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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?

i) 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 I) What is atomic number of Silicon? Draw atomic structure of Silicon?

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.