**B.Tech. (EE) 6th Semester (G-Scheme)**
**Examination, May–2024**
**POWER SYSTEM-II**
**Paper– PCC-EE-302-G**

*Time allowed : 3 hours]* *[Maximum marks : 75*

*Note:* *(i)* ***Question No. 1 is compulsory from Section-A***

*(ii) Attempt **four** questions from remaining four sections. Selecting **one** question from each section.*

*(iii) Use of non-programmable calculator is allowed.*

**Section-A**

1. (a) What is necessity of power flow studies?

(b) Write the expression for active and reactive power flow.

(c) Discuss the excitation system.

(d) What are bus admittance matrix?

(e) Explain the need of economic dispatch.

(f) Define steady state and transient stability.

6×2.5=15

**Section-B**

2. What is load flow analysis? Explain the different types of buses considered during load flow. Discuss the significance of slack bus in load flow studies. 15

3. (a) Draw and explain the structure diagram of power system.

(b) Differentiate between NR and GS methods of load flow analysis. 2×7.5=15

## Section-C

4. Write down transmission loss formula. Obtain the loss co-efficient for a system consisting of two generating plants for supplying several loads. 15

5. What is optimal unit commitment problem? In brief explain dynamic programming method. 15

## Section-D

6. Explain the load frequency control for two area case. 15

7. Discuss how the voltage profile is controlled in an interconnected power system. 15

## Section-E

8. Illustrate the steps involved solving swing equation using Runge-Kutta method for transient stability. 15

9. (a) Derive swing equation.

(b) Explain equal area criterion of stability. 2×7.5=15

B.Tech. (EE) 6th Semester (G-Scheme)
Examination, May–2024

POWER ELECTRONICS
Paper– PCC-EE-306-G

*Time allowed : 3 hours]* *[Maximum marks : 75*

*Note: Question No. 1 is compulsory. Attempt one question from each section. All questions carry equal marks.*

1. (a) What are the application of power electronics.

   (b) Write in brief about power diode.

   (c) Explain principle of pulse converter.

   (d) Explain working principle of step up chopper.

   (e) What are the various approach for the improvement of power factor. 6×2.5=15

## Section-A

2. Write short note on: 15

   (i) Power transistor

   (ii) IGBT

3. Explain the construction and characteristics of power MOSFET. 15

## Section-B

4. What are the ratings of thyristors. 15

5. Explain RC and UJT firing circuit for SCR. 15

## Section-C

6. Derive the output voltage equation for converter. 15

7. Explain three phase full bridge thyristor rectifier with R load. 15

## Section-D

8. Explain 180 degree mode of conduction scheme in thyristor. 15

9. Write short note on: 15

   (i) Mc Murray half bridge inverter.

   (ii) Voltage commutated chopper.

B.Tech. (EE) (Elective-IV) 6th Semester (G-Scheme) Examination, May–2024

ADVANCE ELECTRIC DRIVES

Paper– PCC-EE-18-G

*Time allowed : 3 hours]* *[Maximum marks : 75*

*Note:* ***Question No. 1 is compulsory. Attempt one question*** *from each section. All questions carry equal marks.*

1. (i) What do you mean by selected harmonic elimination. 15

   (ii) Why we need modelling of induction machine.

   (iii) How you can do direct torque control.

   (iv) What are the various application of SRM.

**Section-A**

2. Explain space vector PWM technique. 15

3. Explain three level inverter and space vector modulation for three level inverter. 15

**Section-B**

4. Explain modelling of 3 phase metrical induction machine in e d q variable. 15

5. Explain direct torque and flux control of induction machine with block diagram. 15

## Section-C

6. Explain modelling of synchronous machine in DQ variable and also draw the equivalent circuit. 15

7. Explain closed loop speed control of self controlled permanent magnet synchronous motor drive. 15

## Section-D

8. Explain mode of operation and closed loop speed control of switched reluctance motor. 15

9. Realise some basic block in DSP for implementation of DSP based motion control. 15

**B.Tech. (EE) 6th Semester (G-Scheme)**
**Examination, May–2024**

# ELECTRONICS DESIGN LABORATORY

**Paper– LC-EE-310-G**

*Time allowed : 3 hours]* *[Maximum marks : 50*

***Note:*** *Attempt **five** questions in all, selecting **one** question from each unit. **Question No. 1 is compulsory.** All questions carry equal marks.*

**1.** (a) Discuss applications of CRO. 2.5×4=10

(b) List the advantages of transducer.

(c) Define signal conditioning.

(d) Explain the term signal to noise ratio *(S/N)*.

