Enrollment No.....

Bachelor of Engineering
Seventh Semester Examination, Dec-2021
Electrical Machines – III [EX-703]
Branch: EX

Time: 3:00 Hrs **Max Marks70**

Note : 1. Attempt any five questions out of eight.
2. All question carry equal marks.

Q.1 (a) Write a short note on integral slots and fractional slot winding.

(b) What do you understand by winding factor? Explain in detail?

Q.2 (a) Derive the EM.F. Equation of synchronous machine?

(b) Explain the principle of operation for synchronous motor?

Q.3 (a) Explain in details the methods for suppression of harmonics in synchronous generators?

(b) What is armature reaction? Explain the effect of armature reaction in synchronous generator? (With necessary diagram).

Q.4 (a) Draw the phasor diagrams for inductive, resistive and capacitive loads with suitable emf equations.

(b) Determine the regulation of a 2kv single phase alternator, delivering a current of 100A at 0.8 pf leading.
Test result: full load current of 100 A is produced on short circuit by a field excitation of 2.5A. An emf of 500V is produced on open circuit by the same field current. The armature resistance is 0.8Ω.

Q.5 (a) Determine voltage regulation by (any one)
i) M.M.F method
ii) Potier's triangle Method

(b) What is the use of synchronous Impedance method. Explain?

Q.6 (a) Write a short note on Synchronous Induction motor.
(b) Explain two reactance theory for salient poles synchronous machines?

Q.7 Determine sub-transient, transient and steady state reactance?

Q.8 Write a short note on V curve or Inverted V curve?

Enrollment No.....

Bachelor of Engineering
Seventh Semester Main Examination, December 2021
Power Quality [EX-7103]
Branch-EX

Time: 3:00 Hrs **Max Marks 70**

Note : (i) Attempt any five questions out of eight. All questions carry equal marks.

Q.1 (a) Define power quality. Explain the reason for increased concern in power quality.
(b) Differentiate between power quality & voltage quality? At least 7 points.

Q.2 (a) Write short note on general classes of power quality problem.
(b) What is the major power quality issue? Discuss the various characteristics of power quality event.

Q.3 (a) what is the need for estimating sag performance ? what are the various causes of voltage sag.
(b) What are the various methods of estimating sag performance?

Q.4 (a) What are the different types of transient over voltage?
(b) What is the need for overvoltage protection? What are the basic principles of over voltage protection of load equipment?

Q.5 (a) What are the different ways of estimating voltages sag performance ?
(b) What do you understand by utility capacitor switching transients?

Q.6 (a) Explain the fundamentals of harmonics and harmonics distortion?
(b) Explain in brief harmonics sources from commercial load and form industrial loads.

Q.7 (a) Write short note on monitoring sags, voltage sags and interruption?
(b) Describe harmonic distortion? Explain the principles for controlling harmonics?

Q.8 Write short note on:-
i) Filters
ii) variable tolerance band control
iii) Passive input filter
iv) Discontinuous current control

Enrollment No.....

Bachelor of Engineering
Seventh Semester Main Examination, December 2021
SCADA Systems & Application [EX-7202]
Branch: EX

Time: 3:00 Hrs **Max Marks 70**

Note: 1. Attempt any five questions out of eight.

2. All question carry equal marks.

Q.1 (a) What are the components used is SCADA Explain in detail
(b) Explain ladder diagram in PLC with diagram.

Q.2 (a) Explain communication Technology used in SCADA.
(b) describe interfacing of PLC X SCADA with diagram.

Q.3 (a) Explain various SCADA Architectures.
(b) Advantages & disadvantages of SCADA architectures .

Q.4 (a) Explain open standard communication protocols in SCADA ?
(b) Differentiate between wired & wireless. methods of SCADA communication.

Q.5 (a) Describe IEC 61850 SCADA in brief.
(b) Programing language used in PLC with Example.

Q.6 (a) What do you understand by SCADA
(b) Explain Transmission and distribution sector operation in SCADA.

Q.7 (a) What do you understand automatic substation control in SCADA.
(b) Application of SCADA system .

Q.8 (a) Short note (any 3).
i) Communication Network
ii) Remote Terminal unit
iii) SCADA server
iv) Mteriagent electronic devices.

Enrollment No.....

Bachelor of Engineering
Seventh Semester Examination, Dec-2021
Electrical Drives [EX-701]
Branch: EX

Time: 3:00 Hrs **Max Marks 70**

Note: 1. Attempt any five questions out of eight.
2. All question carry equal marks.

Q.1 (a) What are the main components of electric drives?.
(b) Explain the operation of single phase fully controlled converter fed separately excited DC motor Drive?

Q.2 (a) Explain speed -torque characteristics of DC motor.
(b) Explain the following Braking methods of DC motor,
(i) Plugging braking (ii)Dynamic braking (iii)Regenerative braking

Q.3 (a) Discuss the operation of four quadrant chopper.
(b) Explain the two modes in which a dual converter is used to control the dc motor speed. Which of the two methods is better and why? Explain.

Q.4 (a) Compare the operations of VSI and CSI.
(b) What are the speed-torque characteristics of induction motor?

Q.5 (a) What is Static rotor resistance control?
(b) Write the applications and advantages of synchronous motor drive?

Q.6 (a) Discuss rotor resistance control scheme of induction motor drive.
(b) Discuss in brief the circuit diagram for load commutated CSI fed synchronous motor?

Q.7 (a) Explain variable frequency control of frequency motor.
(b) Explain the operation of cyclo converter fed self controlled synchronous motor drive.

Q.8 (a) How chopper is used to control the speed of D.C. motor
(b) Write a short note on:
i) Static kramer drive
ii) Slip power recovery
iii) Static scherbius drive

Enrollment No.....

Bachelor of Engineering
Seventh Semester Main Examination, December-2021
HVDC Transmission [EX-702]
Branch: EX

Time: 3:00 Hrs **Max Marks 70**

Note : 1. Attempt any five questions out of eight.
2. All question carry equal marks.

Q.1 (a) What are the advantages of transmitting electrical power at high voltage.
(b) Mention the need for generating high voltage in laboratory.

Q.2 (a) What is the criteria of gaseous insulation breakdown based on Townsend's theory.
(b) What are the limitations of Townsend's theory.

Q.3 (a) Describe Panchen's law and its significance.
(b) What are the types of breakdown of liquids dielectrics? Describe (any Two).

Q.4 (a) What is series resonant circuit. Explain its principle of operation and advantages
(b) Describe triggering of impulse generator by three electrode gap arrangement.

Q.5 (a) Describe electrostatic voltmeter with its principle construction and limitation.
(b) Describe Generating voltmeter with its principle and construction.

Q.6 (a) Describe high voltage tests on isolates and circuit breakers.
(b) Mention the process of high voltage tests on cables insulators and transformers.

Q.7 (a) What do you understand by Surge current measurement.
(b) Tabulate the high voltage and high current measurement technique for different types of voltages and current.

Q.8 (a) Explain the following terms:
i) Withstand voltage
ii) Flashover voltage
(b) What is tesla coil? How is damped high frequency oscillations from tesla coil.