C-057

Roll No._____ Total Printed Pages : 2

03DYEE101

ENGG.DIPLOMA (ELEC.ENGG.)

Examination, March/April-2024

SUB : POWER ELECTRONICS AND DRIVES

Time : 3 Hours] **[Total Marks 70**

Use of following supporting material is permitted during examination.

1._____Nil_____ 2. _____Nil_____

Note: 1. Attempt any five questions.

2. Each question carry equal marks.

1. Explain the series and parallel connection of SCR. (14)

2. Explain the different methods of turn off of SCR. (14)

3. Explain the principle of Inverter. Also. explain thrge-phase bridge ipvgr!er. (14)

4. What is chopper? Explain the types of chopper circuits. (14)

5. Explain the principle of cycloconverter. Also write its application. (14)

6. What is SMPS. Discuss with merits and demerits.7. Explain.

- Resonator stabilizer. (14)

- Electronic stabilizer. (14)

8. Write short note on speed control of DC motor. (14)

9. Explain the types of timer circuits. (14)

10. Write short note on snubber circuit. (14)

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Roll No._____ Total Printed Pages : 2

03DYEE102

ENGG.DIPLOMA (ELEC.ENGG.)

III-YEAR Examination, March/April-2024

SUB : UTILIZATION OF ELECTRICAL POWER AND TRACTION

Time : 3 Hours] **[Total Marks 70**

Use of following supporting material is permitted during examination.

1._____Nil_____ 2. _____Nil_____

Note: 1. Attempt any five questions.

2. Each question carry equal marks.

1. Explain the principle of Electric heating. Also write its advantages. 14)

2. Explain the different types of electric welding. Give comparison between Arc welding and Resistance welding

3. Explain the advantages of electrical drives over mechanical drives. (14)

4. What is Illumination? Explain the laws Illumination. (14)

5. Write short note on types of Lamps. Also explain the requirements of good lighting. 14)

6. What is electric traction? Also explain different system of traction.

7. Explain:

   a) Speed time curves. 14)

   b) Crest speed, average speed and schedule speed.(14)

8. Write short note on DC series motor. (14)

9. Explain the types of current collectors. (14)

10. Explain the block diagram of electric locomotive. (14)

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Roll No._____ Total Printed Pages : 3

03DYEE103

ENGG.DIPLOMA (ELEC.ENGG.)

III-YEAR Examination, March/April-2024

SUB : ESTIMATING, COSTING & DESIGN OF ELECTRICAL INSTALLATIONS

Time : 3 Hours] **[Total Marks 70**

Use of following supporting material is permitted during examination.

1._____Nil_____ 2. _____Nil_____

Note: 1. Attempt any five questions.

2. Each question carry equal marks.

Q.1. What do you understand by Electrical wiring and types of electrical wiring? (14)

OR

What do you mean by earthing also describe types of earthing. (14)

Q.2. Explain the method of house wiring or electrical fittings. (14)

Q.3. Explain the distribution system of virtual house colony. (14)

Q.4. Briefly describe the following topics: (14)

- o Load Curve
- o Demand factor
- o Diversity factor
- o Load factor
- o Plant capacity factor

Q.5. How to installation Three Phase Electrical Wiring in Home? (14)

Q.6. Draw a single line diagram of Pole mounted substation. (14)

Q.7. For electrical substation how to select a site for electrical substation. (14)

OR

What do you understand by overhead power line and what devices are used for overhead power line? (14)

Q.8. What is an electrical cable? Briefly describe the types of electrical cable and differentiate between electrical wire and electrical cable. (14)

OR

Describe in detail about the types and functions of a circuit breaker. (14)

Q.9. Explain what causes high current in electrical system. (14)

OR

Write a short not on Indoor substation and outdoor substation. (14)

Q.10. What is a distribution substation and its main components? Explain in detail. (14)

OR

What do you understand by electrical safety inspection? (14)

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Roll No._____ Total Printed Pages : 2

03DYEE104

ENGG.DIPLOMA (ELEC.ENGG.)

III-YEAR Examination, March/April-2024

SUB : ELECTRICAL DESIGN AND DRAWING

Time : 3 Hours] **[Total Marks 70**

Use of following supporting material is permitted during examination.

1._____Nil_____ 2. _____Nil_____

Note: 1. Attempt all questions.

2. Each question carry equal marks.

Q1. Draw the schematic diagram of pump motor with water level indicators. (14)

Q2. Draw the contactor control schematic and wiring diagram of sequential operation of motors. (14)

Q3. Calculate the no-load current in three phase induction motor design. (14)

Q4. Calculate the main dimension of DC machine design. 14)

Q5. Differentiate between core type and shell type transformer. (14)

Q6. Draw a schematic diagram and wiring diagram for staircase lighting system for controlling single form two locations. (14)

Q7. Draw the control circuit both schematic and wiring diagram for three phase induction motor for its rotation in forward and reverse direction by using limit switches. (14)

Q8. What do you mean by single layer and double layer winding. (14)

Q9. What do you mean by D and L in three phase induction motor design. Explain the rotation between D and L (14)

Q10. Explain the following terms; (14)

(a) Full pitch winding

(b) Short pitch winding

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Roll No._____ Total Printed Pages : 3

03DYEE105

ENGG.DIPLOMA (ELEC.ENGG.)

