

- 17 a) Starting from Maxwell's equations, derive a relationship that describes the flow of electromagnetic energy in a specific volume of space. Explain the physical meaning of each term in the derived equation. (7)
- b) What is polarization of electromagnetic waves? With figures, explain the different types of polarizations. (7)

OR

- 18 a) Prove that the input impedance of a transmission line with characteristic impedance Z_0 and terminated at Z_L is given by the expression $Z_{in} = Z_0 \left[\frac{Z_L + jZ_0 \tan \beta l}{Z_0 + jZ_L \tan \beta l} \right]$ (7)
- b) A distortion less line has $Z_0 = 60\Omega$, $\alpha = 20\text{Np/m}$, $u = 0.6c$, where c is speed of light in vacuum. Find R , L , G , C and λ at 100MHz (7)

Module V

- 19 a) A 70Ω lossless line has $s=1$. and $\theta\gamma = 300^\circ$. If the line is 0.6λ , Using the Smith Chart Obtain i) Reflection Coefficient ii) Load Impedance Z_L iii) Input Impedance Z_{in} (7)
- b) A hollow rectangular waveguide has dimensions $6\text{cm} \times 4\text{cm}$, If a signal with frequency 5GHz is impressed, calculate a) cutoff frequency and b) cutoff wavelength assuming the dominant mode of propagation (7)

OR

- 20 a) A lossless transmission line with $Z_0 = 50\Omega$ is terminated at $Z_L = 60 + j40\Omega$. Compute reflection coefficient, standing wave ratio and load admittance using smith chart. (7)
- b) A hollow rectangular waveguide has dimensions $6\text{cm} \times 4\text{cm}$, If a signal with frequency 5GHz is impressed, calculate a) cutoff frequency and b) cutoff wavelength assuming the lowest possible TM mode of propagation (7)

Reg No.: _____

Name: _____

APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY
B.Tech Degree S6 (R,S) Examinations April 2026 (2019 Scheme)

Course Code: EET352

Course Name: OBJECT ORIENTED PROGRAMMING

Max. Marks: 100

Duration: 3 Hours

PART A

Answer all questions, each carries 3 marks.

Marks

- | | | |
|----|---|-----|
| 1 | Define a class and an object with an example. | (3) |
| 2 | How data hiding is implemented in JAVA. | (3) |
| 3 | Write a Java program which will read a text and count all occurrences of a particular word? | (3) |
| 4 | What is static binding? Give an example | (3) |
| 5 | What happens if you try to override a final method? Explain | (3) |
| 6 | What is reflection in Java? | (3) |
| 7 | Differentiate between byte streams and character streams. | (3) |
| 8 | What are the advantages of using applets in Java? | (3) |
| 9 | Explain the purpose of wait() and notify() methods. | (3) |
| 10 | Differentiate between SQL DDL and DML statements with examples. | (3) |

PART B

Answer one full question from each module, each carries 14 marks.

Module I

- 11 a) Explain the key features of Java that make it robust, secure, and platform independent. (8)
- b) Write a Java program to illustrate the use of constructors. Create a class Rectangle with length and breadth as data members. (6)

OR

- 12 a) What is meant by command line arguments? Write a java program to illustrate the use of command line arguments. (6)
- b) What are static members in Java? Explain static variables, static methods, and (8)

static blocks with suitable examples. State their advantages.

Module II

- 13 a) Differentiate between method overloading and method overriding with examples. (6)
- b) Write a Java program to show hierarchical inheritance using Shape as super class and Circle, Square as subclasses.[Include appropriate data members, constructors and methods in each class] (8)

OR

- 14 a) What is a package? How it is declared and imported? How access control and visibility is implemented by packages? Explain with an example (8)
- b) Explain different ways to compare two strings in Java, with proper examples. (6)

Module III

- 15 a) What is an Object class? Discuss any three of the methods in Object class (7)
- b) List the advantages of using inheritance. Explain multilevel inheritance in Java with suitable example. (7)

OR

- 16 a) Define an interface. How is it different from an abstract class? (7)
- b) Write a Java program that handles division by zero using exception handling mechanism and prints a meaningful error message (7)

Module IV

- 17 a) What is Stream class? How are stream classes classified? Explain in detail (7)
- b) Develop an applet program to display name and age of a person [name and age must be passed from HTML web page] and also explain the steps involved in developing the entire program (7)

OR

- 18 a) Write a program to read a file using FileReader and display its contents on the screen. (6)
- b) Explain the life cycle of a Java Applet with a neat diagram and discuss the role of each method in detail (8)

Module V

- 19 a) What are the different ways of creating threads in Java? Explain each with an example code segment (8)
- b) What is thread priority? Write a Java program to demonstrate thread priority (6)

using setPriority() and getPriority().

OR

- 20 a) What is JDBC? Explain its architecture. (7)
- b) Write a JDBC program in Java to retrieve and display all records from an Employee table with fields: emp_id INT, emp_name VARCHAR, salary DOUBLE. (7)
