

**UNIT-I****Broomer-09 (MAY-06)**

- 1) Discuss the various factors on which the choice of conducting material depends. Also mention various properties of copper.
- 2) Explain various types of insulating materials.
- 3) State and explain in brief different types of magnetic materials.

**Chess-12 (MAY -07)**

- 4) What is silicon carbide? Explain in brief and give its properties and applications.
- 5) What makes mica and glass popular as dielectrics? List their properties and applications.
- 6) Explain in brief Meissner effect.

**.Orange-14 (NOV-07)**

- 7) How conducting material are divided into low resistivity & high resistivity & high resistivity types? Give their example & mention their applications in the field of electrical engineering.
- 8) What are ferrites? What is their composition & how they are classified? Explain radio ferrites.
- 9) What is meant by 7/65/35 in PLZT system terminology? Explain the properties of PLZT.

**Kekawali 10 (MAY-08)**

- 10) What are different densities in which semiconductor materials are used? Enlist their properties.
- 11) Elucidate the use of dielectric material in electronic component & discuss 'Breakdown Of dielectrics'.
- 12) Differentiate properties of soft magnetic & hard magnetic materials? Explain superconductivity.

**Chitrarath-007 (NOV-08)**

- 13) Discuss the properties of soft magnetic & hard magnetic ferrites. Also explain what are microwave ferrites.
- 14) State the advantage & disadvantages of aluminium as compared to copper as a conductor of electricity & describe their properties.
- 15) Explain multilayer ceramic disc capacitor structure & hence explain Z5V & npo dielectrics.

**Jaya-003 (MAY-09)**

- 16) Explain different types of compound and amorphous semiconductor material with their properties.
- 17) Write short notes on: p) Magnetic recording q) Magnetic memories
- 18) State the properties and types of copper & show graphically the dependence of conductivity on the percentage of alloying.

**Palas-007(NOV-09)**

- 19) State the properties & application of i) Copper ii) Mica .
- 20) what is semiconductor materials ? hence explain classification of semiconductor materials with Examples.
- 21) i) what is ferromagnetism? Why are ferrite cores not laminated even for RF operation .  
ii) give the classification of magnetic materials, & also define the term permeability.

**Charoli-03(May -10)**

- 22) What are the different types of conducting materials ? Explain their properties & application?
- 23) Explain properties of magnetic materials & Differentiate between Soft magnetic & hard magnetic Materials.
- 24) Explain different Insulating materials . Enlist their properties & applications.

**Samarth (Dec-10)**

- 25)
  - i) Enlist the different properties and application of lead and tin alloys
  - ii) Write short note on compound semiconductor.
- 26)
  - i) Explain LZT and PLZT.
  - ii) Discuss the electrical properties and application of backlit and asbestos.
- 27)
  - i) Explain various factor on which the choice of magnetic material depends
  - ii) Write short note on amorphous semiconductor.

**Ekdant 008(May-11)**

- 28) Differentiate properties of soft magnetic and hard magnetic materials . Explain super conductivity ?
- 29) State advantage and disadvantages of aluminium as compared to copper as a conductor of electricity and describe their properties.
- 30) What are ferrite ? What is their composition and how they are classified ? Explain radio ferrite.

**Charodi (Dec-11)**

- 31) What are the different types of conducting materials ? Explain their properties and Applications ?
- 32) Explain properties of magnetic materials. Differentiate between soft magnetic and hard magnetic materials.
- 33) Explain different Insulating materials. Enlist their properties and applications.

**Mahima-002( May-12)**

- 34) Describe in details the use of dielectric material in electronics component & Discuss break down of dielectrics?
- 35) State the advantage & disadvantage of aluminium as compared to copper as a conductor of electricity & describe their properties.
- 36) Write short notes on
  - i) Magnetic Recording
  - ii) Magnetic Memories

**UNIT-II****Broomer-09 (MAY-06)**

- 1) Draw and explain aluminum electrolytic capacitor and ceramic capacitor.
- 2) Classify transformers according to frequency range for their operation and explain.
- 3) Describe the brief fabrication process of carbon film resistor with diagram and specify their applications.

