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**R22**



**CMR COLLEGE OF ENGINEERING & TECHNOLOGY  
(UGC AUTONOMOUS)**

Examination : B.Tech III Sem Regular & Supplementary Examinations Dec-2024/Jan-2025  
Course Name : Java Programming  
Course Code : A405604  
Branch : CE/ EEE/ ME/ ECE  
Date & Session : 09-01-2025 FN                      Duration: 3 hours                      Max. Marks: 60

(Note: Assume suitable data if necessary)

**PART-A**

Answer all TEN questions

Each question carries ONE mark.

10x1=10M

1. Differentiate between class and object. 1 M
2. What is Constructor? 1 M
3. How to use the super keyword in Java? 1 M
4. What is the purpose of extends keyword? 1 M
5. Write the Syntax for creating Packages. 1 M
6. Define an Exception. 1 M
7. What is Multithreading in Java? 1 M
8. Write Thread Priorities in Java. 1 M
9. Write syntax for FileInputStream class. 1 M
10. List out methods of a File class. 1 M

**PART-B**

Answer the following. Each question carries TEN Marks.

5x10=50M

- 11.A). Demonstrate a program for Constructor overloading and Method Overloading. 10M
- OR**
11. B). i) What is Type casting? Explain with an example Program. 4M  
ii) List Java features and explain about them. 6M
12. A). Write a Java Program to perform matrix multiplication. 10M
- OR**
12. B). What is Inheritance. Discuss any two types of Inheritance with an example Program. 10M
13. A). Illustrate a program on Access Modifiers in Java. 10M
- OR**
13. B). Explain how to handle exceptions in java with a suitable an example program. 10M
14. A). What are the ways to create threads in java? Explain with an example program. 10M
- OR**
14. B). What is Synchronization. Write a Java program on Synchronization with example. 10M
15. A). i) Write short notes on scanner class with an example program. 6M  
ii) Discuss about RandomAccessFile class. 4M
- OR**
15. B). Demonstrate a program on BufferedInputStream and BufferedOutputStream Class. 10M

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**Examination** : B.Tech III Sem Regular & Supplementary Examinations Dec-2024/ Jan-2025  
**Course Name** : Fundamental of Internet of Things  
**Course Code** : A404601  
**Branch** : CSE/ CSC/ CSM/ CSD  
**Date & Session** : 09-01-2025 FN                      **Duration: 3 hours**                      **Max. Marks: 60**

(Note: Assume suitable data if necessary)

**PART-A**

**Answer all TEN questions**

**Each question carries ONE mark.**

**10x1=10M**

1. List two basic Arduino functions used to read and write digital signals. 1 M
2. Show the use of the pinMode() function in Arduino programming. 1 M
3. Infer the purpose of the import RPi.GPIO as GPIO statement in a Python program for Raspberry Pi. 1 M
4. Build a Python script to flash an LED connected to Raspberry Pi GPIO pins. 1 M
5. Identify the purpose of using cloud services in IoT applications. 1 M
6. Analyze the role of IoT reference models. 1 M
7. Define RS-485 in the context of communication protocols. 1 M
8. Compare I2C and SPI communication protocols. 1 M
9. Relate the role of IoT in energy monitoring for industrial applications. 1 M
10. Discover IoT applications in retail and home automation sectors. 1 M

**PART-B**

**Answer the following. Each question carries TEN Marks.**

**5x10=50M**

- 11.A). Explain in detail the process of acquiring and generating signals using analog I/O functions on Arduino. Compare analog and digital pins in Arduino. 10M
- OR**
11. B). Develop a comprehensive program using Arduino that reads inputs from Ultra sonic sensor and controls output using serial communication. 10M
12. A). List and explain the key features and pin functions of the Raspberry Pi. Outline the setup process and revision of Python programming required to start with GPIO programming on Raspberry Pi with an example program. 10M
- OR**
12. B). Compare and contrast the functionality of Raspberry Pi with other open-source devices like NodeMCU, ESP8266, and ESP32. 10M
13. A). Compare the differences between IoT and M2M. Explain the role of IoT servers and cloud offerings, detailing how technologies such as Google Cloud, Microsoft Azure. 10M
- OR**
13. B). Define IoT and discuss its components in detail. Explain the logical design and IoT reference model, including a description of terms and definitions relevant to IoT concepts and technology. 10M

**(P.T.O..)**

14. A). Explain in detail the significance of communication protocols in wireless sensor networks (WSNs) and IoT. 10M

**OR**

14. B). Identify and explain the various IoT communication protocols. Discuss the applications and advantages of each protocol in IoT communication. 10M

