

INSTITUTE OF AERONAUTICAL ENGINEERING

(AUTONOMOUS)

Code No: **BES004**

MODEL QUESTION PAPER - II

M-Tech I Semester Regular Examinations, February 2017

EMBEDDED SYSTEM ARCHITECTURE

(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 OSI model? Explain the layers of OSI model? Give two examples of protocols under each layer. [7M]
(b) List and describe three most common ISA models on which architectures are based? [7M]
2. (a) What is Van Neumann model ? what are the main elements defined by VN model? Explain? [7M]
(b) Explain the differences between all embedded JVM's? What is an element of ESA? Explain with examples of architectural elements. [7M]

UNIT II

3. (a) Illustrate and explain the factors to be considered while evaluating the processor for embedded system? [7M]
(b) Explain various I/o devices in detail ? Mention the signals used by I/o devices for interrupting. [7M]
4. (a) List and discuss the six logical units used to classify input/ output Hardware. [7M]
(b) Explain the various interrupt handling mechanisms? . [7M]

UNIT III

5. (a) Explain board input/output that can transmit and receive data in parallel with example. [7M]

- (b) Define and describe the three categories under which board buses typically fall? [7M]
6. (a) List and describe three common bus arbitration schemes? [7M]
(b) Explain the differences between level-1, level-2, level-3 cache? How do they all work together in a system. [7M]

UNIT IV

7. (a) Explain the SMTP protocol in detail? [7M]
(b) Explain the middleware with embedded system model?. [7M]
8. (a) Explain the TCP/IP model relative to OSI model in detail with block diagram? [7M]
(b) Discuss what type of programming languages would introduce a component at the application layer? Explain them. [7M]

UNIT V

9. (a) Explain the process for analyzing and evaluating an architecture? Mention five real-world examples of each? [7M]
(b) Discuss the main types of debugging tools? List and describe four real-world examples of each type of debugging tool? [7M]
10. (a) Define a preprocessor? Explain with real-world example of how a preprocessor is used in relation to programming language? [7M]
(b) List some features that differentiate compiling needs in embedded systems versus in other types of computer systems? Explain in detail?[7M]