R-15

Code: 5G466

III B.Tech. II Semester Supplementary Examinations May/June 2022
Object Oriented Programming Concepts
(Common to EEE & ECE)

Max. Marks: 70   Time: 3 Hours
Answer *any five full questions* by choosing one question from each unit (5x14 = 70 Marks)
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Marks

UNIT–I

1. Explain the following Concepts with suitable syntaxes & examples.
   i. Class   ii. Object   iii. Pointer   iv. Array   v. Destructor   14M

OR

2. a) What is an array? How arrays are declared and initialized? Explain with examples.   7M
   b) Explain the features of Object Oriented Programming and mention the benefits of OOP over structured programming.   7M

UNIT–II

3. a) Write short notes on followings.
   i. friend Function   ii. virtual function   8M
   b) What is operator overloading? Write a program to overload the + operator.   6M

OR

4. a) Explain the conditional statements in detail.   8M
   b) Explain 'this' pointer with an example program.   6M

UNIT–III

5. a) Define Class & Object in Java? Explain with suitable example.   7M
   b) Write a java program to print first N Fibonacci Series using While loop.   7M

OR

6. a) Write the structure of java program.   6M
   b) Mention the five types of tokens in Java. Explain the derived data types in Java.   8M

UNIT–IV

7. a) What are exceptions in Java? Write about the common exceptions that occur in Java.   7M
   b) What is meant by inheritance? How can you achieve multiple-inheritance in Java   7M

OR

8. a) Discuss the process of throwing own exceptions in java.   8M
   b) Explain the various access specifiers are used in java.   6M

UNIT–V

9. a) Define Applet. Write a java program to create simple Applet in java.   7M
   b) What is multithreading? Explain the process of creation of a thread in java.   7M

OR

10. a) What are the stages in Thread life cycle? Explain them in detail.   8M
    b) Write short note on Streams in java.   6M

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III B.Tech. II Semester Supplementary Examinations May/June 2022
Power System Analysis
(Electrical and Electronics Engineering)

Max. Marks: 70   Time: 3 Hours
Answer *any five full questions* by choosing one question from each unit (5x14 = 70 Marks)
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Marks

UNIT–I

1. a) What are the different elements in the power system network?   7M
   b) Define the terms i) Graph ii) Sub-graph iii) Tree iv) Co-tree v)Branch vi) Link vii) Cut set   7M

OR

2. a) Derive the necessary expressions for building up of Z-bus when New element is added
      to Reference   7M
   b) Derive the necessary expressions for building up of Z-bus when New element is added
      between New bus to old bus   7M

UNIT–II

3. Derive and explain about static load flow equations.   14M

OR

4. Explain with a neat flow chart for Gauss-Seidel method without PV buses   14M

UNIT–III

5. a) Define per unit system and write an equation for new base impedance?   7M
   b) Draw the Per Unit equivalent reactance network of a three-phase power system   7M
      consisting of a generator, transmission line, transformer, and motor.

OR

6. Discuss the principle of symmetrical components. Derive the necessary equations to   14M
   convert:
       (i) Phase quantities into symmetrical components.
       (ii) Symmetrical components into phase quantities.

UNIT–IV

7. a) What is stability? Explain different types of stabilities.   7M
   b) What is steady state stability and define steady state stability limit.   7M

OR

8. A 50Hz, 4 pole turbo alternator rated 100MVA, 11KV has an inertia constant of   14M
   8MJ/MVA. Find:
     (i)The energy stored in the rotor at synchronous speed.
     (ii)The rotor acceleration if the mechanical input is suddenly raised to 80MW for an
       electric load 50MW

UNIT–V

9. Explain the Factors effecting the Transient stability.   14M

OR

10. What is equal area criterion? Interpret this for a case when there is a sudden short   14M
    circuit at one end of one of the line of parallel lines.

