C14-EC-105

4038

BOARD DIPLOMA EXAMINATION, (C-14)

MARCH/APRIL – 2019

DECE - FIRST YEAR EXAMINATION

BASIC ELECTRICAL & ELECTRONICS ENGINEERING

Time: 3 Hours] **[Max. Marks: 80**

PART-A

10x3=30M

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

2) Each question carries Three marks.

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

1. State Joules law.

2. Draw the magnetic field patterns of Solenoid.

3. State Gauss theorem.

4. Define (a) Ampere-Hour efficiency and
(b) Watt-Hour efficiency of a Cell.

5. Define (a) Instantaneous value and
(b) Maximum value of an alternating quantity.

6. List the factors affecting the capacitance of a Capacitor.

7. Draw the ISI symbols for SPDT, DPST and DPDT switches.

8. List the advantages of PCBs.

9. Distinguish between P-type and N-type semiconductor materials.

10. What is the need of Regulated Power Supply in electronic applications?

PART-B 5x10=50M

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Instructions: 1) Answer any **five** questions.

2) Each question carries ten marks.

3) The answer should be comprehensive and the criteria for valuation is content but not the length of the answer.

11. (a) Define temperature co-efficient of resistance and state its unit. 4M

(b) The resistance of a conductor at 10^0C is 5Ω and at 100^0 C is 12Ω. Find the resistance value at 0^0C. 3+3M

12. (a) Derive an expression for the energy stored in a magnetic field. 5M

(b) Explain Faraday's laws of Electrolysis. 5M

13. (a) State and explain Coulomb's laws of electrostatics. 5M

(b) Three capacitors of Capacitances 20μF, 40μF and 60 μF are connected in series. Find the resultant Capacitance. 5M

14. A series combination of a capacitor of 56 μF and a resistor of 100Ω is connected across an AC voltage source of 230 volt, 50 HZ. Find (a) Impedance (b) Current (c) Phase angle (d) Power factor (e) Power consumed.

15. (a) Explain various losses in a Capacitor. 5M

(b) Explain about Rheostat with a neat sketch. 5M

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16. Explain the construction and working of a general purpose Electromagnetic realy with a neat sketch. 10M

17. (a) Explain briefly the steps involved in the preparation of PCB. 5M

(b) Explain about the formation of P-type semiconductor material with a neat sketch. 5M

18. Explain the working of Centre-tapped Full Wave rectifier with a neat circuit diagram and draw its input and output wave forms.

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