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121532/031032

Roll No.

3rd Sem. / IC/ ECE / EI / ME / Comp /PE / EEE

**Subject : Electrical and Electronics Materials
and Components / ECM**

Time : 3 Hrs.

M.M. : 100

SECTION-A

Note: Very Short Answer type questions. Attempt
any 15 parts. (15x2=30)

- Q.1
- a) Define Alloy.
 - b) Give name of any two insulating materials.
 - c) Define resistivity.
 - d) Write any two application of graphite.
 - e) What do you understand by term "Domains"?
 - f) Write any two properties of soft magnetic materials.
 - g) What is the use of thermocouple?
 - h) What is unit of capacitance?

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- l) Energy stored in a capacitor is given by_____.
- j) If capacitors C1 and C2 are connected in series, than equivalent capacitance will be_____.
- k) Define preset.
- l) Where RF coil is used?
- m) Expand SMD.
- n) Draw symbol of relay.
- o) Expand SCR.
- p) Draw atomic structure of Germanium.
- q) What is doping?
- r) Diode is _____ (Unidirectional / Bidirectional) device.

SECTION-B

Note: Short answer type questions. Attempt any ten parts 10x4=40

- Q.2 l) What is atomic number of Silicon? Draw atomic structure of Silicon?

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- ii) Explain Bohr's atomic structure.
- iii) Comparison between low resistivity and high resistivity materials.
- iv) What are the properties of Bakelite?
- v) What are the applications of Varnish?
- vi) Write a short note on "Hysteresis loop".
- vii) What are the applications of hard magnetic materials?
- viii) Write a short note on "Lead soldering and fuse materials".
- ix) What are different types of Capacitors?
- x) Write a short note on "Potentiometers".
- xi) Why there is need of shielding in transformers?
- xii) Write specifications of SMDs.
- xiii) What are different types of connectors used.
- xiv) How a diode can be tested?
- xv) Write a short note on "Hybrid IC technology".

SECTION-C

Note: Long answer type questions. Attempt any three questions. 3x10=30

- Q.3 Differentiate conductors, semiconductors and insulators on the basis of their energy level diagrams.
- Q.4 What are magnetic materials? What are different types of magnetic materials? Explain the properties of magnetic materials.
- Q.5 Explain current growth and decay in capacitors with the help of suitable diagrams.
- Q.6 What is the use of Relay? Draw and explain construction of Relays?
- Q.7 Explain various processes in IC manufacturing.