

THIAGARAJAR POLYTECHNIC COLLEGE, SALEM

Autonomous Final Semester 2020 Examinations

DIPLOMA IN ELECTRICAL AND ELECTRONICS ENGINEERING

Reg. No.

DISTRIBUTION AND UTILIZATION

Year/Sem: III / VI (EVEN-III)

Time : 2 hrs

Date & Session: 23.09.2020/AN

Max. Marks : 50

PART-A

(4 x 2 = 8 Marks)

Note: (i) Answer any FOUR questions. (ii) All the questions carry equal marks.

- 1 Write any two advantages of Gas Insulated substation.
- 2 State any two requirements of Distribution System.
- 3 Give any two types of Electric drives.
- 4 State any two factors governing the selection of motors.
- 5 Write any two traction system.
- 6 What is specific energy output?
- 7 What are the modes of Heat Transfer?
- 8 What are the two laws of Illumination?

PART-B

(4 x 3 = 12 Marks)

Note: (i) Answer any FOUR questions. (ii) All the questions carry equal marks.

- 9 Write briefly about double busbar arrangement.
- 10 Write briefly about parts of Distribution System.
- 11 Discuss about short time duty cycle.
- 12 What are the features of good braking System?
- 13 Write briefly about the operation of pantograph collector.
- 14 Give any six desirable characteristic of Traction motor.
- 15 List out any six requirements of Heating element used in electrical furnaces.
- 16 Write about the disposal of CFL.

PART-C

(3 x 10 = 30 Marks)

Note: i) Answer any THREE questions ii) All the questions carry equal marks.

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| 17 Draw and explain the layout of 11KV/400V distribution substation. | 10 |
| 18 Write about the consequence of disconnection of neutral in 3-phase, 4-wire system with a suitable example. | 10 |
| 19 Explain about the selection of motor for any Ten specific applications. | 10 |
| 20 Discuss about the method of connecting Booster Transformer with a neat sketch. | 10 |
| 21 Write about different types of lighting schemes with suitable sketches. | 10 |
| 22 Explain about coreless Induction furnace with suitable sketches, also mention its advantages. | 10 |

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DIPLOMA IN ELECTRICAL AND ELECTRONICS ENGINEERING

Reg. No.

OPERATION AND MAINTENANCE OF ELECTRICAL EQUIPMENT

Year/Sem: III / VI (EVEN-III)

Time : 2 hrs

Date & Session: 24.09.2020/AN

Max. Marks : 50

PART-A

(4 x 2 = 8 Marks)

Note: (i) Answer any FOUR questions. (ii) All the questions carry equal marks.

- 1 What is earthing?
- 2 What are the points to be checked in building installation?
- 3 What is meant by insulation Co-ordination?
- 4 State the different types of Building Electrical installations.
- 5 Why automatic voltage regulators are provided in the alternator?
- 6 What is ambient temperature?
- 7 Define Factor of Safety.
- 8 Why drying out is necessary in motors?

PART-B

(4 x 3 = 12 Marks)

Note: (i) Answer any FOUR questions. (ii) All the questions carry equal marks.

- 9 Explain the operation of carbon tetra chloride Fire Extinguisher.
- 10 What actions to be taken while the transformer oil temperature rises unduly?
- 11 What is cyclic speed irregularity?
- 12 What are the different classification of insulation?
- 13 State the usage of ball and roller bearings.
- 14 What is stroboscopic effect?
- 15 What are the advantages of Steel cored aluminium conductors?
- 16 What are the possible defects occur for the generator failure to build up voltage?

PART-C

(3 x 10 = 30 Marks)

Note: i) Answer any THREE questions ii) All the questions carry equal marks.

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| 17 Explain the measurement of earth resistance by using ammeter and voltmeter method. | 10 |
| 18 Describe the precautions required for paralleling of two transformers. | 10 |
| 19 Explain in detail about how the transformer maintenance is scheduled? | 10 |
| 20 What are the maintenance required for SF ₆ Circuit breaker? | 10 |
| 21 Explain how the starters are selected for high and low starting torque applications. | 10 |
| 22 i) Write the steps in designing lighting Installation. | 5 |
| ii) Explain the different methods of controlling street lighting. | 5 |

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DIPLOMA IN ELECTRICAL AND ELECTRONICS ENGINEERING

Reg. No.

POWER ELECTRONICS

Year/Sem: III / VI (EVEN-III)

Time : 2 hrs

Date & Session: 25.09.2020/AN

Max. Marks : 50

PART-A

(4 x 2 = 8 Marks)

Note: (i) Answer any FOUR questions. (ii) All the questions carry equal marks.

- 1 Define snubber.
- 2 What is a three phase dual converter?
- 3 State the application of inverters.
- 4 Define modulation index.
- 5 State the advantages of HVDC transmission.
- 6 Why is the DC drive used in many applications?
- 7 Define constant torque region in Torque speed characteristics curve of an AC curve.
- 8 Define cyclo converter.

PART-B

(4 x 3 = 12 Marks)

Note: (i) Answer any FOUR questions. (ii) All the questions carry equal marks.

- 9 State thyristor gate requirements.
- 10 Write short notes on reverse blocking region of SCR.
- 11 Write short notes on phase angle in AC voltage controller.
- 12 Briefly explain buck-boost converter.
- 13 Briefly explain the concept of thyristor switched capacitors.
- 14 Write notes on solid state relays.
- 15 Briefly explain two quadrant converter.
- 16 With diagram, Write short notes on step up converter.

PART-C

(3 x 10 = 30 Marks)

Note: i) Answer any THREE questions ii) All the questions carry equal marks.

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| 17 Explain IGBT with diagram and its characteristics. | 10 |
| 18 Explain UJT based trigger circuit with diagram and its characteristics | 10 |
| 19 Explain with neat diagram and waveform, single phase full controller with inductive load. | 10 |
| 20 Explain sinusoidal pulse width modulation with neat diagram and waveform. | 10 |
| 21 Explain full Bridge converter type switched mode power supply with a diagram. | 10 |
| 22 Explain variable frequency PWM-VSI drives. | 10 |