3242

BOARD DIPLOMA EXAMINATION, (C-09)

MARCH/APRIL - 2019

DIPLOMA IN ELECTRICAL & ELECTRONICS ENGINEERING

D.C.MACHINES & BATTERIES

THIRD SEMESTER EXAMINATION

Time: 3 Hours **Total Marks: 80**

PART - A (10 x 3 = 30 Marks)

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. List the basic requirements for generation of EMF
2. A 4 – pole D.C generator having a wave wound armature conductors has 51 slots with each slot containing 20 conductors. Find the EMF generated when the machine is driven at 1500 rpm assuming flux per pole is 3 mwb
3. List the advantages of parallel operation of D.C generators.
4. Draw the External and Internal Characteristic of a D.C Shunt Generator
5. Write the applications of D.C Motors
6. Draw the Schematic diagram of D.C short Shunt compound Motor also write the Back emf, current and voltage equations.
7. List the different methods of speed control of D.C Series motor
8. Briefly explain the protective devices used in D.C starters.
9. Write the materials used for any three parts in Lead acid battery.
10. List the applications of Maintenance free batteries

PART - B (5 x 10 = 50 Marks)

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. Describe the construction of a D.C Generator and write the functions of each part
12. (A) List the advantages and disadvantages of Carbon Brushes
    (B) Write about resistance Commutation with a neat diagram.
13. (A) What is meant by demagnetization and Cross magnetization effect in a D.C. Machine
    (B) A 250v, 25KW, 4 – pole D.C Generator has 328 wave connected armature conductors, when the machine is delivering full load, the brushes are given a lead of 7.2 electrical degrees. Calculate (i) Demagnetizing AT / Pole (ii) Cross magnetizing AT / Pole
14. (a) State different losses in a D.C Motor
    (b) A 230 V D.C Shunt motor takes 5A at no-load and runs at 1000 rpm. Calculate the speed when load current is 30 A. The armature and field resistances are 0.25 Ω and 230Ω respectively
15. (A) Draw the Performance Characteristics of D.C Shunt Motor
    (B) Write function of No Volt Coil (NVC) and Over Load Coil (OLC) in a 3-Point Starter.
16. Explain the method of conducting Brake test on D.C Shunt Motor with neat diagram

17. (A) Explain with figure charging of batteries by Constant Current Method
(B)Write about the Indications of Fully Charged Lead Acid Battery

18A. Write about Hysteresis Loss and Eddy Current Loss

B. Differentiate the Primary and Secondary Cells

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