

Roll No.

3724

**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

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- (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) rtfie 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