

Code No: R164104D

**R16**

**Set No. 1**

IV B.Tech I Semester Regular Examinations, October/November - 2019

**EMBEDDED SYSTEMS**

(Electronics and Communication Engineering)

Time: 3 hours

Max. Marks: 70

*Question paper consists of Part-A and Part-B*

*Answer ALL sub questions from Part-A*

*Answer any FOUR questions from Part-B*

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**PART-A (14 Marks)**

1. a) What is an embedded system? [2]
- b) What is current limiting Resistor in embedded application? [3]
- c) Write the execution steps for embedded firmware. [3]
- d) Define Process Management. [2]
- e) What is decompiler? [2]
- f) Define IDE(Integrated Development Environment) tools? [2]

**PART-B (4x14 = 56 Marks)**

2. a) Write the history of embedded system. [7]
- b) Differentiate RISC and CISC. [7]
3. a) What is sequential circuit? Explain with examples. [7]
- b) What are serial communication devices? Explain. [7]
4. a) Explain the advantages of assembly language based development. [7]
- b) Write a note on C versus embedded C and compiler versus cross compiler. [7]
5. a) What is shared memory? Explain different mechanisms are adopted to implement shared memory. [7]
- b) What are the building blocks of UML? Explain it. [7]
6. a) Explain various elements of an embedded system development environment. [7]
- b) Explain the various details held by a List file generated during the process of cross-compiling an embedded C project. [7]
7. a) Explain Computer-Aided Design (CAD) and hardware. [7]
- b) Differentiate static and dynamic testing. [7]



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**Time: 3 hours**

**Max. Marks: 70**

*Question paper consists of Part-A and Part-B*

*Answer ALL sub questions from Part-A*

*Answer any FOUR questions from Part-B*

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**PART-A (14 Marks)**

1. a) Write the major application areas of embedded system. [3]
- b) Explain the usage of capacitors and inductors in embedded hardware circuit. [3]
- c) Write about super loop based approach. [2]
- d) Define file system management. [2]
- e) What is the difference between simulator and an emulator? [2]
- f) What is complier? [2]

**PART-B (4x14 = 56 Marks)**

2. a) Write and explain the classification of embedded systems. [7]
- b) Explain the onboard communication interfaces. [7]
3. a) What is Latch? Draw and explain the latch. [7]
- b) Explain briefly about parallel device ports. [7]
4. a) Write and explain the drawbacks of assembly language based development. [7]
- b) What is Interrupt? Explain multiple interrupts with examples. [7]
5. a) Write and explain the basic functions of real time kernel. [7]
- b) Explain data flow graph and state machine model in embedded design. [7]
6. a) Explain the role of Integrated Development Environment (IDE) for embedded Software development. [7]
- b) Explain the various details held by a Map file generated during the process of cross-compiling an embedded C project. [7]
7. a) Draw the compilation diagram and explain it. [7]
- b) What is testing? Explain the types of testing. [7]



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**Set No. 3**

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(Electronics and Communication Engineering)

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Max. Marks: 70

*Question paper consists of Part-A and Part-B*

*Answer ALL sub questions from Part-A*

*Answer any FOUR questions from Part-B*

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**PART-A (14 Marks)**

1. a) What is typical embedded system? [2]
- b) What is Schottky diode's role in embedded applications? [3]
- c) Write about super loop based design. [3]
- d) Define Non-Preemptive multitasking. [2]
- e) What is monitor program? [2]
- f) What is interpreter? [2]

**PART-B (4x14 = 56 Marks)**

2. a) Explain the purpose of embedded system. [7]
- b) What is ROM? How the ROM classified? Explain it. [7]
3. a) What is combinational circuit? Explain with example. [7]
- b) Explain briefly about wireless devices. [7]
4. a) Explain the conversion process from source file to object file translation. [7]
- b) Explain briefly about interrupt servicing mechanism. [7]
5. a) Define process? Draw the processor state transition diagram and explain it. [7]
- b) Define message passing? Explain how the message passing is classified. [7]
6. a) Explain the format of Hex records in an Intel Hex file. [7]
- b) What are the different techniques available for embedded firmware debugging? Explain them in detail. [7]
7. a) Draw the interpretation diagram and explain it. [7]
- b) Explain how testing will done on host machine. [7]



Code No: R164104D

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**Set No. 4**

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**EMBEDDED SYSTEMS**

(Electronics and Communication Engineering)

Time: 3 hours

Max. Marks: 70

*Question paper consists of Part-A and Part-B*

*Answer ALL sub questions from Part-A*

*Answer any FOUR questions from Part-B*

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**PART-A** (14 Marks)

1. a) Differentiate Harvard architecture and Von-Neumann architecture. [3]
- b) How transistors are used in embedded hardware circuit? [3]
- c) Write the drawbacks of super loop. [2]
- d) Define thread. [2]
- e) What is On Chip Debugging? [2]
- f) What is preprocessor? [2]

**PART-B** (4x14 = 56 Marks)

2. a) What is RAM? Explain the categories of RAM. [7]
- b) Define sensors? Explain the I/O subsystem. [7]
3. a) What is multiplexer (mux)? Explain it. [7]
- b) Explain briefly about watchdog timer. [7]
4. a) Write and explain the advantages of high level based development. [7]
- b) Discuss the Mixing Assembly with high level language and mixing high level language with assembly. [7]
5. a) What is deadlock? List and explain different conditions favoring a deadlock situation. [7]
- b) Explain the fundamental issues in hardware software co-design. [7]
6. a) What is the difference between assembler and disassembler? State their uses in embedded application development. [7]
- b) Explain the Boundary Scan based hardware debugging in details. [7]
7. a) What is debugging tool? Explain it. [7]
- b) Discuss Simulators and Laboratory tools in details [7]

