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 5M

B. Explain the working of Rectifier type Ammeter with a legible sketch 5M

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