

**6238**  
**BOARD DIPLOMA EXAMINATION**  
**MARCH/APRIL - 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. **A DC Shunt Generator delivers 450 A at a terminal voltage of 230 V and the resistance of shunt field and armature are 50 ohm and 0.03 ohm respectively. Calculate the generated EMF**
2. **State the working principle of a DC Generator**
3. **List the applications of D.C generators.**
4. **Define the term Torque of a DC Motor**
5. **List the types of starters used for DC Motor**
6. **State the advantages and disadvantages of Armature Voltage Control method of a DC Shunt Motor**
7. **State the purpose of deflecting torque in measuring instruments**
8. **What is (a) absolute measuring instrument and (b) secondary measuring instrument?**
9. **State the advantages and disadvantages of Dynamometer type measuring instrument**
- \* 10. **List the basic components of analog type electronic measuring instruments**

**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 commutation of a DC Generator with legible sketches**
13. **Explain the working of a DC Motor with a legible sketch**
- \* 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 resistance 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 Weston Synchroscope with a legible sketch
17. Explain the working of Single Phase Digital Energymeter with a block diagram
- 18A. compare Moving Coil and Moving Iron measuring instruments in any five aspects
- B. Explain the working of Rectifier type Ammeter with a legible sketch

5M

5M

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