

Roll No. :

Total No. of Questions : 9] [Total No. of Pages : 3

3353

**B.Tech. (EE) 6th Semester (Supplementary)
Examination, July-2021
(G Scheme) (Elective-IV)**

**ADVANCE ELECTRIC DRIVES
Paper-PEC-EE-18-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 Unit. Question No. 1 is compulsory.

1. (a) What is PWM Technique ? Why PWM is used in inverter ?
- (b) Draw block diagram of speed control of Induction Motor Drive.

3353_400

(1)

RD-3490 P.T.O.

- (c) What are Permanent Magnet Motors ?
- (d) What is Synchronous Motor Drive ?
- (e) Name various topologies used in SRM Drive.
- (f) What is use of DSP in motion control of electric drives ? 2½×6=15

Unit-I 15 each

2. What are different techniques PWM Techniques used in Inverter ? Explain in detail selected harmonic elimination technique.
3. What is the need of PWM Rectifiers ? Explain in detail the working of single-phase diode rectifier with boost chopper for line current wave shaping.

Unit-II

4. (a) Derive torque equation with Stator and Rotor Fluxes in induction motor drive.
- (b) Explain the principle of vector control in induction motor drive. 7½,7½

3353_400

(2)

RD-3490

5. Write short notes on the following :
- (a) Modelling of Induction Machine
- (b) Direct Torque and Flux Control 7½,7½

Unit-III

6. Draw and explain block diagram of BLDC Motor and PMSM Motor. 15
7. Write short notes on the following :
- (a) CSI Fed Synchronous Motor Drive
- (b) Comparison between BLDC and PMSM Motor 7½,7½

Unit-IV

8. Write short notes on the following :
- (a) Evolution of Switched Reluctance Motor Drive
- (b) Speed and Torque Control of SRM 7½,7½
9. Explain in detail realization of some basic blocks in DSP for implementation of DSP based motion control. 15

3353_400

(3)

RD-3490

Roll No.

3079

**B. Tech. 4th Semester (Bio-Tech.)
Examination – July, 2021**

ORGANIZATIONAL BEHAVIOUR

Paper : HSMC-02-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 : Section-A is *compulsory*. Attempt total *five* questions. Remaining *four* questions from Section-B. Selecting *one* question from each Unit. All questions carry equal marks.

SECTION – A

- 1.** Attempt all the *six* questions : $2.5 \times 6 = 15$
- (a) What do you mean by controlling ?
- (b) Explain the any *two* differences between Management v/s Organization.

3079-4850-(P-3)(Q-9)(21)

P. T. O.

- (c) Explain the scope of Behavior-Personality.
- (d) Explain the difference between Teams and Groups.
- (e) What do you mean by Organizational culture ?
- (f) Define the concept of Conflict management.

SECTION – B

UNIT – I

- 2. What do you mean by management ? Discuss the scope and importance of management. 15
- 3. What are managerial skill ? What skill mix is expected of the managers at the top level of the organization ? 15

UNIT – II

- 4. What do you mean by Organizational Behavior ? What Contemporary challenges and opportunities of OB in present scenario in an organization ? 15
- 5. What is motivation ? What does Maslow's hierarchy of needs tell us about people's needs ? 15

3079-4850-(P-3)(Q-9)(21) (2)

UNIT – III

- 6. What do you understand by leadership ? Examine the different styles of leadership. What is the importance of leadership in modern business ? 15
- 7. Define communication. State the common barriers to effective communication in an organization. 15

UNIT – IV

- 8. Discuss the basic consideration to be kept in view while designing an organization structure. 15
- 9. What do you mean by planned changes ? How should a manager handle change in his organization ? 15

3079-4850-(P-3)(Q-9)(21) (3)

Roll No. :

Total No. of Questions : 9] [Total No. of Pages : 3

3357

**B.Tech. (EE) 6th Semester (Supplementary)
Examination, July-2021
(G Scheme) (Elective-V)**

**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 Unit. Question No. 1 is compulsory.

1. (a) What is meant by Conventional and Non-conventional Energy Resources ?
- (b) Draw Chronological Load Curve and Load Duration Curve.

3357_250

(1)

RD-3492 P.T.O.

