



C16-EE-302

6238

BOARD DIPLOMA EXAMINATION, (C-16)  
OCT/NOV—2017  
DEEE—THIRD SEMESTER EXAMINATION

DC MACHINES AND MEASURING INSTRUMENTS

Time : 3 hours ]

[ Total Marks : 80

**PART—A**

10×3=30

**Instructions** : (1) Answer **all** questions.

(2) Each question carries **three** marks.

(3) Answers should be brief and straight to the point and shall not exceed *five* simple sentences.

1. List different types of DC generators.
2. What are the conditions for parallel operation of DC shunt generator?
3. State the functions of commutator, yoke and pole core in DC generator.
4. State any three applications of various DC motors.
5. Write any three disadvantages of armature resistance speed control method.
6. What is the main difference between brake test and Swinburne's test?
7. Define accuracy, error and resolution.
8. State the purpose of different torques in indicating instruments.
9. List the errors in energy meter.
10. State the uses of tong tester.

**PART—B**

5×10=50

- Instructions :** (1) Answer *any five* questions.  
(2) Each question carries **ten** marks.  
(3) Answers should be comprehensive and the criterion for valuation is the content but not the length of the answer.

- 11.** Explain occ, internal and external characteristics of DC shunt generator.
- 12.** (a) Explain critical resistance and critical speed.  
(b) A shunt generator has a full load armature current of 190 A at 220 V. The stray losses are 880 W and shunt field resistance is 50 . If it has a full load efficiency of 90%, find the armature resistance, also find the load current corresponding to maximum efficiency.
- 13.** Explain the different losses occurring in DC motor.
- 14.** (a) A DC series motor takes 50 A at 220 V and runs at 1000 r.p.m. if the armature and field resistance are 0.4 and 0.3 respectively, the iron and friction losses are 0.5 kW. Calculate the torque developed in the armature. What will be the output of motor?  
(b) Draw a neat sketch of 3-point starter.
- 15.** Explain brake test on DC shunt motor with neat circuit diagram.
- 16.** Explain the construction and working of moving iron attraction type voltmeter with neat diagram.
- 17.** (a) Explain the advantages and disadvantages of instrument transformer.  
(b) Explain the working of digital frequency meter with neat block diagram.
- 18.** Explain the working of digital multimeter by giving its specifications.

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