**Chess-12 (MAY -07)**

- 4) Explain the process of manufacturing wire wound resistors. Compare wire wound resistors with carbon resistor.
- 5) Draw and explain tantalum capacitor and give its advantages over aluminium capacitor.
- 6) List different types of transformers and explain in brief AF transformer

**Orange-14 (NOV-07)**

- 7) Describe the brief fabrication process of carbon composition resistor, list specification & application.
- 8) Mention different characteristic of capacitor & tests to be carried out on variable capacitors.
- 9) Describe the construction of the transformer used in the power supply section of electronic circuits & list application of various types of inductors.

**Kekawali 10 (MAY-08)**

- 10) with neat diagram describe power transformer assembly & testing.
- 11) Describe the process of vitreous enamelling used for wire wound resistors?
- 12) How is the polyster film used in polyster capacitor menallised ? what is the frequency handling rating of these capacitor? What is their normal operating voltages? Where are they used.

**Chitrarath-007 (NOV-08)**

- 13) Explain the process of manufacturing metal film resistors with construction details & typical applications & specifications.
- 14) Classify capacitor & state their specifications & test to be carried out on variable capacitors.
- 15) List general specifications of transformer & explain power transformer, give it's applications.

**Jaya-003 (MAY-09)**

- 16) Explain the various types of losses in transformers.
- 17) How does a composite carbon resistor differ from other types? How it is manufactured?
- 18) What are the different types of ceramic capacitor which types gives the highest operating voltage and capacitance. Explain multilayered ceramic capacitor.

**Palas-007(NOV-09)**

- 19) Explain in detail construction , working & application of variable tuning capacitor.
- 20) Explain in detail construction & application of carbon composition resistor? Also explain how does it differs from other types.
- 21) Describe the difference between IF & RF transformers in terms of how they are made & how they work. Enlist it's applications.

**Charoli-03(May -10)**

- 22) Describe the manufacturing process for carbon composition resistor. List the specification & application.
- 23) what are the different types of capacitor ? explain construction and properties of Electrolytic and Mica capacitors in detail along with characteristics.
- 24) Write short notes on i) Power transformer ii) RF & IF transformer

**Samarth (Dec-10)**

- 25) Describe in detail manufacturing process of wire wound resistor with diagram and specify their application.
- 26) Draw and describe the construction of paper and aluminium electrolytic capacitor
- 27) Explain in detail how you will reduce losses in transformers.

**Ekdant 008(May -11)**

- 28) Describe details manufacturing process of wire wound resistor with diagram and specifications and applications.
- 29) What are different types of capacitors ? Explain construction and properties of electrolytic and mica capacitor in details along with characteristics.
- 30) Describe the difference between RF & IF transformer ? About their construction along with applications.

**Charodi(Dec -11)**

- 31) Describe the manufacturing process for carbon composition resistor. List the specifications and applications.
- 32) What are the different types of capacitors ? Explain construction and properties of Electrolytic and mica capacitors in details along with characteristics.
- 33) Write short notes on i) Losses in power transformer  
ii) Construction and operation of I.F. transformer

**Mahima-002( May-12)**

- 34) How does a composite carbon resistor differ from other types? How it is manufactured?
- 35) Explain in detail construction working & application of variable tuning capacitors?
- 36) List general specification of transformer? Give its application

**UNIT-III****Broomer-09 (MAY-06)**

- 1) Give in detail manufacturing process of n-channel depletion MOSFET.
- 2) Describe the VMOS technique of fabrication with suitable diagram.
- 3) What is ION IMPLANTATION? Also explain zone refining method

**Chess-12 (MAY -07)**

- 4) Draw & explain zone refining of Germanium.
- 5) Write a note on alloy junction transistor.
- 6) Draw & explain fabrication process of n-channel enhancement MOSFET

**Orange-14 (NOV-07)**

- 7) Explain the terms zone refining, monocrystallization & seed pulling connected with the fabrication of solid state components.
- 8) Explain fabrication process of light emitting diode.
- 9) Explain DIAC fabrication process.

