Code: **5G466**

III B.Tech. II Semester Supplementary Examinations January 2022
Object Oriented Programming Concepts
(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	CO	Blooms Level
		UNIT–I			
1.	a)	Explain the roles of agents, community and messages amongst agents in OOP paradigm.	7M	CO1	L2
	b)	Explain the principles of Object Oriented Programming.	7M	CO1	L2
		OR			
2.	a)	What is an object? How is it different from an ordinary variable and a class? Explain with an example.	7M	CO1	L1
	b)	What is parameterized Constructor? Give one example.	7M	CO1	L1
		UNIT–II			
3.	a)	What is Overloading? Explain Constructor overloading with an example.	7M	CO2	L1
	b)	What are pure virtual functions? How are they different from normal functions?	7M	CO2	L1
		OR			
4.	a)	With an example, explain the syntax for passing arguments to base class constructors in multiple inheritance.	7M	CO2	L3
	b)	Describes the various approaches by which we can detect the end of file condition.	7M	CO2	L5
		UNIT–III			
5.	a)	What are the two control structures used in java for making decisions? Explain with an example program.	7M	CO3	L1
	b)	Explain in detail the most significant features of JAVA programming	7M	CO3	L2
		OR			
6.	a)	How to implement precedence rules and associativity in java language? Give an example.	7M	CO3	L1
	b)	What is the role and responsibility of JVM in program execution?	7M	CO3	L1
		UNIT–IV			
7.	a)	What is an exception? How are exceptions handled in Java programming? Explain with suitable program.	7M	CO4	L1
	b)	Design an interface called Shape with methods draw() and getArea(). Further design two classes called Circle and Rectangle that implements Shape to compute area of respective shapes. Use appropriate getter and setter methods. Write a java program for the same.	7M	CO4	L4
		OR			
8.	a)	What is meant by re-throwing exception? Discuss a suitable scenario for this	7M	CO4	L1
	b)	What are the benefits of inheritance? Explain the various forms of inheritance with suitable code segments.	7M	CO4	L1
		UNIT–V			
9.	a)	Write a program to implement Producer Consumer Problem by using MultiThreading	7M	CO4	L3
	b)	Illustrate different types of Streams in Java.	7M	CO4	L2
		OR			
10.	a)	Write an applet to display the mouse cursor position in that applet window.	7M	CO4	L3
	b)	How to achieve synchronization among threads? Write suitable code.	7M	CO4	L1

END

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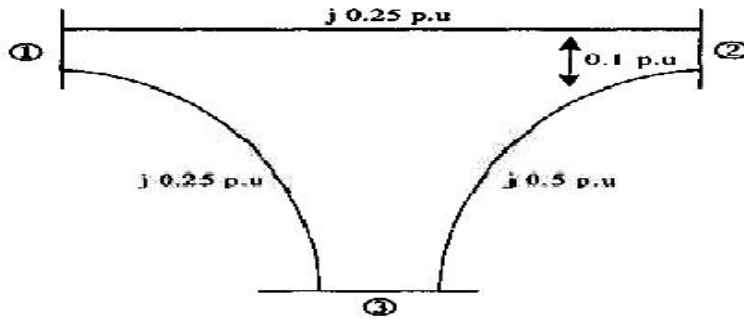(Electrical and Electronics Engineering)

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 | CO | Blooms Level |

1. Compute the bus impedance matrix for the system shown in figure below by adding element by element. Take bus(2) as reference bus.

j 0.25 p.u

① ②

0.1 p.u

j 0.25 p.u   j 0.5 p.u

③

14M

OR

2. Explain the modifications necessary in the Z_{BUS} when a mutually coupled element is removed or its impedance is changed.   14M

3. Explain the step by step computational procedure for the Newton-Raphson method of load flow studies.   14M

OR

4. Describe the procedure to compute the power flow analysis using fast decoupled method.   14M

5. A balanced 200V, 3 phase supply feeds balanced resistive load as shown in the following figure. If the resistance R_{bc} is disconnected. Determine I_a, I_b and I_c and symmetrical components of I_a, I_b and I_c.

I_a

$R_{AB}=10\Omega$ $R_{CA}=10\Omega$

I_b

$R_{BC}=10\Omega$

I_c
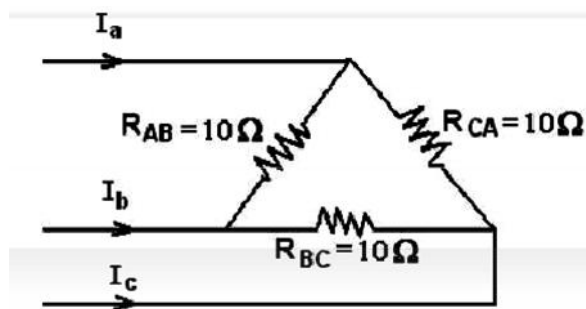
5M

OR

6. Derive the expression for fault current when the power network is subjected to line to ground fault.   14M

7. a) Differentiate between Steady state, Transient state and Dynamic Stability of power system.   7M

   b) Discuss the various methods for improving steady state stability.   7M

OR

8. Obtain the power angle cure from fundamentals and describe its application to determine power system stability.   14M

9. Derive the expression for Swing equation to determine transient stability of power system.   14M

OR

10. Describe the significance of power system stability using equal area criterion during sudden loss of load and loss of line conditions.   14M

