

Lib

1. Question No. 1 is **compulsory**.
  2. Attempt any **four** questions of the remaining **six** questions.
  3. Draw **neat** labelled diagrams whenever **necessary**.
  4. **Figures** to the **right** indicates **full** marks.
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- a. Classify all resistors used in electronic circuits. Explain the manufacturing process of carbon composition resistor. 10
  - b. List different types of fixed capacitors. Explain the construction of any one type of paper capacitor. 10
  - a. What are the types of thermistor? Explain them with the help of resistance temperature Characteristics. List the materials used for manufacturing the thermistors. 10
  - b. Describe any one soldering method in detail. Name the fluxes used in soldering process. 10
  - a. Draw the diagrams showing the constructional details air core and iron core inductances and explain them. 10
  - b. Give colour codes for the following resistor values : 10
    - (i) 2.2 k-Ohms  $\pm$  5%
    - (ii) 100 k-Ohms  $\pm$  10%
    - (iii) 47 k-Ohms  $\pm$  5%
    - (iv) 100 Ohms  $\pm$  10%.
  - a. Describe the construction and working of solar cell. What are the applications of solar cell? Which is the material used for solar cell? 10
  - b. Explain the working and constructional details of any two types of switches you studied. 10
  - a. List four surface properties of biomaterials and explain how surface properties are tested. 10
  - b. Explain the methods (tests) used for biological testing of biomaterials. 10
  - a. What is corrosion? Explain electrochemical testing of corrosion rates. 10
  - b. List ceramic and metallic biomaterial and their applications (at least five). 10
  - a. Explain the properties of Titanium and Nitinol applicable for biological use. 10
  - b. Explain the construction and applications of heat sinks and fuses. 10

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