**Kekawali 10 (MAY-08)**

- 10) Explain in detail manufacturing of C-MOS.
- 11) Draw & explain floating zone method & mono crystallization method.
- 12) Describe power transistor design & encapsulation

**Chitrarath-007 (NOV-08)**

- 13) Explain germanium alloy junction BJT & silicon alloy junction BJT.
- 14) Explain in detail the Czocharlski technique of crystal pulling.
- 15) Describe annular fabrication of an SCR show diagrammatically
  - i) side view
  - ii) characteristics
  - iii) Bottom view.

**Jaya-003 (MAY-09)**

- 16) Describe DIAC fabrication technique with suitable diagram.
- 17) What is the technique used to fabricate a diffused planer BJT? List the various steps I sequence & draw suitable figures.
- 18) Describe floating zone method & mono crystallization method.

**Palas-007(NOV-09)**

- 19) Draw & explain zone refining & waferization method of semiconductor processing.
- 20) Explain in detail fabrication processes of alloy junction & diffusion type BJT.
- 21) What are different manufacturing method of SCR. explain any one method in detail .

**Charoli-03(May -10)**

- 22) Draw & explain zone refining zone methods .
- 23) Explain the different types of fabrication of MOSFET. Explain any one in detail. Give Specification of FET.
- 24) Explain fabrication process of UJT in detail . Give their specification.

**Samarth (Dec-10)**

- 25) Describe the CMOS technique of fabrication with suitable diagram.
- 26) What is mean by Zone refining? Explain floating zone and monocrystalization.
- 27) Give detail manufacturing process of alloy diffusion SCR

**Ekdant 008(May- 11)**

- 28) Describe DIAL fabrication technique.
- 29) Explain germanium alloy junction BJT and silicon alloy junction BJT in details
- 30) Draw and explain floating Zone method and monocrystallization

**Charodi(Dec- 11)**

- 31) Draw and explain zone refining and floating zone methods.
- 32) Explain the different types of fabrication of MOSFET. Explain any one in detail. Give specification of FET.
- 33) Explain fabrication process of U.J.T. in details. Give their specifications.

**Mahima-002( May -12)**

- 34) Draw & explain floting zone methods & monocrystallization method?
- 35) Explain fabrication process of light emitting diode.
- 36) Write short notes on i) Fabrication of MOSFET ii) Manufacturing method of SCR

**UNIT-IV****Broomer-09 (MAY-06)**

- 1) Draw and explain the cross section of IC bipolar transistor.
- 2) What is photolithography? Explain in detail.
- 3) State IC packages. How they are tested? What are the basic requirements of IC packages?

**Chess-12 (MAY -07)**

- 4) Explain the fabrication process of Liquid Crystal Displays.
- 5) Explain the formation of BJT on the chip and its isolation.
- 6) Explain in brief photolithographic masking technique in fabrication of transistor.

**Orange-14 (NOV-07)**

- 7) Explain fabrication process of IC resistors by diffusion process.
- 8) Why sockets are required for electronic components on PCB? Explain DIP for IC's.
- 9) Explain the fabrication process of photo resistors & give it's applications.

**Kekawali 10 (MAY-08)**

- 10) Explain fabrication of epitaxial diffused integrated circuits.
- 11) Explain different types of bonding & packages of IC.
- 12) Explain fabrication technique of seven segment display

**Chitrarath-007 (NOV-08)**

- 13) Explain the formation of PN junction capacitor on chip.
- 14) Draw & explain the fabrication process of seven segment display.
- 15) State IC packages. How they are tested? What are the basic requirement of IC packages.

**Jaya-003 (MAY-09)**

- 16) Describe the preliminary process needed before the actual fabrication of an integrated circuits?
- 17) Explain different types of bonding.
- 18) How are thick and thin film technologies used in IC fabrication ? What are the basic requirements of the IC packages?

**Palas-007(NOV-09)**

- 19) Explain photolithographic masking method of fabrication of integrated circuits?
- 20) Explain the fabrication process of IC diodes by diffusion process.
- 21) Describe fabrication process of photo transistor & give it's applications.