15. A). Analyze how IoT is transforming industries like agriculture, energy, and healthcare. 10M

**OR**

15. B). Analyze the purpose of IoT in a smart city application, such as traffic management or energy monitoring. 10M

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**CMR COLLEGE OF ENGINEERING & TECHNOLOGY  
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**Examination** : B.Tech III Sem Regular & Supplementary Examinations Dec-2024/Jan-2025  
**Course Name** : Disaster Preparedness & Planning Management  
**Course Code** : A401601  
**Branch** : CSE/ CSC/ CSM/ CSD  
**Date & Session** : 09-01-2025 FN **Duration: 3 hours** **Max. Marks: 60**

(Note: Assume suitable data if necessary)

**PART-A**

**Answer all TEN questions  
Each question carries ONE mark.**

**10x1=10M**

1. Differentiate between hazard and risk. 1 M
2. Why is resilience important in minimizing the impact of disasters? 1 M
3. List the types of natural disaster. 1 M
4. What are the various conservation measures of soil erosion? 1 M
5. How can age impact vulnerability in a disaster situation? 1 M
6. Give an example of a hazard-prone location and its associated risk. 1 M
7. What is the purpose of DRR policies? 1 M
8. State the legislations in India on disaster management. 1 M
9. Give one example of sustainable recovery after a disaster? 1 M
10. Why is it important to integrate environmental concerns in disaster recovery? 1 M

**PART-B**

**Answer the following. Each question carries TEN Marks.**

**5x10=50M**

- 11.A). What are the different types of disasters, and how are they classified? Explain with examples the major categories of natural and human-induced disasters. 10M
- OR**
11. B). Discuss how hazard frequency and severity influence risk management strategies. 10M
12. A). Discuss landslide causes and effects. How do human activities increase landslide risks? What are mitigating strategies? 10M
- OR**
12. B). Discuss the challenges and responses involved in managing transportation accidents and terrorist attacks as disasters. 10M
13. A). How do disasters impact public health infrastructure, and what measures can be taken to protect it during emergencies? 10M
- OR**
13. B). Explain briefly the disaster impact for environment, how to reduce the environment disaster impact. 10M
14. A). Explain briefly the disaster risk reduction measures for structural and nonstructural types. 10M

**(P.T.O..)**

**OR**

14. B). Discuss the role and activities of the National Disaster Management Authority (NDMA) in India. 10M

15. A). Discuss how environmentally friendly recovery practices can reduce future disaster risks. 10M

**OR**

15. B). Describe some methods of reconstruction that focus on long-term sustainability after a disaster. 10M

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**CMR COLLEGE OF ENGINEERING & TECHNOLOGY**  
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**Examination** : B.Tech III Sem Regular & Supplementary Examinations Dec-2024/Jan-2025  
**Course Name** : Renewable Energy Sources  
**Course Code** : A402601  
**Branch** : CSE/ CSC/ CSM/ CSD  
**Date & Session** : 09-01-2025 FN      **Duration: 3 hours**      **Max. Marks: 60**

(Note: Assume suitable data if necessary)

**PART-A**

**Answer all TEN questions**  
**Each question carries ONE mark.**

**10x1=10M**

1. Define Alternate energy sources. 1 M
2. What is per capita energy consumption? 1 M
3. Give the expression of efficiency of solar cell. 1 M
4. State solar constant. 1 M
5. Classify wind turbines. 1 M
6. State the limitations of WECS. 1 M
7. List the factors must be considering while selecting the site for biogas plant. 1 M
8. What are the merits of Bio-gas plants? 1 M
9. What are the advantages of OTEC plant? 1 M
10. What is Sluice ways in tidal plant? 1 M

**PART-B**

**Answer the following. Each question carries TEN Marks.**

**5x10=50M**

- 11.A). Describe briefly about the Indian scenario, the production and reserves of conventional energy forms. 10M

**OR**

11. B). Describe briefly conventional and non-conventional energy sources. 10M

12. A). With the help of schematic diagram, explain the working of solar water heating. 10M

**OR**

12. B). Define the Terms:(i) Altitude angle (ii) Slope (iii) Declination angle (iv) Surface azimuth angle (v) Incident angle, with help of neat diagrams. 10M

13. A). List and briefly discuss, how are Wind Energy conversion systems are classified. 10M

**OR**

13. B). Mention the factors that Wind Energy converter depends on and also derive the expression for power developed due to wind. 10M

14. A). Explain the factors affecting biogas generation. 10M

**OR**

14. B). Explain the constructional detail and working of Bio-gas plants. 10M

**(P.T.O.)**

15. A). Explain the working and principle of Tidal power plants with neat diagrams. 10M

**OR**

15. B). State any three advantages and limitations of Ocean Thermal Energy Conversion (OTEC). 10M  
Explain ocean thermal energy Indian Scenario.

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