Examination, March/April-2024

SUB : FUNDAMENTALS OF CONTROL SYSTEM

Time : 3 Hours] **[Total Marks 70**

Use of following supporting material is permitted during examination.

1._____Nil_____ 2. _____Nil_____

Note: 1. Attempt any five questions.

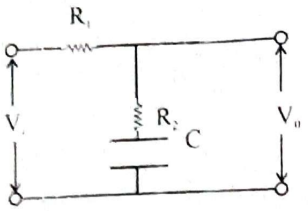
2. Each question carry equal marks.

Q1. Explain the following terms:

(a) Close loop control system

(b) Open loop control system

Q2. Derive the transfer function of the circuit shown in fig.(14)

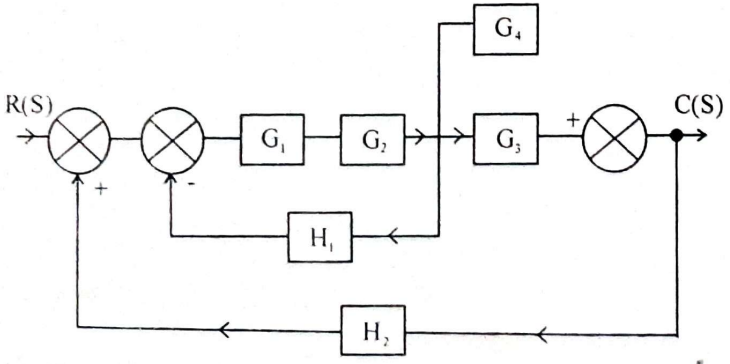


Q3 Explain construction and working of servometer and determine transfer function.

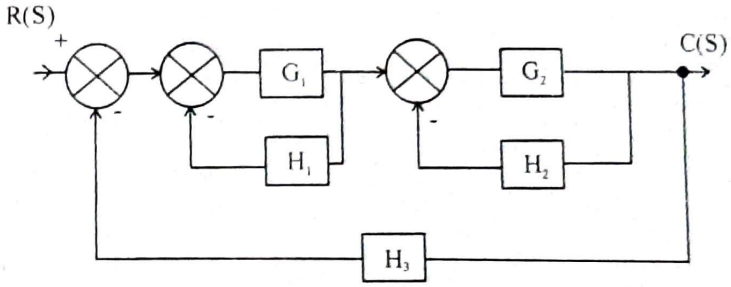
Q4. Derive the expression for the transfer function of a field controlled DC motor. Also draw its block diagram. (14)

Q5. Determine the numerical value of natural frequency, damped frequency and damping ratio. (14)

Q6. Obtain system transfer function C(s)/R(s) using block diagram reduction technique for the system shown in figure. (14)



Q.7 Obtain system transfer function C(s)/R(s) using block diagram reduction technique for the system shown in figure.



Q8. Using Routh's criterion check the stability of a system whose characteristic equation is given by $s^6 + 2s^5 + 8s^4 + 12s^3 + 20s^2 + 16s + 16 = 0$. (14)

Q9. Explain Mason's gain formula with schematic diagram 14)

Q10. Draw the electrical circuit diagram that represents the Lead-Lag compensator and explain in detail. (14)

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Roll No._____ Total Printed Pages : 2

03DYEE106

ENGG.DIPLOMA (ELEC.ENGG.)

III-YEAR Examination, March/April-2024

SUB :ELECTRICAL MACHINES-II

Time : 3 Hours] **[Total Marks 70**

Use of following supporting material is permitted during examination.

1._____Nil_____ 2. _____Nil_____

Note: 1. Attempt any five questions.

2. Each question carry equal marks.

Q1. Explain the principle of operation of three phase induction motor. (14)

Q2. Explain the constructional differences between squirrel cage rotor and slip ring rotor of three phase induction motor with diagram. Also compare induction motors of these two types of rotor configurations. (14)

Q3. Explain the blocked rotor test and No load test of induction motor. (14)

Q4. Write different methods of speed control of three phase induction motor. Explain with diagram the speed control of slip ring motor by rotor resistance method. (14)

Q5. Explain the principle of operation of Single- phase induction motor. (14)

Q6. Describe the construction of a shaded pole induction motor with diagram. Write its working principle and uses. (14)

Q7. Derive expression of induced emf in an alternator. Explain distribution factor and short pitch factor. (14)

Q8. Why synchronous motor is not self starting? Describe any one method of starting of synchronous motor. (14)

Q9. Explain the principle of operation of alternators. (14)

Q10. Write construction, working principle and use of AC series motor. What measures are used for problem of commutation in AC series motor? (14)

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03DYEE107

ENGG.DIPLOMA (ELEC.ENGG.)