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III B.Tech. II Semester Supplementary Examinations May / June 2022
Power System Operation and Control
(Electrical and Electronics Engineering)

Max. Marks: 70　　　　　　　　　　　　　　　　　　　　　　Time: 3 Hours
Answer *any five full questions* by choosing one question from each unit (5x14 = 70 Marks)
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Marks

UNIT–I

1. a) Incremental fuel costs in Rs/MWh for 2units in a plant are given by
   $dc1/dp1 = 0.15P1 + 25$,　　$dc2/dp2 = 0.12P2 + 15$.
   The minimum and maximum loads on each unit are to be 20MW and 125 MW respectively. Determine IFC and allocation of load between units for the minimum cost and load is 150MW. Assume both the units are operating.　　8M

   b) Derive the coordination equation without losses?　　6M

OR

2. a) Explain the need of economic load dispatch for a given power system　　4M

   b) Derive the transmission loss formula for a system consisting of n-generating plants supplying several loads inter connected through a transmission networks. State any assumptions are made.　　10M

UNIT–II

3. With flowchart, explain the dynamic programming method to solve unit commitment problem.　　14M

OR

4. a) Explain the hydro- thermal scheduling　　7M

   b) Write about incremental production costs for hydro power plants.　　7M

UNIT–III

5. a) Draw the block diagram representation of IEEE type 1 excitation system model　　7M

   b) Explain the block diagram representation of an isolated power system with diagram.　　7M

OR

6. a) Derive the first order turbine model. Represent the model in block diagram.　　7M

   b) Describe various elements that are to be considered in modeling of an excitation system　　7M

UNIT–IV

7. Explain LFC of a Two area system in both uncontrolled case and controlled case　　14M

OR

8. a) Draw the LFC block diagram of an isolated power system. Write the dynamic response curve of change in frequency for a step change in load.　　7M

   b) Derive the expression for change in tie line power and draw its block diagram?　　7M

UNIT–V

9. a) Write the various objectives of series and shunt compensation　　6M

   b) Explain the uncompensated and compensated transmission lines.　　8M

OR

10. a) Describe the effect of connecting series capacitors in the transmission system.　　6M

    b) Explain over voltages on sudden loss of loads. And also List out various loads which require compensation.　　8M

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III B.Tech. II Semester Supplementary Examinations May/June 2022
Microprocessors and Microcontrollers
(Electrical and Electronics Engineering)

Max. Marks: 70   Time: 3 Hours
Answer *any five full questions* by choosing one question from each unit (5x14 = 70 Marks)
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Marks

UNIT–I

1. With a neat sketch explain in detail the internal hardware architecture of 8086 microprocessor.   14M

OR

2. a) Describe about the signals involved in minimum mode operation of 8086 microprocessor based system with the timing diagram.   7M
   b) Explain about the following assembler directives: ENDP, EQU, EVEN, EXTRN with examples.   7M

UNIT–II

3. a) Compare memory mapped I/O and I/O mapped I/O.   7M
   b) What is the need of DMA in microprocessor applications? Explain in brief about data transfer modes of DMA.   7M

OR

4. a) Discuss the following methods of data transfers (i) Polling (ii) Interrupt driven   7M
   b) The DMA controlled data transfers are faster than the polling and Interrupt driven data transfers". Justify   7M

UNIT–III

5. a) Compare synchronous and asynchronous data communications   7M
   b) Write short note on different data transfer methods   7M

OR

6. a) Distinguish between half duplex and full duplex data transmission   7M
   b) Discuss the command instruction and status register formats of 8251.   7M

UNIT–IV

7. With neat sketch explain the architecture/ functional block diagram of 8051 microcontroller.   14M

OR

8. a) Explain TCON and TMOD SFR for 8051 Microcontroller   7M
   b) Write an assembly program to multiply two 16-bit numbers for 8051 controller.   7M

UNIT–V

9. a) Differentiate ARM and THUMB instruction set   7M
   b) Discuss the instruction set available in ARM Controllers with example   7M

OR

10. a) Explain the features and applications of ARM7 microcontroller   7M
    b) Explain the PWM controller features in available ARDUINO microcontroller.   7M

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