

Hall Ticket Number :

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R-15

Code: 5G262

III B.Tech. II Semester Supplementary Examinations October 2020

Microprocessors and Microcontrollers

(Electrical and Electronics Engineering)

Max. Marks: 70

Time: 3 Hours

Answer all five units by choosing one question from each unit (5 x 14 = 70 Marks)

UNIT-I

1. Explain the function of the following instructions with suitable examples.
DAA, DAS, AAM, AAD, XLAT, AAS, RET
2. With a neat sketch explain in detail the internal architecture of 8086 microprocessor.

OR

UNIT-II

3. a) Explain the architecture of 8253 Programmable Interval Timer.
b) Differentiate between memory mapped I/O and I/O mapped I/O.
4. a) Draw and discuss the architecture of 8257 DMA controller?
b) What is the advantage of DMA Controlled data transfer over interrupt driven data transfer?

OR

UNIT-III

5. a) What is basic structure of SRAM and DRAM.?
b) What is the need of DMA and explain it.

OR

6. a) Differentiate SRAM and DRAM.
b) Explain the architecture of 8257.

UNIT-IV

7. a) Distinguish between synchronous and asynchronous data formats?
b) With the help of flowchart, explain how synchronous serial data can be sent from a port line using software routine?

OR

8. Explain the block diagram and the functions of each block of the 8251 USART

UNIT-V

9. a) Explain the Addressing modes of 8051 microcontroller.
b) Explain the function of stack pointer in 8051 microcontroller?
10. a) Write and explain the differences of between microprocessors and microcontrollers
b) List the features of ARM microcontrollers.

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R-15

Code: 5G466

III B.Tech. II Semester Supplementary Examinations October 2020

Object Oriented Programming Concepts

(Electrical and Electronics Engineering)

Max. Marks: 70

Time: 3 Hours

Answer all five units by choosing one question from each unit (5 x 14 = 70 Marks)

UNIT-I

1. a) List and explain the elements of object oriented programming.
- b) What is a reference variable? Explain the usage of reference variable.

OR

2. a) Write short note on destructor. Explain with suitable example.
- b) Define constructor. Explain different types of constructors with example.

UNIT-II

3. a) What is a friend function? Explain merits and demerits of friend function.
- b) Explain the different types of inheritance in C++.

OR

4. a) What is operator overloading? Write a program to overload the + operator.
- b) When do you use virtual base class? Explain with suitable example

UNIT-III

5. a) What are the operators available in java? Explain them in detail.
- b) List five major difference between JAVA and C++.

OR

6. a) List the various data types in JAVA with suitable example.
- b) Explain the following string handlings with suitable example.

UNIT-IV

7. a) Write about the frequently used Java API packages. Write a program to import classes from package.
- b) Write the steps involved in adding a class to a package

OR

8. a) Discuss the process of throwing own exceptions in Java.
- b) Explain various keywords in exception handling with Java.

UNIT-V

9. a) Discuss the Life Cycle of a Thread using a state transition diagram.
 - b) Explain the implementation of yield () and stop () methods through an example program.
- OR**
10. a) How are parameters passed to an applet? Explain with an example program.
 - b) How do applets differ from application programs?

Code: 5G261

III B.Tech. II Semester Supplementary Examinations October 2020

Power System Analysis

(Electrical and Electronics Engineering)

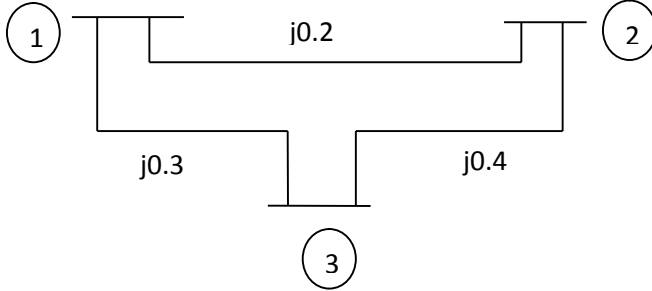
Max. Marks: 70

Time: 3 Hours

Answer all five units by choosing one question from each unit (5 x 14 = 70 Marks)

UNIT-I

1. a) Form Z_{BUS} for the following power system .Take bus-1 as reference bus.



