

Reg No.: _____

Name: _____

APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY
Sixth semester B.Tech degree examinations (S), September 2020

Course Code: EC308

Course Name: Embedded Systems

Max. Marks: 100

Duration: 3 Hours

PART A

Answer any two full questions, each carries 15 marks

Marks

- | | | | |
|---|----|---|------|
| 1 | a) | What are the different components of embedded hardware? | (5) |
| | b) | Write short notes on SCI and SPI. | (5) |
| | c) | What are the challenges in embedded system design? | (5) |
| 2 | a) | Explain design and development life cycle model of embedded system. | (7) |
| | b) | Explain about USB and UART. | (8) |
| 3 | a) | Explain CPU bus organization and protocol in detail. | (5) |
| | b) | Draw and explain architecture of ARM9 processor. | (10) |

PART B

Answer any two full questions, each carries 15 marks

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|---|----|---|------|
| 4 | a) | Explain device drivers with example for handling ISR. | (5) |
| | b) | What are the different methods for testing software? | (10) |
| 5 | a) | What is meant by software validation and debugging? Explain each one in detail. | (8) |
| | b) | Explain the components of system-on-chip. | (7) |
| 6 | a) | Explain handling of I/O devices in embedded system. | (7) |
| | b) | What are the disadvantages of embedded C++. | (3) |
| | c) | Explain memory mapping in embedded system. | (5) |

PART C

Answer any two full questions, each carries 20 marks

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|---|----|--|-----|
| 7 | a) | What is meant by RTOS? List out its characteristics. | (7) |
| | b) | What is remote procedure call(RPC) and explain how it works. | (6) |
| | c) | Discuss the use of mail box in RTOS. | (7) |
| 8 | a) | Explain multiple processes in an application. | (8) |
| | b) | Explain task service and functions. | (7) |
| | c) | Explain file system organization. | (5) |

- 9 a) Explain about structures and kernel in RTOS. (8)
- b) Explain about message queues in inter process communication (IPC). (5)
- c) Briefly explain the task synchronization techniques in IPC. (7)

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