

Reg No.: _____

Name: _____

APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY
SIXTH SEMESTER B.TECH DEGREE EXAMINATION, APRIL 2018

Course Code: EC308

Course Name: EMBEDDED SYSTEMS (EC)

Max. Marks: 100

Duration: 3 Hours

PART A

Answer any two full questions, each carries 15 marks.

Marks

- | | | | |
|---|----|--|-----|
| 1 | a) | Explain various types of embedded system processors and also write their advantages and disadvantages. | (8) |
| | b) | Draw the diagram of I ² C frame format. Explain each field. | (7) |
| 2 | a) | Explain the different embedded system development life cycle models. | (7) |
| | b) | Explain different data transfer modes used in USB bus standard. | (5) |
| | c) | Describe the various modes of serial communication. | (3) |
| 3 | a) | Discuss briefly the challenges in embedded system design. | (5) |
| | b) | Compare RISC and CISC architecture. | (3) |
| | c) | What is bus arbitration? Explain the bus arbitration scheme used in CAN bus with an example. | (7) |

PART B

Answer any two full questions, each carries 15 marks.

- | | | | |
|---|----|--|-----|
| 4 | a) | What is interrupt? What are the sources of interrupt? How it is handled. | (8) |
| | b) | What are the features of embedded C++. Explain each one in detail. | (7) |
| 5 | a) | Explain about memory devices drivers. | (7) |
| | b) | What are the common software tools used for testing and debugging during embedded system development? Explain with examples. | (8) |
| 6 | a) | What are the different modes in which a DMA controller transfers data between memory and a peripheral? | (3) |
| | b) | Explain any four types I/O devices used in embedded system. | (4) |
| | c) | Discuss the hardware and software components required for designing an ATM machine. | (8) |

PART C

Answer any two full questions, each carries 20 marks.

- 7 a) Give the structure of a process control block (PCB) and explain each block. (10)
b) Discuss the major functions of a Kernel. (4)
c) Explain the Earliest deadline first scheduling for process management in RTOS. (6)
- 8 a) Explain the concept mailbox and message queue used in IPC. (10)
b) Explain about the memory allocation related functions in Micro C/OS-II. (10)
- 9 a) Discuss the circumstances which lead to priority inversion in RTOS. How can it be resolved? (6)
b) What is meant by critical section of a task? How it can be run by RTOS? (4)
c) Write a short note on popular real-time operating systems. (10)