10M

- b) Derive the primitive element and write expression of primitive network in impedance form and admittance form

4M

OR

2. a) Write the mathematical modeling of different power system elements
 b) Derive the expression of Y_{bus} using singular Transformation method

6M

8M

UNIT-II

3. a) Explain the classification of buses
 b) Write an algorithm for Newton-Raphson load flow using rectangular coordinates method.

6M

8M

OR

4. a) Write an algorithm for the load flow solution using NR method polar co-ordinates.
 b) Compare the Gauss-Seidel method, Newton Rapshon method and Fast decoupled method

7M

7M

UNIT-III

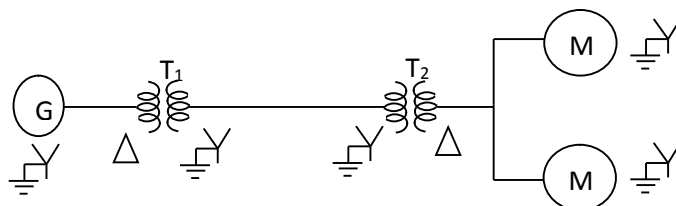
5. a) What are the advantages of Per unit system of representation? Define and explain the impedance and reactance diagrams with an example.
 b) Derive the expression for the fault current of an unloaded alternator when it is subjected to a Double -line to Ground fault

7M

7M

OR

6. A 90 MVA, 11kV,3-Phase generator has a reactance of 25%.The generator supplies two motors through transformers and transmission line as shown in figure. The transformer T_1 is a 3-Phase transformer, 100MVA, 10/132 kV,6% reactance. The transformer T_2 is composed of 3 single phase units each rated at 30 MVA, 66/10KV with 5% reactance. The connections of T_1 and T_2 are as shown. The motors are rated 50MVA and 40 MVA both 10 KV and 20% reactance .Taking the generator rating as base ,draw reactance diagram and indicate the reactances in P.U. The reactance of the line is 100 . Also find the fault current when a 3-Phase fault is occurred at the terminals of the generator.



14M

UNIT-IV

7. a) Derive the expression for the steady state stability limit. 7M
b) Prove that maximum power transfer can be achieved when $X = 3R$ 7M

OR

8. a) Explain the synchronizing power coefficient and analyze the system stability using power angle curve 7M
b) Explain the methods to improve the steady state stability limit 7M

UNIT-V

9. a) Explain the methods to improve transient stability 7M
b) A salient pole synchronous generator is connected to an infinite bus via a line. Derive an expression for electrical power output of the generator and draw p- Curve 7M

OR

10. a) What are the assumptions made in deriving the swing equation 7M
b) Explain point by point method of solving swing equation 7M

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R-15

Code: 5G263

III B.Tech. II Semester Supplementary Examinations October 2020

Power System Operation and Control

(Electrical and Electronics Engineering)

Max. Marks: 70

Time: 3 Hours

Answer all five units by choosing one question from each unit (5 x 14 = 70 Marks)

UNIT-I

1. Explain the following terms with reference to the power plants: Heat input, Power output curve, Heat rate input, Incremental input, Generation cost and Production cost. 14M

OR

2. a) Explain the need of economic load dispatch for a given power system 5M

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. 9M

UNIT-II

3. a) Explain in detail about short-term Hydro thermal scheduling problem 8M

b) What are the advantages of operation of hydro thermal combinations? 6M

OR

4. Develop the hydroelectric power plant model with necessary block diagram. 14M

UNIT-III

5. a) Derive the small signal transfer function with Block diagram of speed governing system. 7M

b) Draw the block diagram of IEEE type-1 excitation model and explain. 7M

OR

6. a) Derive the generator load model and represent it by a block diagram. 7M

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

UNIT-IV

7. a) Explain the necessity of maintaining a constant frequency in power system operation 7M

b) Draw the block diagram of single area LFC system with integral control and prove that the steady state change in frequency is zero. 7M

OR

8. Draw the block diagram for two area load frequency control with integral controller blocks and explain each block. 14M

UNIT-V

9. a) Explain about shunt compensation. 7M

b) Explain the effect of uncompensated line under no load and load condition 7M

OR

10. a) Explain briefly the specifications and objectives of load compensation. 7M

b) Compare the different types of compensating equipment for transmission systems. 7M