- (c) Define terms : Connected Load, Maximum Demand, Load Factor.
- (d) What considerations govern the selection of sites for thermal power plant ?
- (e) Explain the aim of Energy Audit.
- (f) Name some states in India having wind power plants. $2\frac{1}{2} \times 6 = 15$

Unit-I

2. Explain the amount of generation of Conventional and Non-conventional Energy sources in Haryana. 15
3. Write short notes on the following :
- (a) Recent trends in power generation
- (b) Interconnected generation of power plant $7\frac{1}{2}, 7\frac{1}{2}$

Unit-II

4. (a) What is Load Forecasting ? Explain short-term and long-term load forecasting.
- (b) Draw Chronological Load Curve for different types of load. $7\frac{1}{2}, 7\frac{1}{2}$

3357_250

(2)

RD-3492

5. What is Depreciation ? Explain the various methods to calculate depreciation. 15

Unit-III

15 each

6. Draw and explain schematic diagram and working of Nuclear Power Plant.
7. Illustrate by neat diagram the basic component of MHD Generator. What special feature must such system have for efficient application ?

Unit-IV

8. What is Energy Management ? Explain in detail its objective and energy management techniques. 15
9. (a) Explain Cogeneration System and also mention its advantages and disadvantages.
- (b) What is the need of Energy Efficient Motors ? Name the motor which is more energy efficient. $7\frac{1}{2}, 7\frac{1}{2}$

3357_250

(3)

RD-3492

Roll No. :

Total No. of Questions : 9] [Total No. of Pages : 3

3352

**B.Tech. (EE) 6th Semester (Supplementary)
Examination, July-2021
(G Scheme) (Elective-III)**

POWER SYSTEM PROTECTION

Paper-PEC-EE-06-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. (a) What are the advantages of static relays over electromechanical relays ?
- (b) Explain the important objectives of Power System Protection.

3352_100

(1)

RD-3489 P.T.O.

- (c) List the basic Protection Scheme Components.
- (d) List the desirable relay characteristics.
- (e) What is a Current Transformer ?
- (f) Define Rate of Rise of Re-striking Voltage. $2\frac{1}{2} \times 6 = 15$

Section-A

- 2. What is an Impedance Relay ? Explain its operating principle, torque equation and operating characteristics for impedance relay. 15
- 3. (a) Write a short note on Instrument Transformer.
- (b) Explain the protection against failure of excitation in generator protection. $7\frac{1}{2}, 7\frac{1}{2}$

Section-B

- 4. (a) Write a note on Sequence Networks.
- (b) Discuss the problems associated with differential protection scheme of transformer. $7\frac{1}{2}, 7\frac{1}{2}$

- 5. Explain the construction and working principle of 'Buchholz Relay'. State its use for the protection of transformers to detect incipient fault. 15

Section-C

- 6. (a) Write a short note on Bus bar protection schemes.
- (b) Explain the CT/PT modelling and its standards for protection schemes in detail. $7\frac{1}{2}, 7\frac{1}{2}$
- 7. Explain the simulation of transients using Electro-magnetic transient program. 15

Section-D

- 8. (a) State and explain the effect of power swings on distance relaying.
- (b) Write a short note on Synchro-phasors. $7\frac{1}{2}, 7\frac{1}{2}$
- 9. (a) Explain df/dt Relays in detail.
- (b) Write a short note on Phasor Measurement Units. $7\frac{1}{2}, 7\frac{1}{2}$

Roll No. :

Total No. of Questions : 9] [Total No. of Pages : 3

3350

**B.Tech. (EE) 6th Semester (Supplementary)
Examination, July-2021
(G Scheme)**

**POWER ELECTRONICS
Paper-PCC-EE-306-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. (a) Explain the role of Power Electronics.
- (b) Discuss the characteristic features of GTO.
- (c) Explain dv/dt protection of SCR.

- (d) What is meant by Two Pulse Converter ?
- (e) List the function of freewheeling diodes in controlled rectifier.
- (f) Define derating factor of series connected SCRs. $2\frac{1}{2} \times 6 = 15$

Section-A

2. (a) Compare IGBT and Power Transistor.
- (b) Discuss the merits and demerits of Power Electronics System. List some applications of Power Electronics. $7\frac{1}{2}, 7\frac{1}{2}$
3. Explain the construction and characteristics of Power Transistor and discuss important operating regions of power transistor. 15

Section-B 15 each

4. Sketch the V-I characteristics of an SCR and explain latching current, holding current and break over voltage.
5. With a neat circuit diagram and waveforms explain resistor triggering circuit and RC triggering circuit to Turn ON the SCR.

Section-C

6. (a) Draw and explain single phase full wave converter in bridge configuration supplying highly inductive load.
- (b) Compare Fully Controlled and Half Controlled Converters. $7\frac{1}{2}, 7\frac{1}{2}$
7. Draw and explain the three phase fully controlled converter operation with RL load and derive the expression for DC output voltage. 15

Section-D 15 each

8. Explain the operation of 120-degree mode three-phase Voltage Source Inverter (VSI).
9. Explain in detail how choppers are classified.