III-YEAR Examination, March/April-2024

SUB : POWER SYSTEM-II

Time : 3 Hours] **[Total Marks 70**

Use of following supporting material is permitted during examination.

1._____Nil_____ 2. _____Nil_____

Note: 1. Attempt any five questions.

2. Each question carry equal marks.

Q1 Derive an expression of maximum sag calculation. of transmission line taking the consideration of air and ice effect. (14)

Q 2 Describe pin type of insulator used in overhead lines.(14)

Q 3 Explain string efficiency derive the expression of string efficiency, if there are three suspension insulators in a string. (14)

Q 4 Write short notes on the following (14)

a) Flow diagram of power system

b) selection of transmission voltage

c) selection of LT and HT cales

Q 5 What is guarding? How it is done? What are its advantages?

Q 6 Describe the method of errection of line support? (14)

Q 7 Describe construction of an underground cable with diagram. (14)

Q 8 Describe feeder distributor and service mains in a electrical distribution system. (14)

Q9 Explain Skin and Ferranti effect in detail. (14)

Q 10 Write the advantages and disadvantages of underground cable. (14)

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Roll No._____ Total Printed Pages : 2

03DYEE108

ENGG.DIPLOMA (ELEC.ENGG.)

III-YEAR Examination, March/April-2024

SUB : POWER SYSTEM-III

Time : 3 Hours] **[Total Marks 70**

Use of following supporting material is permitted during examination.

1._____Nil_____ 2. _____Nil_____

Note: 1. Attempt any five questions.

2. Each question carry equal marks.

Q 1 What is corona? Write advantages and disadvantages of corona. (14)

Q 2 What is ground return and why is it employed ? Give the problem associated with the use of ground as return conductor. (14)

Q 3 Write advantages and disadvantages of extra high voltage ac Fansmission. (14)

Q 4 Write methods of static Var compensator. Explain the methods in detail. (14)

Q 5 Discuss the importance of voltage control in modern power system and write various methods of voltage control.(14)

Q 6 Discuss the effect of diversity factor on the cost of power generation. (14)

Q 7 Discuss the requirement of reactive power during peak and of peak hours. (14)

Q 8 Derive the expression for the most economical power factor. (14)

Q 9 Explain the load curve also explain the different types of loads. (14)

Q 10 Which tariff is used for industrial consumers and why? (14)

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Roll No. _____ Total Printed Pages : 2

03DYEE109

ENGG.DIPLOMA (ELEC.ENGG.)

III-YEAR Examination, March/April-2024

SUB :SWITCHGEAR AND PROTECTION

Time : 3 Hours] **[Total Marks 70**

Use of following supporting material is permitted during examination.

1. _____Nil_____ 2. _____Nil_____

Note: 1. Attempt any five questions.

2. Each question carry equal marks.

1. What is electrical fault in power system? Explain the classification of faults in Electrical power System, and Source of faults. (14)

2. Explain operator 'a' and prove that $1+a+a^2=Q$ (14)

3. What is HRC fuse? Explain with Advantages & Disadvantages. Also write Various applications of HRC fuse. (14)

4. What is a Circuit breaker? Explain the Various types of circuit Breakers. (14)

5. What is Sf6 circuit breaker ? write the Advantages of SF6 circuit breaker. (14)

6. Write Short Note on

a) Thermal relay

b) Electromagnetic Relay.

c) Induction type Relay:

d) Distance relay

e) Differential type Relay. (14)

7. Discuss the faults occurring in alternators. Also explain Loss of Excitation or Field failure in Details? (14)

8 .Explain the Construction working of Buchholz Realy. Also write the advantages and Disadvantages. 14)

9. Explain the differential Pilot wire through Merz-price Voltage Balance protection . (14)

10. Explain the Various Causes of over voltage, Also write Short note on Lightening arrestors. (14)

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Roll No._____ Total Printed Pages : 2

03DYEE110

ENGG.DIPLOMA (ELEC.ENGG.)

III-YEAR Examination, March/April-2024

SUB : ENERGY MANAGEMENT

Time : 3 Hours] **[Total Marks 70**

Use of following supporting material is permitted during examination.

1._____Nil_____ 2. _____Nil_____

Note: 1. Attempt any five questions.

2. Each question carry equal marks.

1. What is Energy planning ? Explain Energy planning for supply side with the help of energy planning Diagram.(14)

2 Explain the Seven Principles of Energy Management?(14)

3. Describe the scenario of India's Energy and Power sector. (14)

4. Explain the National Energy Strategy of India.

5. Write Short Note On Rural Electrification Programs in India? Also writes the names of various programs that are included in Rural electrification Program.

6. Define Energy Audit. Also explain the objectives of Energy Auditing and types of Energy Audit. (14)

7. Explain the Energy flow Diagram? (14)

8. What do you understand by Energy Conservation. Also explain the Principles of Energy Conservation. (14)

9 Write Short Note on Acid Rain, Acidic Fog & Acid snow and dry Acidic depositions. (14)

10. What do you understand by Sustainable Development? Also Explain Various Energy problems in Details . (14)