B.Tech. (EE) Program Elective-IV 7th semester
(G. Scheme) Examination, December-2022
UTILIZATION OF ELECTRICAL POWER
Paper -PEC-EE-405-G

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

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

1. (a) State the advantages of electrical heating 6×2.5=15

(b) Classify types of electric drives

(c) Explain any two terms used in illumination

(d) State various methods of electric braking

(e) State the factors on which selection of motor depend upon.

(f) State the advantages of incandescent lamps.

Unit-I

2. (a) Draw and explain in detail the block diagram of electric drive. 7.5

(b) Discuss the characteristics of DC shunt motor in detail. 7.5

3. (a) Sketch and explain the equivalent circuit of Three phase induction motor. Also derive its torque equation. 7.5

(b) Write short note on load equalization. 7.5

Unit-II

4. (a) State and explain various electric welding equipments. 7.5

(b) Explain advantages of electric heating. 7.5

5. Explain induction heating in detail. 15

Unit-III

6. Explain types and design of lighting and flood lighting. 15

7. (a) Write short note on Polar curves. 7.5

(b) State and explain the laws of illumination. 7.5

Unit-IV

8. (a) Explain Railway track electrification in detail. 7.5

(b) Explain speed-time curves for different services. 7.5

9. Explain various methods of electric braking. 15

B.Tech. (EE) - Program Elective-V, 7th Semester

(G-Scheme) Examination, December-2022

ADVANCED POWER TRANSMISSION

Paper -PEC-EE-415-G

Time allowed : 3 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. (a) Explain Necessity of EHVAC transmission.

(b) List out the application of HVDC.

(c) Outline the benefits from FACTS controllers.

(d) Define Power Quality.

(e) Define power frequency variation.

(f) Explain the types of transmission system in HVDC.

6×2.5=15

Section-A

2. Explain the distribution of voltage gradient on sub-conductors of bundle. 15

3. Illustrate Standard transmission voltage levels in EHV transmission and discuss surface voltage gradient in conductor. 15

Section-B

4. Explain the major components of a HVDC transmission in converter station unit. 15

5. Discuss operation and control of converters. Also discuss starting and stopping of DC links. 15

Section-C

6. Discuss basic types of FACTS controllers in detail with applications. 15

7. Discuss the objective of FACTS controllers. What is the need of reactive power compensation? 15

Section-D

8. Explain mitigation and control of power quality issues. 15

9. (a) Discuss the reasons for voltage imbalances. 7.5

   (b) Explain briefly about the sources of harmonics generation and waveform distortion. 7.5

B.Tech. (EE) Open Elective-III 7th semester

(G-Scheme) Examination, December-2022

RENEWABLE ENERGY AND DISTRIBUTED GENERATION

Paper -OEC-EE-403-G

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

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

1. (a) Discuss distributed power generation.

(b) Compare renewable and non renewable energy resources.

(c) Discuss the centralized power generation.

(d) State the various power quality issues.

(e) What is the effect of power system on distributed generation?

(f) Explain the concept of wave energy. 6×2.5=15

Section-A

2. Explain internal combustion and micro turbines in brief. 15

3. Write down the comparison between centralized station and distributed generation in detail. 15

Section-B

4. Give a detailed comparison between wind and solar energy. 15

or

5. Explain the comparison between renewable and renewable energy sources. 15

Section-C

6. Explain the impact of distributed generation on Power System? 15

or

7. Explain the interface of power electronic with the grid. 15

Section-D

8. Explain various protection methods of distributed generators. 15

or

9. Briefly explain the economics of distributed generation. 15

B.Tech. (CSE) Open Elective-I, 7th Semester (G-Scheme) Examination, December-2022

FUNDAMENTALS OF MANAGEMENT

Paper-HSMC- 08-G

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

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

1. (a) Explain the meaning of management as an art.

(b) What are the objectives of planning and control?

(c) What are the objectives of marketing management?

(d) Explain the concept of fixed capital and working capital.

(e) Explain the meaning of advertising.

(f) Explain the function of financial management.

6×2.5=15

Unit-I

2. Explain the meaning of management as an science and art. 15

3. Explain the meaning of training. What are the objectives of training? Explain the types of training. 15

Unit-II

4. What do you understand by production management? Explain the objective, function and scope of production management. 15

5. What is inventory? How is it controlled? Discuss the importance of inventory. 15

Unit-III

6. What is meant by marketing? Explain the objective and functions of marketing. 15

7. Differentiate between advertising and publicity. Also examine the utility of advertising in the business world. 15

Unit-IV

8. What do you understand by financial management? Explain the various sources of finance to an industrial Concern. 15

9. What do you understand by capital structure? Explain the various sources of finance. 15

B.Tech. (EE) Open Elective-IV, 7th semester

(G-Scheme) Examination, December-2022

SOLAR PHOTOVOLTAIC TECHNOLOGY

Paper -OEC-EE-407-G

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

Note: Question no. 1 is compulsory. Attempt total five questions selecting one question from each unit. All questions carry equal marks.

1. (a) Define Photovoltaic effect.

   (b) Define conversion efficiency of a solar cell.

   (c) Bring out the usage of blocking diode in PV modules.

   (d) What is meant by On-grid PV system?

   (e) What is the purpose of charge controller? List any two types of charge controllers used in stand-alone PV systems.

   (f) Define Capacity Utilization Factor. 6×2.5=15

Unit-I

2. (a) Enumerate the primary design factors that affect the performance of a solar cell. 8

(b) A solar cell having an area of 120 cm^2 gives 3.4A current and 0.7V at maximum power point at STC. The cell gives 3.8A short circuit current and 0.8V open circuit voltage. What is the maximum power point of the solar cell? Also, determine the efficiency of the cell and Fill factor. 7

3. With a flow chart explain wafer-based PV module fabrication showing the steps from cell sorting till PV module characterization. 15

Unit-II

4. (a) Sketch the layout of grid connected PV system. 8

(b) Brief the balance of systems in a solar PV system. 7

5. Explain in detail the typical application for lighting and water pumping in PV system. 15

Unit-III

6. A grid connected PV power plant is installed where in PV modules are connected to the grid through a grid tied inverter. The voltage range for inverter operation is 300-400V and maximum current the inverter can handle is 150A. Design a solar PV system for such inverter which should operate at maximum voltage of 350V and a current at 150A. The module available for this are having Vm=40V, Im=9A. Also estimate the final power of the system. 15

7. Examine the key parameters involved in the performance evaluation of a grid connected PV system. 15

Unit-IV

8. (a) Explain the layout of Bio mass power plant. 8

   (b) Explain the working of wind-solar Hybrid system. 7

9. Explain the different performance parameters for testing performance of Wind solar PV Hybrid system. 15