15. Describe the characteristics of patriarchy and matriarchy

ಪಿತೃಪ್ರಧಾನತೆ ಮತ್ತು ಮಾತೃಪ್ರಧಾನತೆಯ ಗುಣಲಕ್ಷಣಗಳನ್ನು ವಿವರಿಸಿ.

16. Write a note on laws and legislations protecting women and children.

ಮಹಿಳೆಯರು ಮತ್ತು ಮಕ್ಕಳನ್ನು ರಕ್ಷಿಸುವ ಕಾನೂನುಗಳು ಮತ್ತು ಶಾಸನಗಳ ಬಗ್ಗೆ ಟಿಪ್ಪಣಿ ಬರೆಯಿರಿ.

17. What are the factors affecting maternal mortality?

ತಾಯಂದಿರ ಮರಣದ ಮೇಲೆ ಪರಿಣಾಮ ಬೀರುವ ಅಂಶಗಳು ಯಾವುವು?

18. What measures would you suggest to bring about a gender equal society?

ಲಿಂಗ ಸಮಾನ ಸಮಾಜವನ್ನು ತರಲು ನೀವು ಯಾವ ಕ್ರಮಗಳನ್ನು ಸೂಚಿಸುತ್ತೀರಿ?

PART – B

VALUE EDUCATION (III semester)

V. Answer any <u>ONE</u> of the following in not less than a page. (1x5=5)

ಈ ಕೆಳಗಿನ ಯಾವುದಾದರೂ ಒಂದು ಪ್ರಶ್ನೆಗೆ ಒಂದು ಪುಟಕ್ಕೆ ಮೀರದಂತೆ ಬರೆಯಿರಿ.

19. Write a short note on IVF.

IVF ಬಗ್ಗೆ ಒಂದು ಲಘು ಟಿಪ್ಪಣಿ ಬರೆಯಿರಿ.

20. List down the various disadvantages of artificial birth control methods.

ಕೃತಕ ಜನನ ನಿಯಂತ್ರಣ ವಿಧಾನಗಳ ವಿವಿಧ ಅನಾನುಕೂಲಗಳನ್ನು ಪಟ್ಟಿ ಮಾಡಿ.

VI. Answer any <u>ONE</u> of the following in not less than two pages. (1x10=10)

ಈ ಕೆಳಗಿನ ಯಾವುದಾದರೂ ಒಂದು ಪ್ರಶ್ನೆಗೆ ಎರಡು ಪುಟಕ್ಕೆ ಮೀರದಂತೆ ಬರೆಯಿರಿ.

21. Examine the various desirable qualities required for a successful marriage.

ಯಶಸ್ವಿ ದಾಂಪತ್ಯಕ್ಕೆ ಬೇಕಾದ ವಿವಿಧ ಅಪೇಕ್ಷಣೀಯ ಗುಣಗಳನ್ನು ಪರೀಕ್ಷಿಸಿ.

22. Explain various methods to build healthy families in the society.

ಸಮಾಜದಲ್ಲಿ ಆರೋಗ್ಯಕರ ಕುಟುಂಬಗಳನ್ನು ನಿರ್ಮಿಸಲು ಬೇಕಾದ ವಿವಿಧ ವಿಧಾನಗಳನ್ನು ವಿವರಿಸಿ.

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