5. (a) What is the significance of Incremental Cost (λ) ?
 (b) Derive expression for representation of transmission loss by B-coefficients. $7\frac{1}{2}, 7\frac{1}{2}$

Section-C 15 each

6. What are the different methods for Voltage Control ? Explain them in brief.
 7. Explain with block diagram of two area load frequency control.

Section-D

8. (a) Draw power angle curve and also derive an expression for this.
 (b) Define Transient Stability. Discuss various assumptions made during analysis of the system. $7\frac{1}{2}, 7\frac{1}{2}$
 9. What do you understand by equal area criteria and plot a δ Vs. t curve for the stable and unstable system ? 15

3349_1100

(4)

RD-3331

Roll No. :

Total No. of Questions : 9] [Total No. of Pages : 4

3349

**B.Tech. (EE) 6th Semester (Supplementary)
 Examination, July-2021
 (G Scheme)**

**POWER SYSTEM-II
 Paper-PCC-EE-302-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. Question No. 1 is compulsory. Attempt *four* more questions from the Sections-A, B, C and D by selecting *one* question from each Section.

1. (a) What do you mean by control area in Power System ? Explain it.
 (b) What are the advantages and disadvantages of GS method ?

3349_1100

(1)

RD-3331 P.T.O.

- (c) Define the term ITL.
- (d) What is the significance of Incremental Cost (λ) ?
- (e) In which condition generator bus is treated as load bus ?
- (f) What is the objective of the economic dispatch problem ? $2\frac{1}{2} \times 6 = 15$

Section-A 15 each

2. Detail the algorithm to perform load flow using NR method and also draw its flowchart.
3. The load flow data for the sample power system are given below. The voltage magnitude at bus 2 is to be maintained at 1.04 p.u. the max and min reactive power limits of the generator at bus 2 are 0.35 and 0.0 p.u. respectively. Determine the set of load flow equation at the end of first iteration by using G-S method :

Bus Code	Impedance	Line charging Admittance
1-2	$0.08 + j 0.24$	0
1-3	$0.02 + j 0.06$	0
2-3	$0.06 + j 0.18$	0

3349_1100

(2)

RD-3331

Schedule of generation of loads :

Bus Code	Assumed Voltage	Generation		Load	
		MW	MVAR	MW	MVAR
1	$1.06 + j 0.0$	0	0	0	0
2	$1.00 + j 0.0$	0.2	0	0	0
3	$1.00 + j 0.0$	0	0	0.6	0.25

Section-B

4. Incremental fuel cost in rupees per MWh for a plant consisting of two units are :

$$dC_1/dP_{G1} = 0.20 P_{G1} + 40$$

$$dC_2/dP_{G2} = 0.40 P_{G2} + 30$$

and the generator limits are as follows :

$$30 \text{ MW} \leq P_{G1} \leq 175 \text{ MW}$$

$$20 \text{ MW} \leq P_{G2} \leq 125 \text{ MW}$$

Assume that both units are operating at all times. How will the load be shared between the two units as the system load varies over the full range of the load values ? What are the corresponding value of the plant incremental costs ?

15

3349_1100

(3)

RD-3331 P.T.O.

Roll No. :

Total No. of Questions : 9] [Total No. of Pages : 3

3351

B.Tech. (EE) 6th Semester Examination, July-2021
(G Scheme)

ELECTRONICS DESIGN LABORATORY

Paper-LC-EE-310-G

Time : Three Hours]

[Maximum Marks : 50

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. Q. No. 1 is compulsory.

1. (a) Define Signal Conditioning.
- (b) What do you understand by the term Signal to Noise Ratio (S/N) ?
- (c) Enlist the advantage of Transducer.
- (d) Discuss the major applications of CRO.

2½×4=10

3351_200

(1)

RD-3532 P.T.O.

Section-A

2. (a) Distinguish between Direct and Indirect method of Measurement. Cite example to support your answer.
- (b) Explain Internal and External Noise in an electronic system. 4,6
3. Explain the elements of Generalised Measurement System. 10

Section-B 10 each

4. Explain the component of an analog data acquisition system.
5. Draw and explain the working of A/D Converter.

Section-C 10 each

6. Write short notes on the following :
 - (a) CPLDs and
 - (b) FPGAs
7. Explain the interfacing of LCD with 8051 microcontroller.

Section-D

10 each

8. Explain the properties of Ideal Operational Amplifier.
9. Enumerate the specifications of ADCs with examples.