

- Q.29 Differentiate between intrinsic and extrinsic semiconductor materials.
- Q.30 Explain the effect of temperature on pure metals and alloys.
- Q.31 How dielectric strength of an insulator is affected by the moisture?
- Q.32 What are the main consideration for the classification of materials ?
- Q.33 Differentiate between cartridge fuses and rewirable fuses.
- Q.34 What is the difference between hard and soft magnetic materials?
- Q.35 Explain dielectric losses.

#### SECTION-D

**Note:** Long answer type questions. Attempt any two questions out of three questions. (2x10=20)

- Q.36 Write short note on the following
- Ceramic Capacitor
  - Mica Capacitor
  - Paper Capacitor
- Q.37 Explain the following:
- Intrinsic semiconductor
  - Extrinsic semiconductor
  - N-type semiconductor
  - Doping
- Q.38 Explain the properties of high resistance materials in detail.

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**3rd Sem / Eltx, EI, IC, Med**

**Subject:- Electrical & Eltrx Mat. Components / ECM**

Time : 3Hrs.

M.M. : 100

#### SECTION-A

**Note:** Multiple choice questions. All questions are compulsory (10x1=10)

- Q.1 Which among these properties is not suited for the conductor material?
- High electrical conductivity
  - High specific gravity
  - Lower cost
  - High tensile strength
- Q.2 Material which lack permanent magnetic dipoles are known as
- Paramagnetic
  - Diamagnetic
  - Ferromagnetic
  - Ferrimagnetic
- Q.3 At room temperature, the current in intrinsic semiconductor is due to
- Holes
  - Electrons
  - Ions
  - Both a & b
- Q.4 What does a wire wound resistor acts like a thigh frequency

(40)

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- a) Capacitor                      b) Inductor  
c) Diode                              d) Both a and b
- Q.5 Which of the following cannot be fabricated on an IC  
a) Transistor  
b) Diodes  
c) Resistors  
d) Large inductors and Transformers
- Q.6 What is the number of valence electrons in pentavalent impurity?  
a) 5                                      b) 4  
c) 3                                      d) 1
- Q.7 Which capacitor store higher amount of energy?  
a) Air capacitor                      b) Paper capacitor  
c) Mica capacitor                      d) Plastic film capacitor
- Q.8 What type of component is a resistor?  
a) Active                              b) Passive  
c) All of the above                      d) None of the above
- Q.9 What are ICs are generally made of?  
a) Silicon                              b) Gold  
c) Copper                              d) None of the above
- Q.10 Is diamond a paramagnetic material?  
a) True                                      b) False  
c) All of the above                      d) None of the above

## SECTION-B

**Note:** Objective type questions. All questions are compulsory. (10x1=10)

- Q.11 Expand SCR.  
Q.12 Draw the symbol for Capacitor  
Q.13 What is the main constituent of paper?  
Q.14 What is the charge of an electron?  
Q.15 Eddy current losses are proportional to the square of \_\_\_\_\_.  
Q.16 A transistor can acts as \_\_\_\_\_.  
Q.17 What is the unit for resistance ?  
Q.18 Write the name of semiconductor material.  
Q.19 A switch is a device to make a circuit ON and \_\_\_\_\_.  
Q.20 What is the full form of FET?

## SECTION-C

**Note:** Short answer type questions. Attempt any twelve questions out of fifteen questions. (12x5=60)

- Q.21 Give the classification of magnetic materials.  
Q.22 Write a short note on dielectric loss in capacitors.  
Q.23 Write a short note on carbon composition resistor.  
Q.24 Write about the surface mount technology.  
Q.25 Write about the testing of inductors.  
Q.26 Differentiate between electronic and electromagnetic relays.  
Q.27 Differentiate between conductors and semiconductors.  
Q.28 Explain super-conductivity and its applications.