| Seat No.: | Q. Paper Code: FTC-A-032 | SET | P |
|---|---|---|---|

**Fabtech Technical Campus, College of Engineering & Research, Sangola**

(An Autonomous Institute)

**Electrical Engineering, Electronics & telecommunication Engineering**

**Academic Year: -2025-26, Semester-I**

**Electrical and Electronics components (25UET11003)**

**Regular End Semester Examination 2025-26 [Dec./Jan.]**

| Class: | F. Y. B. Tech. | Day & Date: | Monday, 19/01/2026 |
|---|---|---|---|
| Duration: | 03 Hrs. | Max. Marks: | 60 Marks |
| Time: | 10:00 AM TO 01:00 PM | | |

**Instructions:**
1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in the Page No.3 of answersheet.
2) Don't forget to mention the question paper set (P/Q/R) on the top of the page 3.

| Q. 1 | Multiple Choice Questions (MCQs) Each question carries 1 mark | Marks: 10 | |
|---|---|---|---|
| | | CO | BL |
| 1 | Which of the following is a type of fixed resistor?<br>a) LDR<br>b) Potentiometer<br>c) Thermistor<br>d) Carbon film resistor | 1 | 1 |
| 2 | Inductor opposes change in:<br>a) Voltage<br>b) Current<br>c) Power<br>d) Resistance | 1 | 2 |
| 3 | Relay is a type of:<br>a) Mechanical switch<br>b) Static switch<br>c) Electronic switch<br>d) Thermal switch | 2 | 2 |
| 4 | Which cable is preferred for long-distance communication?<br>a) Coaxial cable<br>b) Twisted pair cable<br>c) Fiber optic cable<br>d) Ribbon cable | 2 | 2 |
| 5 | Which is a fast-switching diode?<br>a) Zener diode<br>b) Schottky diode<br>c) Varactor diode | 3 | 2 |

| | | | |
|---|---|---|---|
| | d) Tunnel diode | | |
| 6 | Which device is used for triggering TRIAC?<br>a) DIAC<br>b) SCR<br>c) Zener<br>d) MOSFET | 3 | 2 |
| 7 | FET is a:<br>a) Current-controlled device<br>b) Voltage-controlled device<br>c) Magnetic-controlled device<br>d) Power-controlled device | 4 | 2 |
| 8 | JFET stands for:<br>a) Junction Field Effect Transistor<br>b) Junction Feedback Electric Transistor<br>c) Joint Field Electric Transistor<br>d) None of these | 4 | 2 |
| 9 | Which IC package is surface-mount?<br>a) DIP<br>b) SOT<br>c) TO-92<br>d) Metal can | 5 | 2 |
| 10 | SMD stands for:<br>a) Surface Mount Device<br>b) Surface Metal Diode<br>c) Silicon Mounted Design<br>d) Semiconductor Mounted Device | 5 | 1 |

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3) Draw a neat diagram wherever necessary.
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5) Use of non-programmable calculator is allowed.

| Q. No. | Questions | Marks | CO | BL |
|---|---|---|---|---|
| **Q. 2** | **Attempt any two of the following** | **10** | | |
| **1** | Define resistor, capacitor, and inductor with symbols. | **5** | 1 | 1 |
| **2** | Explain Inductor its types and Applications | **5** | 1 | 2 |
| **3** | Explain the color-coding system for resistors with an example. | **5** | 1 | 2 |
| **Q. 3** | **Attempt any two of the following** | **10** | | |
| 1 | Define and classify switches (SPST, SPDT, DPST, DPDT) with neat symbols. | **5** | 2 | 2 |
| 2 | Draw and explain the working of a toggle switch. | **5** | 2 | 3 |
| 3 | Write short notes on push-button and rotary switches. | **5** | 2 | 3 |
| **Q. 4** | **Attempt any two of the following** | **10** | | |
| **1** | Define a diode and explain its VI characteristics.and Application | **5** | 3 | 3 |
| **2** | Define Transistor and explain its Types and Application | **5** | 3 | 3 |
| **3** | Define SCR and explain its VI characteristics.and Application | **5** | 3 | 3 |
| **Q. 5** | **Attempt any two of the following** | **10** | | |
| **1** | Draw and explain the structure of an NPN transistor. | **5** | 4 | 2 |

| | | | | |
|---|---|---|---|---|
| **2** | Explain the working of a MOSFET with a neat diagram. | **5** | 4 | 3 |
| **3** | Compare BJT and FET . | **5** | 4 | 4 |
| **Q. 6** | **Attempt any two of the following** | **10** | | |
| **1** | Explain the basic concept and structure of ICs. | **5** | 5 | 2 |
| **2** | Describe the steps involved in IC fabrication. | **5** | 5 | 3 |
| **3** | Explain IC classification based on scale of integration (SSI, MSI, LSI, VLSI). | **5** | 5 | 2 |

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| 2 | FET is a:<br>a) Current-controlled device<br>b) Voltage-controlled device<br>c) Magnetic-controlled device<br>d) Power-controlled device | 4 | 2 |
| 3 | JFET stands for:<br>a) Junction Field Effect Transistor<br>b) Junction Feedback Electric Transistor<br>c) Joint Field Electric Transistor<br>d) None of these | 4 | 2 |
| 4 | Which IC package is surface-mount?<br>a) DIP<br>b) SOT<br>c) TO-92<br>d) Metal can | 5 | 2 |
| 5 | SMD stands for:<br>a) Surface Mount Device<br>b) Surface Metal Diode<br>c) Silicon Mounted Design<br>d) Semiconductor Mounted Device | 5 | 1 |

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| 8 | Relay is a type of:<br>a) Mechanical switch<br>b) Static switch<br>c) Electronic switch<br>d) Thermal switch | 2 | 2 |
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| **2** | Define Transistor and explain its Types and Application | **5** | 3 | 3 |
| **3** | Define SCR and explain its VI characteristics.and Application | **5** | 3 | 3 |
| **Q. 5** | **Attempt any two of the following** | **10** | | |
| **1** | Draw and explain the structure of an NPN transistor. | **5** | 4 | 2 |

| 2 | Explain the working of a MOSFET with a neat diagram. | **5** | 4 | 3 |
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| **3** | Compare BJT and FET . | **5** | 4 | 4 |
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