



Reg No.: \_\_\_\_\_

Name: \_\_\_\_\_

**APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY**  
 Sixth Semester B.Tech Degree (S,FE) Examination May 2022 (2015 Scheme)

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) Describe any 3 Life-Cycle Models for Embedded System Development.                                     | (9)  |
|   | b) Explain the various types of transfers in USB Bus.  | (6)  |
| 2 | a) Explain the 5 stagepipeline architecture of ARM 9TDMI processor.                                      | (10) |
|   | b) Explain CPU bus organization and protocol in detail.  | (5)  |
| 3 | a) Discuss the frame structure and various data transfer modes in HDLC.                                  | (9)  |
|   | b) Describe the importance of advanced software in the smoothening of an embedded system using examples. | (6)  |

**PART B***Answer any two full questions, each carries 15 marks*

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|---|---|-----|
| 4 | a) Explain the components of SoC with an example.   | (8) |
|   | b) Discuss how DMA Controller helps in increasing performance of a system.  | (7) |
| 5 | a) Debugging techniques serve as an essential tool in determining the accuracy of an embedded system design. Comment. | (9) |
|   | b) Explain the function of device drivers for handling ISR.   | (6) |
| 6 | a) Describe the different methods used for software testing.  | (7) |
|   | b) Summarize the features of Embedded C++.  | (8) |

**PART C***Answer any two full questions, each carries 20 marks*

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|---|---|------|
| 7 | a) Explain the memory allocation related functions in Micro C/OS-II.                | (10) |
|   | b) Describe the use of mailbox and Remote Procedure Call.                           | (10) |
| 8 | a) Discuss the concept of inter process communication focussing on synchronization. | (10) |
|   | b) What is shared data problem? In what way that can be avoided?                    | (10) |
| 9 | a) Explain briefly the concept of process management and device management.         | (10) |
|   | b) What is kernel? Explain any 2 types of kernel architectures.                     | (10) |

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