## Section-A

**2.** Explain the elements of Generalized Measurement System. 10

**3.** (a) Explain external and internal noise in electronic system. 5

(b) Discuss the Sensor conditioning circuit in short. 5

## Section-B

**4.** Explain the component of PC based data acquisition system. 10

**5.** Write a note on electronic system design. 10

## Section-C

6. Discuss Electronic system design employing micro-controllers in detail. 10

7. Write short notes on :

   (i) PCB design and layout 5

   (ii) CPLDs 5

## Section-D

8. Describe the specifications of ADCs with examples. 10

9. Explain properties of ideal operational amplifier. 10

# B.Tech. (EE) (Elective-III) 6th Semester (G-Scheme) Examination, May–2024

## POWER SYSTEM PROTECTION

### Paper– PEC-EE-06-G

*Time allowed : 3 hours]* *[Maximum marks : 75*

**Note:** *Attempt **five** questions in all. **Q. No. 1 is compulsory.** Attempt **four** more questions from the **sections A, B, C & D** by selecting at least **one** question from each section.*

1. (a) What do you mean by self balance system?

   (b) Explain protection against failure of excitation in brief.

   (c) What do you mean by relay testing?

   (d) Explain the function of Under-frequency relays in brief.

   (e) Explain CT/PT modeling.

   (f) Explain Sequence Networks in brief. 6×2.5=15

## Section-A

2. What is Earth fault protection? Discuss Circuit Breakers classification in detail. 15

**or**

3. Discuss Generator Protection scheme on detail. 15

## Section-B

4. Explain Over-current and earth fault protection. 15

Or

5. What is Differential protection? How Differential protection is applied for the protection of Transformers? 15

## Section-C

6. Explain the Directional and Distance Protection Schemes in detail. 15

Or

7. Explain Simulation of transients using Electro-Magnetic Transients (EMT) programs. 15

## Section-D

8. Write short note on:

   (a) Synchro-phasors 15

   (b) Phasor Measurement

Or

9. What is Wide-Area Measurement Systems (WAMS)? Explain the Application of WAMS for improving protection systems. 15

B.Tech (Bio-Tech.), 4th Semester G-Scheme

Examination, May–2024

ORGANISATIONAL BEHAVIOUR

Paper–HSMC-02-G

*Time allowed : 3 hours]* *[Maximum marks : 75*

*Note : Attempt any five questions. First question is compulsory and attempt atleast* one *question from each unit. All questions carry equal marks.*

1. Write short notes on the following : 2½×6=15

   (a) Scope of management
   (b) Channels of communication
   (c) Challenges of Organisational behaviour
   (d) Conflict management
   (e) Importance of motivation
   (f) Effect of Organisational structure on human behaviour

**Unit-1**

2. What do you understand by management? Explain its nature, its levels, roles and functions in context with business. 15

3. Write short note on following : 7½×2=15

   (a) Administration
   (b) Scope and importance of management

## Unit-2

4. What do you understand by Motivation? What can an organisation do to motivate its workers for better performance? Explain its techniques and importance. 15

5. Write short notes on following : 7½×2=15

   (a) Relationship of Organisation behaviour with other fields

   (b) Concept of learning

## Unit-3

6. Write short note on following : 7½×2=15

   (a) Leadership and its qualities

   (b) Qualities and functions of leadership

7. Define communication. What are the different channels by which we can communicate in modern industrial fields? Why it is important for modern industrial organisations. Explain with example. 15

## Unit-4

8. What do you understand by organisational change? Explain in detail its concept, types and factors affecting it with example. 15

9. Write short notes on the following : 7½×2=15

   (a) Meaning of organisational structure

   (b) Factors affecting organisational culture

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## B. Tech. 6th Semester (EE) (Elective-V) Examination – June, 2024

### CONVENTIONAL AND RENEWABLE ENERGY RESOURCES

Paper : OEC-EE-08-G

*Time : Three hours ]* *[ Maximum Marks : 75*

*Before answering the questions, candidates should ensure that they have been supplied the correct and complete question paper. No complaint in this regard, will be entertained after examination.*

*Note :* Attempt *five* questions in all, selecting *one* question from each Section. Question No. 1 is *compulsory*. All questions carry equal marks.

1. Write a short note on the following : $10 \times 1.5 = 15$

   (a) Explain the significance of energy sources in the context of power generation.

   (b) Define load factor and its application in power generation planning.

   (c) Describe the working principle of a nuclear power plant.

   (d) Discuss the factors influencing the selection of sites for wind energy plants.

(e) Define energy audit and its relevance in the energy sector.

(f) Explain the concept of co-generation and its advantages.

(g) Differentiate between base load and peak load power plants.

(h) Describe the working principle of a solar photovoltaic power plant.

(i) How are depreciation and reserves accounted for in power generation planning ?

(j) Discuss the concept of demand factor and its implications in load forecasting.

## SECTION – A

2. Explain the recent trends in power generation in developed countries and their impact on the energy sector. 15

3. Discuss the concept of interconnected generation of power plants and its role in ensuring grid stability. 15

## SECTION – B

4. Describe the methods used for load forecasting and their significance in power generation planning. 15

5. Discuss the importance of capacity factor and its influence on the selection of unit size in power plants. 15

## SECTION – C

6. Compare and contrast thermal, hydroelectric, and nuclear power plants in terms of their efficiency and environmental considerations. 15

7. Explain the selection criteria and working principles of hydroelectric power plants. 15

## SECTION – D

8. Discuss the strategies for effective energy management in the context of electric energy conservation. 15

9. Explain the features and benefits of energy-efficient motors in the conservation of electrical energy. 15

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