

4045**BOARD DIPLOMA EXAMINATION, (C-14)****JUNE-2019****DEEE - FIRST YEAR EXAMINATION****ELECTRICAL ENGINEERING MATERIALS**

Time:3hrs

Max.Marks:80

PART-A**3x10=30M**

- Instructions:** 1) Answer **all** questions. Each question carries **Three** marks.
2) Answers should be brief and shall not exceed five simple sentences.

- 1) What is hardening?
- 2) Define Conducting materials
- 3) What is intrinsic semiconducting material?
- 4) Give any three applications of impregnated paper.
- 5) Define permittivity? Write the relative permittivity of air 1½+1½
- 6) State curie point
- 7) Why do you use a fuse in a circuit?
- 8) State the need for protective materials.
- 9) Write the chemical reactions during charging and discharging of Nickel-ion cell. 1½+1½
- 10) List the indication of fully charged lead acid battery.

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PART-B

10x5=50M

Instructions: 1) Answer any **five** questions and each question carries **ten** marks.
2) The answer should be comprehensive and the criteria for valuation is the content but not the length of the answer.

- 11) (a) State any five requirements of high resistive materials. 5M
(b) Explain about ACSR conductor with a neat sketch. 5M
- 12) (a) Explain color coding of resistors with a neat diagram. 5M
(b) List the properties and applications of Nichrome and carbon. 5M
- 13) (a) Explain the formation of P-type and N-type material with a neat diagram 5M
(b) Distinguish between P-type and N-type semiconductors in any five aspects 5M
- 14) (a) Explain thermoplastic and thermosetting resins with examples. 5M
(b) State any five properties of Air and Hydrogen. 5M
- 15) (a) Explain dielectric loss and give its formula 4M
(b) Explain the process of 6M
(i) Galvanizing (ii) Impregnation
- 16) Explain hysteresis curve with a neat diagram and state Steinmetz equation.
- 17) (a) List the parts of lead acid battery. 4M
(b) A lead acid cell is discharged of a steady current of 8 A for 9 hours with an average terminal voltage of 2.0 V. It is charged at a charging current of 4 A for 18 hours with an average terminal voltage of 2.2 V. Calculate the A-H and W-H efficiency of the battery 6M
- 18) (a) Give any five applications of a battery 5M
(b) Explain charging of batteries by constant voltage method. 5M

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