

- b) What are the addressing modes of 8051? Discuss in detail. $2+2+1+5=10$
4. a) What is the embedded firmware? What are the various design approaches of embedded firmware. Discuss in detail.
- b) What is Assembly language programming? Write in detail with block diagram the conversion process from source to object file. $2+3+2+3=10$
5. a) What is high level language based development? Describe the conversion process of high level language to machine level language with block diagram.
- b) Write a 8051 C program to toggle all the bits of P0 and P2 continuously with a 200ms delay. Use crystal frequency 11.0592 Mhz. What is the range of data type signed int? $2+3+4+1=10$
6. a) What is parallel and sequential programming - discuss with examples? What is Task Scheduling?
- b) What is Application specific processor? Discuss the features and benefits. What is FPGA? $4+1+1+3+1=10$
7. a) What are the core of embedded systems? Discuss each of them briefly.
- b) List all the types embedded memory and describe all in brief. What is the name of static memory used in Computers. $2+3+4+1=10$
8. a) What are the types of operating system? Discuss each of them in detail.
- b) What is Real time kernel? List the basic function of a real time kernel. $1+4+2+3=10$

2023/ODD/12/33/EC-EL-12/018

B. Tech Odd Semester Examination, February, 2023

Electronics & Communication Engineering (7th Semester)

Course No.: EC-EL-12
(Embed System)

Full Marks: 50

Pass Marks: 15

Time: 2 hours

- Note:**
1. Attempt any five questions.
 2. Begin each answer in a new page.
 3. Answer parts of a question at a place.
 4. Assume reasonable data wherever required.
 5. The figures in the right margin indicate full marks for the question.
 6. All the mathematical symbols and abbreviations have their usual meanings.
1. a) Draw the 8051 microcontroller architecture neatly. And describe each block in detail.
- b) Describe in detail the assembly language execution process with the block diagram. $5+5=10$
2. a) Write an assembly code for 8051 microcontroller to toggle the port P1 with 1sec delay. Show the calculation of delay using clock frequency 11.0592MHz.
- b) Calculate the total execution time of the above code showing all the machine cycles. What is machine cycle? What is subroutine? $3+2+3+1+1=10$
3. a) Write a program to toggle LED connected in port P1.0 in every 250ms. Use IC DS89C420 with clock frequency 11.0592MHz. Show Delay calculation with all machine cycle. Draw the circuit diagram.

Turn Over