



R20 Regulation

Subject code: 3P5DD

TKR COLLEGE OF ENGINEERING AND TECHNOLOGY

(Autonomous, Accredited by NAAC with 'A+' Grade)

B.Tech V Semester Supplementary Examinations, November 2025

MICROPROCESSORS AND MICROCONTROLLERS

(ECE)

Maximum Marks: 70

Date: 10.11.2025

Duration: 3 hours

- Note:
1. This question paper contains two parts A and B.
 2. Part A is compulsory which carries 20 marks. Answer all questions in Part A.
 3. Part B consists of 5 Units. Answer any one full question from each unit.
 4. Each question carries 10 marks and may have a, b, c, d as sub questions.

Part-A

| All the following questions carry equal marks (10X2M=20 Marks) | | Marks | CO | BTL |
|--|---|-------|----|-----|
| 1 | Define the microprocessor. | 2M | 1 | L1 |
| 2 | Define control flags of 8086 microprocessor. | 2M | 1 | L1 |
| 3 | Define PSW of 8051. | 2M | 2 | L1 |
| 4 | Define Microcontroller. | 2M | 2 | L1 |
| 5 | Write the control word frame for BSR mode in the 8255. | 2M | 3 | L1 |
| 6 | Write the control word format of I/O mode of 8255 PPI. | 2M | 3 | L1 |
| 7 | Write the different types of memories used in microcontrollers. | 2M | 4 | L1 |
| 8 | List features of ARM processor. | 2M | 4 | L1 |
| 9 | Write the applications of ARM processor. | 2M | 5 | L1 |
| 10 | List the features of CORTEX processor. | 2M | 5 | L1 |

Part-B

| Answer All the following questions. (5X10M=50Marks) | | Marks | CO | BTL |
|---|---|-------|----|-----|
| 11 | Describe the Minimum Mode Pin configuration of the 8086 microprocessor with neat sketch. | 10M | 1 | L2 |
| OR | | | | |
| 12 | Explain the Arithmetic and Logical instructions in the 8086 microprocessor with an example. | 10M | 1 | L2 |
| 13 | Explain the Interrupt Structure of 8051 microcontroller in detail. | 10M | 2 | L2 |
| OR | | | | |
| 14 | Discuss Memory Organization of 8051 microcontroller with neat sketch. | 10M | 2 | L2 |
| 15 | Explain the on Onboard communication interfaces. Explain the working of SPI Bus. | 10M | 3 | L2 |
| OR | | | | |
| 16 | Explain Interfacing of the D to A Converter with 8051 Microcontroller. | 10M | 3 | L2 |
| 17 | Explain the ARM pipeline in detail. | 10M | 4 | L2 |
| OR | | | | |

| | | | | |
|----|---|-----|---|----|
| 18 | With a neat sketch, explain the ARM processor architecture. | 10M | 4 | L2 |
| 19 | Demonstrate the classification, features and applications of ARM CORTEX processor. | 10M | 5 | L2 |
| | OR | | | |
| 20 | List out different classifications of OMAP processor and choose any one type and explain in detail. | 10M | 5 | L2 |