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Question Paper Code: BES004



# INSTITUTE OF AERONAUTICAL ENGINEERING

(Autonomous)

M.Tech II Semester End Examinations (Regular) - July, 2017

Regulation: IARE-R16

## EMBEDDED SYSTEM ARCHITECTURE

(Embedded Systems)

Time: 3 Hours

Max Marks: 70

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Answer ONE Question from each Unit

All Questions Carry Equal Marks

All parts of the question must be answered in one place only

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### UNIT – I

- (a) Illustrate different phases in embedded system design and development process. [7M]  
(b) Explain the organization of embedded system board based upon the von Neumann architecture model. [7M]

(OR)

- (a) Explain different ISA Models for Instruction-Level Parallelism with an example for each. [7M]  
(b) Write short notes on how to power the embedded hardware. [7M]

### UNIT – II

- (a) Give the comparison among von Neumann and Harvard processor architectures. [7M]  
(b) Enumerate the concept of ripple-carry adder by taking an example. [7M]

(OR)

- (a) Explain different types of on-chip program memory(ROM). [7M]  
(b) What is serial interface? Explain different schemes serial i/o communication. [7M]

### UNIT – III

- (a) Explain the most common cache selection and replacement schemes in board memory. [7M]  
(b) Briefly discuss the solutions for improving the bandwidth of main memory. [7M]

(OR)

- (a) Illustrate different phases in PCI transactions showing how PCI signals are used for transmission of information. [7M]  
(b) Briefly discuss about the bus performance with some limitations. [7M]

#### UNIT – IV

7. (a) Explain different phases in point to point protocol highlighting connection states and events. [7M]  
(b) Write the SMTP pseudocode implemented in an e-mail application on a client device. [7M]

(OR)

8. (a) Give the comparison among TCP/IP, OSI Models and Embedded Systems Model with the help of diagram. [7M]  
(b) Write the pseudocode to demonstrates a sample UDP pseudocode algorithm for processing an incoming datagram. [7M]

#### UNIT – V

9. (a) Explain four base structural types of the “4+1” model. [7M]  
(b) Enumerate C example compilation/linking steps and object file results with the help of diagram. [7M]

(OR)

10. (a) Explain different varieties of quality-attribute and architecture-oriented approaches to Analyze and evaluate the Architecture. [7M]  
(b) Briefly discuss different stages of Creating an Embedded System Architecture. [7M]

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