

6238
BOARD DIPLOMA EXAMINATION
JUNE - 2019
DIPLOMA IN ELECTRICAL AND ELECTRONICS ENGINEERING
D.C. MACHINES & MEASURING INSTRUMENTS
THIRD SEMESTER EXAMINATION

Time: 3 Hours

Total Marks: 80

PART - A (3m x 10 = 30m)

Note 1: Answer all questions and each question carries 3 marks

2: Answers should be brief and straight to the point and shall not exceed 5 simple sentences

1. **What is the use of Equilizer Rings in parallel operation of DC Generators?**
2. **Draw the equivalent circuit of a Separately Excited DC Generator and write its voltage and current equations**
3. **A Separately Excited DC Generator with a armature resistance of 0.04 ohm and total brush contact drop of 2 V supplied 200 A at a terminal voltage of 125 V when running at 1000 rpm. What will be the load current when the speed drops to 800 rpm and the field flux is unchanged**
4. **Draw the equivalent circuit of a DC shunt Motor and write its voltage and current equations.**
5. **List the types of starters use for DC Motors**
6. **State any three factors which control the speed of a DC Motor**
7. **State the need of instrument transformers in measuring instruments**
8. **Distinguish between Absolute Measuring Instrument and Secondary Measuring Instrument in any three aspects**
9. **Write the names of any six measuring instruments and mention the electrical quantities to be measured with them**
10. **Write any six specifications of Digital Voltmeter**

PART - B (10m x 5 = 50m)

Note 1: Answer any five questions and each question carries 10 marks

2: The answers should be comprehensive and the criteria for valuation is the content but not the length of the answer

11. **Explain the Open Circuit and Load characteristics of DC Shunt Generator with circuit diagrams and characteristic curves**
- * 12. **Explain the working of a DC Generator with a legible sketch**

13. Explain the Electrical and Mechanical characteristics of DC Compound Motor with circuit diagram and characteristic curves
14. Explain the working of a 3-Point Starter for DC Motor with legible sketch
- 15A. A 4-pole, 250 V, lap-wound DC Shunt Motor has 960 armature conductors. The flux per pole is 20 mWb. The resistances of armature and shunt field are 0.1 ohm and 125 ohm respectively. The rotational losses are 810 W. If the motor takes a current of 25 A, find (a) Speed (b) Shaft torque (c) efficiency
- B. Explain the method of conducting Swinburne's test on a DC Motor with a legible sketch
16. Explain the working of Single Phase Induction type Energymeter with a legible sketch
17. Explain the working of Rectifier type Ammeter with a legible sketch
- 18A. compare Moving Coil and Moving Iron measuring instruments in any five aspects
- B. Explain the working of Digital Frequency Meter with a block diagram

5M

5M

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