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B. Tech. 8th Sem. (Electronics & Tele Communication Engg.) Examination – May, 2023

EMBEDDED SYSTEM

Paper : PEC-ECE-415-G

Time : Three Hours]   *[Maximum Marks : 75*

Before answering the questions, candidates should ensure that they have been supplied the correct and complete question paper. No complaint in this regard, will be entertained after examination.

Note : Attempt *five* questions in all, selecting *one* question from each Unit. Question No. **1** is *compulsory*. All questions carry equal marks.

1. (a) What is the difference between microcontroller and microprocessor ?   3

   (b) What do you understand by an interrupt ? Explain briefly.   3

(c) Explain watch dog timer in PIC microcontroller. 3

(d) Explain the Program status word register of 8051 microcontroller. 3

(e) What are the key features of an embedded system ? 3

UNIT – I

2. Explain in detail the Harvard and Princeton architecture with suitable diagrams. Also give the advantages and disadvantages of both. 15

3. (a) What do you mean by the term embedded controllers and external memory controllers ? Explain in detail. 8

(b) Discuss the criteria for selecting a microcontroller device. Also explain the Microcontroller necessary features. 7

UNIT – II

4. (a) Explain the concept of pipelining in the PIC microcontroller. 5

(b) Explain the following instructions of PIC microcontroller : 10

bcff, b incff, F(W) subwff, F(W) retfie movl w, k

5. Draw the block diagram of PIC microcontroller and explain the functioning of each block in detail. 15

UNIT – III

6. (a) Explain the memory organization of 8051 in details and also give brief summary of RAM in that. 5

(b) Write four instructions for each; data transfer group, arithmetic group, logical group and branch group. 10

7. (a) Explain the block diagram of 8051 in detail. 8

(b) Draw a schematic diagram to interface the A/D converter with 8051 microcontroller. 7

UNIT – IV

8. (a) Discuss Embedded System Architecture. 8

(b) How are embedded systems classified ? Explain. 7

9. Write a short note on : 15

(a) Interfacing of processor with memory

(b) Structural units in processor

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