

INSTITUTE OF AERONAUTICAL ENGINEERING
(AUTONOMOUS)

Code No: **BESB16**

MODEL QUESTION PAPER - II

M-Tech II Semester Regular Examinations, May 2019

MICROCONTROLLERS FOR EMBEDDED SYSTEM DESIGN
(Embedded Systems)

Time: 3 hours

Max. Marks: 70

Answer ONE Question from each Unit
All Questions Carry Equal Marks
All parts of the question must be answered in one place only

UNIT I

1. (a) What is the need for IDE in an Embedded Architecture? Discuss. [7M]
(b) Explain the different program layers in the embedded software and also the process of converting a "C" program into the file for ROM image with suitable block diagrams. [7M]
2. (a) Explain complex systems design and processors used in embedded systems. [7M]
(b) Explain about the formalization of embedded system design. [7M]

UNIT II

3. (a) Explain how the external memory is interfaced with 8051 microcontroller with suitable diagrams. [7M]
(b) Explain with examples various addressing modes supported by 8051 and PIC microcontroller? [7M]
4. (a) Describe various operating modes of timers/counters and associated control registers of PIC 16C6X. [7M]
(b) Explain the memory organization of Micro Chip PIC 16C6X. [7M]

UNIT III

5. (a) Explain continuous timer blocks and switched capacitor blocks. [7M]
(b) Explain the features of PSOC microcontroller in detail. [7M]
6. (a) Explain the complete ARM register set in different modes of ARM processor. [7M]
(b) Explain the multiple register transfer instruction set of ARM processor. [7M]

UNIT IV

7. (a) What do you mean by throwing an exception? How is the exception condition during execution of a function handled? [7M]
(b) How is the context switching handled in ARM7? [7M]

8. (a) Explain device drivers for internal programming timing devices with an example. [7M]
(b) Explain in detail about the interrupt servicing mechanism. [7M]

UNIT V

9. (a) Explain briefly about serial communication protocol and SDMA. [7M]
(b) Discuss about CAN bus communication with its devices. [7M]

10. (a) Explain briefly about serial communication protocol and SDMA. [7M]
(b) Discuss about Ethernet protocols used in embedded systems. [7M]