**Charoli-03(May -10)**

- 22) Explain monolithic Integrated circuits & photolithographic masking.
- 23) Describe different types of bonding & packages for I.C.
- 24) write short notes on i) Fabrication process of photo-transistor ii) Fabrication of LCD

**Samarth (Dec-10)**

- 25) Explain the different types of bonding of leads and packaging of ICs.
- 26) Explain the fabrication process of resistor and capacitor on the single chip.
- 27) Draw and explain the fabrication process of liquid crystal display.

**Ekdant 008(May -11)**

- 28) Explain fabrication process of IC resistor by diffusion process
- 29) Explain fabrication of epitaxial diffused integrated circuits.
- 30) Draw and explain fabrication process of seven segment display.

**Charodi (Dec -11)**

- 31) Explain monolithic Integrated circuits and photolithographic masking.
- 32) Describe different types of bonding and packages for I.C..
- 33) Write short notes on i) Fabrication process of photo-transistor. ii) Fabrication of L.C.D.

**Mahima-002( May -12)**

- 34) Explain photolithographic masking methods of fabrication of integrated circuit?
- 35) Explain the formation of PN junction , capacitors on chips
- 36) Explain different types of bonding & packages of I.C?

## UNIT-V

**Broomer-09 (MAY-06)**

- 1) Briefly describe photoprinting method of transfer of conductor pattern on to a copper clad laminates.
- 2) What are the different types of laminates used for PCB. State their properties.
- 3) Explain fabrication process of single sided PCB.

**Chess-12 (MAY -07)**

- 4) State the different properties required using laminates as PCB. Describe the advantages of glass board over paper base phenolic boards.
- 5) Write a note on mass soldering techniques and screen printing technique.
- 6) Explain different techniques for mounting of electronic components and ICs o PCB.

**Orange-14 (NOV-07)**

- 7) Explain design rules for PCB in power electronic applications.
- 8) Explain different types of soldering techniques.
- 9) Explain photographic etching technique.

**Kekawali 10(MAY-08)**

- 10) Explain PCB terminal connections & their assembly.
- 11) Explain fabrication of PCB's for microwave use & enlist materials for microwave PCB.
- 12) What are design constraints & methods of processing in flexible PCB

**Chitrarath-007 (NOV-08)**

- 13) Discuss the rules & methods of PCB layout & explain where & why PCB's are used.
- 14) Explain the sequence of operation of dip soldering & give the advantages of dip soldering.
- 15) Explain photoprinting method of transfer of conductor pattern on to a copper clad laminates.

**Jaya-003 (MAY-09)**

- 16) Explain fabrication of PCB's for microwave use & enlist materials for microwave PCB.
- 17) Write short notes on : i) Design rules of PCB. ii) Component mounting o PCB.
- 18) Explain multilayered flexible PCB.

**Palas-007(NOV-09)**

- 19) Write note on i) Mass soldering ii) Multilayered flexible PCB
- 20) Explain various design rules for PCB in analog circuit applications
- 21) i) Explain in brief photographic etching technique .  
ii) Explain why it is necessary to provide a protective coating to a finished PCB?

**Charoli-03(May -10)**

- 22) Explain different types of soldering technique . explain mass soldering in details.
- 23) What do you mean by etching ? give detail about photographic etching technique .
- 24) Write short notes on i) Artwork ii) cu clad iii) PCB iv) Flexible PCB

**Samarth (Dec-10)**

- 25) Explain the rules for mounting of capacitor on PCB.
- 26) Explain:- i) preparation of artwork ii) Process of etching
- 27) Compare the different base and conducting material used for PCB's.

**Ekdant 008(May -11)**

- 28) Write short notes on : i)Design rules of PCB. ii) Component mounting on PCB
- 29) Explain Photographic etching technique in detail.
- 30) Describe different type of Soldering technique.Explain Mass Soldering in detail.

**Charodi (Dec -11)**

- 31) Explain different types of soldering technique. Explain mass soldering in details.
- 32) What do you mean by etching ? Give details about photographic etching technique.
- 33)Write short notes on i) Artwork ii) Cu clad iii) PCB iv) Flexible PCB.

**Mahima-002( May -12)**

- 34) Explain different types of soldering technique?
- 35) Describe in details photographic etching technique?
- 36) Explain fabrication process of PCB for microwave use & enlist materials for microwave PCB?