

PSG COLLEGE OF ARTS & SCIENCE
(AUTONOMOUS)

BSc DEGREE EXAMINATION DECEMBER 2023
(Fifth Semester)

Branch – COMPUTER TECHNOLOGY

EMBEDDED SYSTEMS

Time: Three Hours

Maximum: 50 Marks

SECTION-A (5 Marks)

Answer ALL questions

ALL questions carry EQUAL marks (5 x 1 = 5)

- Which of the following are hardware components of an embedded system?
 - Computer processor
 - Device peripherals
 - Computer memory
 - All the above
- Non-operational quality attributes are _____.
 - Non-functional requirements
 - Functional Requirements
 - Quality attributes for an offline product
 - (i) and (iii)
- The program execution is dependent on the clock and the _____ is responsible for generating the clock signals.
 - Registers
 - Interrupts
 - Oscillator Unit
 - Automotive
- which of the following does not have a stack frame building?
 - hardware interrupt
 - software interrupt
 - non-maskable interrupt
 - fast interrupt
- 8051 is built around the _____ Architecture.
 - Harvard Processor
 - Von-Neumann Processor
 - U Processor
 - None of the Above

SECTION - B (15 Marks)

Answer ALL Questions

ALL Questions Carry EQUAL Marks (5 x 3 = 15)

- Explain History of Embedded Systems.

OR

 - Describe Application Specific Integrated Circuits (ASICs).
- Examine any two characteristics of an Embedded System.

OR

 - Classify Maintainability of operational Quality Attributes.
- What is Interrupts? Explain with examples.

OR

 - Sketch 8051 program memory Organization.

Cont...

9. a) Give introduction to Unified Modeling Language (UML).
OR
b) Discuss Addressing modes in 8051.
- 10 a) Summarize Emulator and Debugging.
OR
b) Outline the trends in embedded system.

SECTION -C (30 Marks)

Answer **ALL** questions

ALL questions carry **EQUAL** Marks

(5 x 6 = 30)

- 11 a) Dissect Classification of Embedded Systems.
OR
b) Elaborate Purpose of Embedded System.
- 12 a) Demonstrate Non-operational Quality Attributes.
OR
b) Illustrate Washing Machine – Application-Specific Embedded System.
- 13 a) Design the 8051 Architecture.
OR
b) Dissect Registers.
- 14 a) Categorize the different instruction sets in 8051.
OR
b) Enumerate Hardware and Software Trade-off.
- 15 a) Elucidate Embedded Product Development Life Cycle.
OR
b) Eradicate types of File Generated on Cross Compilation.

Z-Z-Z

END