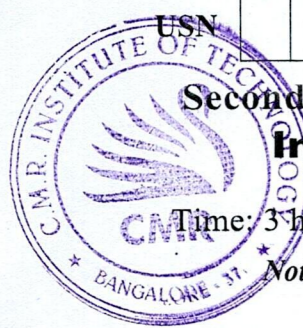


# CBCS SCHEME

BESCK204C



Second Semester B.E./B.Tech. Degree Examination, Dec.2025/Jan.2026

## Introduction to Electronics and Communication

Time: 3 hrs.

Max. Marks: 100

*Note: 1. Answer any FIVE full questions, choosing ONE full question from each module.  
2. M : Marks, L: Bloom's level, C: Course outcomes.*

| Module - 1 |    |   |   |        |
|------------|----|---|---|--------|
| Q.1        | a. | What is rectifier? Explain full wave bridge rectifier with capacitor filter.  | 8 | L2 CO1 |
|            | b. | Explain the block diagram of dc power supply and mention the functions of each block.   | 8 | L2 CO1 |
|            | c. | Classify the different types of amplifiers.   | 4 | L2 CO1 |
| OR         |    |   |   |        |
| Q.2        | a. | Explain the operation of voltage regulator with neat circuit diagram.   | 8 | L2 CO1 |
|            | b. | Illustrate the overall gain of negative feedback amplifier with a suitable block diagram.   | 8 | L2 CO1 |
|            | c. | Outline the operation of voltage doubler with neat circuit diagram.   | 4 | L2 CO1 |
| Module - 2 |    |   |   |        |
| Q.3        | a. | Explain the operation of ladder network oscillator with neat circuit diagram.   | 8 | L2 CO2 |
|            | b. | Infer astable multivibrator circuit with necessary equations.   | 8 | L2 CO2 |
|            | c. | In weigh bridge oscillator if $C_1 = C_2 = 200 \text{ nF}$ . Solve the frequency of oscillation, when $R_1 = R_2 = 4 \text{ K}\Omega$   | 4 | L3 CO2 |
| OR         |    |   |   |        |
| Q.4        | a. | Explain the following with respect to operational amplifiers:<br>i) Differentiator ii) Integrator.  | 8 | L2 CO2 |
|            | b. | Outline the ideal characteristics of an operational amplifiers.   | 8 | L2 CO2 |
|            | c. | For the following given data. Solve the summing amplifier where $R_f = 10 \text{ K}\Omega$ , $R_1 = 1 \text{ K}\Omega$ , $R_2 = 2 \text{ K}\Omega$ , $R_3 = 3 \text{ K}\Omega$ with $V_1 = 2 \text{ V}$ , $V_2 = 4 \text{ V}$ , $V_3 = 6 \text{ V}$ . | 4 | L3 CO2 |
| Module - 3 |    |   |   |        |
| Q.5        | a. | Solve the following:<br>i) $(B65F)_{16} = (?)_{10}$<br>ii) $(10110001101011.111100000110)_2 = (?)_8$<br>iii) $(630.4)_8 = (?)_{10}$<br>iv) $(673.124)_8 = (?)_2$  | 8 | L3 CO3 |

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|------------|----|---|---|--------|
|            | b. | Make use of Boolean algebra, simplify the following and draw the logic circuit diagram:<br>i) $(X + Y)(X + Z) = X + YZ$<br>ii) $XY + XZ + YZ' = XZ + YZ'$ | 6 | L3 CO3 |
|            | c. | Solve Demorgan's theorem for two variables.   | 6 | L3 CO3 |
| OR         |    |   |   |        |
| Q.6        | a. | Develop full adder circuit with its truth table and write the expression for sum and carry.   | 8 | L3 CO3 |
|            | b. | Solve the following:<br>i) $(1010100)_2 - (1000100)_2$ using 2's compliment<br>ii) $(4456)_{10} - (34324)_{10}$ using 10's compliment method              | 6 | L3 CO3 |
|            | c. | Develop combinational logic circuit with an example.  | 6 | L3 CO3 |
| Module - 4 |    |   |   |        |
| Q.7        | a. | Compare RISC and CISC processors.   | 8 | L2 CO4 |
|            | b. | Summarize microprocessor and microcontroller.   | 6 | L2 CO4 |
|            | c. | List out the major application areas of embedded systems.   | 6 | L1 CO4 |
| OR         |    |   |   |        |
| Q.8        | a. | Compare Transducer, Sensor and Actuators.   | 8 | L2 CO4 |
|            | b. | Explain the classification of embedded systems.   | 6 | L2 CO4 |
|            | c. | What is 7-segment LED display?  | 6 | L1 CO4 |
| Module - 5 |    |   |   |        |
| Q.9        | a. | Analyze the different multiple access technique in the digital communication in detail.   | 8 | L4 CO5 |
|            | b. | Explain the modern communication systems with a neat block diagram.   | 6 | L2 CO5 |
|            | c. | Define Modulation. What is the need of modulation?  | 6 | L1 CO5 |
| OR         |    |   |   |        |
| Q.10       | a. | Analyze the benefits of digital communication systems over analog communication systems.  | 8 | L4 CO5 |
|            | b. | Explain the following with the help of neat waveforms: i) ASK ii) FSK.  | 6 | L2 CO5 |
|            | c. | List the functions of hard wired channel and soft wired channel.  | 6 | L1 CO5 |

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