C16-**EE-302**

6238

BOARD DIPLOMA EXAMINATIONS

SEPTEMBER/OCTOBER - 2020

DEEE – THIRD SEMESTER

DC MACHINES & MEASURING INSTRUMENTS

Time:3 hours Max. Marks: 80

PART – A 3 X 10 = 30

Instructions: *1. Answer **all** questions.*
*2. Each question carries **Three** Marks.*
3. Answer should be brief and straight to the point and should not exceed five simple sentences.

1. Classify D.C Generators based on excitation.
2. Compare between lap winding and wave winding in 3 aspects.
3. List different methods of improving commutation.
4. Draw the schematic diagram of D.C long shunt motor. Also write the equation for back e.m.f.
5. State the necessity of starter in D.C motor.
6. State the advantages of controlling the speed of D.C motors.
7. Distinguish between Absolute and Secondary Instruments in three aspects.
8. Compare indicating and recording instruments in any three aspects.
9. Write any 3 advantages and disadvantages of PMMC instrument.
10. Mention the specification of digital voltmeter.

[cont..,

PART – B 5 X 10 = 50

***Instructions**:* *1. Answer any **Five** questions*
*2. Each question carries **TEN** Marks.*
3. Answer should be comprehensive and Criteria forValuation is the content but not the length of the answer.

11. Explain the process of commutation in a D.C Generator with neat sketch.
12. a) Derive the EMF equation of D.C generator.

    b) Explain the critical resistance and critical speed.
13. a) Explain the working principle of D.C motor, along with Fleming's left Hand rule.

    b) Calculate the value of torque established by the armature of a 4-pole motor having 774 conductors, 2 paths in parallel, 24mwb of flux/pole, when the total armature current is 50A.
14. Explain speed control methods of D.C. series motor with neat diagram.
15. a) Define following terms (i) Precision (ii) Accuracy (iii) Error (iv) Resolution

    b) Explain the construction and working of a dynamometer type instrument with neat sketch.
16. a) Explain the construction and working of rectifier type voltmeter with neat sketch.

    b) Explain the working of 1 phase digital energy meter with block diagram.
17. a) Explain the principle of torque production in a D.C motor.

    b) Draw the schematic diagram of 4-point starter and explain its working.
18. a) Compare between MC and MI instruments.

    b) What is tong tester. State the uses of tong tester.