END

III B.Tech. II Semester Supplementary Examinations January 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	CO	Blooms Level

UNIT–I

1. a) Incremental fuel costs in rupees per MWh for a plant consisting of two units are:

   $dC1/dPG1 = 0.2P_{G1} + 40.0$

   $dC2/dPG2 = 0.25P_{G2} + 30.0$

   The minimum and maximum loads on each unit are to be 20 MW and 125 MW respectively. Determine the incremental fuel cost and the allocation of load between units for minimum cost when the loads is 175 MW. Assume both units are operating. — 8M — III

   b) Develop the coordination equation with losses? — 6M — VI

OR

2. a) A system consisting of two plants connected by a tie line and load is located at plant-2. When 100MW is transmitted from plant-1, a loss of 10MW takes place on the tie line. Determine the generation schedule at both the plants and the power received by load when   of the system is 25Rs/MWh and IFC are given by

   $dc_1/dp_1 = 0.03P1 + 17$ Rs/MWh,

   $dc_2/dp_2 = 0.06P2 + 19$ Rs/MWh. — 10M — III

   b) Write the condition for optimality when transmission losses are considered. — 4M — I

UNIT–II

3. a) Write the exact co-ordination equation for economic dispatch problem — 4M — I

   b) Derive the expression for the participation factor. — 6M — I

   c) Discuss the practical constraints on unit commitment problem. — 4M — II

OR

4. Describe the hydro thermal economic load scheduling. Derive the necessary equations? — 14M — IV

UNIT–III

5. a) Obtain the modelling of 1st order turbine with transfer function — 8M — II

   b). Give the block diagram representation of Steam Turbines and explain each part. — 6M — III

OR

6. a) Derive the generator load model and represent it by a block diagram. — 8M — II

   b) Write the various characteristics of Excitation systems and draw its block Diagram. — 6M — II

UNIT–IV

7. a) Two synchronous generators are operating in parallel. Their capacities are 200 MW and 400 MW. The droop characteristics of their governors are 4%o and 5% from no load to full load. Assuming that generators are operating at 50 Hz at full load. How a load of 450 MW would be shared between them. What will be system frequency at this load?   12M   III

   b) What is the necessity of keeping frequency constant?   2M   I

OR

8. a) Develop the state variable model of a two area system and state the advantages of the model.   10M   VI

   b) Explain the dynamic interaction between P-f and Q-v loops   4M   V

UNIT–V

9.   Derive the relation between reactive power flow and the voltage of bus.   4M   II

   Explain clearly what you mean by compensation of lines and discuss briefly different methods of compensation.   10M   V

OR

10. a) Explain different devices used to achieve voltage control in transmission and distribution systems.   10M   V

    b) What are the advantages and disadvantages of different types of compensation?   4M   II

END

Code: 5G262

III B.Tech. II Semester Supplementary Examinations January 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	CO	Blooms Level
		UNIT–I			
1.		Explain in detail about internal hardware architecture of 8086 micro processor with a neat diagram	14M	CO1	L2
		OR			
2.	a)	Explain various Addressing modes of 8086 microprocessor.	8M	CO1	L2
	b)	Write an 8086 ALP to find the sum of numbers in the array of 10 elements.	6M	CO1	L4
		UNIT–II			
3.	a)	Describe the interrupts of 8086 and its types with service routine	7M	CO2	L1
	b)	Explain the architecture of 8255PPI its mode of operations	7M	CO2	L2
		OR			
4.	a)	Discuss about I/O mapped I/O and memory mapped I/O	7M	CO2	L4
	b)	Explain in detail about 8259 PIC architecture	7M	CO2	L2
		UNIT–III			
5.	a)	Discuss about 8251 USART architecture with neat sketch	7M	CO3	L4
	b)	Explain the different data transfer schemes in detail.	7M	CO3	L2
		OR			
6.	a)	Discuss about TTL to RS232C and RS232C to TTL conversion	7M	CO3	L4
	b)	Explain about necessity of communication interfaces and 8251 interfacing	7M	CO3	L2
		UNIT–IV			
7.	a)	Draw the pin Diagram of 8051 and describe the pins	7M	CO4	L1
	b)	Discuss the various type of addressing modes with suitable example in 8051 micro controller	7M	CO4	L4
		OR			
8.	a)	Write an 8051 assembly language program to multiply the given number 48H and 30H	7M	CO4	L4
	b)	Explain about Timers and serial communication features of 8051.	7M	CO4	L2
		UNIT–V			
9.		Draw the diagram of ARM architecture and explain the function of each block along with different features in it.	14M	CO5	L2
		OR			
10.	a)	Explain the Pin functions of Arduino with a neat block diagram	7M	CO5	L2
	b)	Explain about PWM and ADC in Arduino	7M	CO5	L2

END