SYIT/SEM IV/EXT/IES

Time: 2½ hrs. **Marks:75**

Note:
1. All questions are compulsory with internal choice.
2. Draw neat diagrams wherever necessary.
3. Figures to the right indicate full marks.

Q.1 Answer the following (any three) **(15)**

(a) Enlist various purposes of embedded systems.
(b) Explain various operational quality attributes of an embedded system.
(c) Discuss the characteristics of embedded system.
(d) Write a short note on classification of embedded system based on generation.
(e) State the difference between Harvard and Von-Neumann architecture.
(f) Explain the difference between Little Endian and Big-Endian processor.

Q.2 Answer the following (any three) **(15)**

(a) What is the difference between domain specific and application specific embedded system. Give two examples of each.
(b) Difference between HECU and LECU in embedded system.
(c) What are the different types of memory? Explain each in brief.
(d) What is the purpose of memory testing in embedded system?
(e) Write short note on washing machine-application specific embedded system.
(f) What is device driver? Explain role of device driver in embedded operating based products.

Q.3 Answer the following (any three) **(15)**

(a) Explain the PSW in 8051 microcontroller.
(b) Draw the pinout diagram and explain functions of pins of 8051 microcontroller.
(c) Write a note on Data types in embedded C.
(d) Explain I/O ports in microcontroller. Write 8051 C program to toggle all the bits of P0 continuously.
(e) What is addressing mode? Explain in brief.
(f) Explain the 8051 RAM in detail.

Q.4 Answer the following (any three) **(15)**

(a) What are the factors to be considered in selecting a microcontroller for embedded system? Discuss any one in detail.
(b) With required example explain structure of embedded system program.
(c) Explain what is meant by the super loop based approach.
(d) Explain the TMOD register in embedded system.
(e) List and explain in brief the features of 8051 microcontroller.
(f) Explain the register banks in 8051 micro controller. Which is default register bank? How register banks can be selected using program status word?

Q.5 Answer the following (any three) **(15)**

(a) What are the components of IDE of embedded system development environment?
(b) Explain the terms: a)Cross compiler b) Decompiler
(c) What are the different functional requirements that need to be evaluated in the selection of an RTOs(Real Time Operating System)?
(d) Explain the Hex file in detail.
(e) Describe the different phases of embedded product development life cycle.
(f) Write short note on trends in embedded industry with respect to Processors.

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