Seat No.

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MAR_APR 2026 SUMMER EXAMINATION

1154 B.Tech. CBCS

Sub. Name: Embedded Systems

Sub. Code: 83824/84050

Day and Date: Friday ,15-05-2026 **Total Marks: 70**

Time: 10:30 AM To 01:00 PM

Instructions:
1. **All questions are compulsory**
2. **Assume suitable data wherever necessary and mention it boldly**
3. **Draw neat labelled diagrams wherever necessary**
4. **Use of Scientific calculator is allowed**

Q1) Solve following MCQ. **[14]**

i. ARM was originally know as
- A. Acron RISC Machine
- B. Advance RISC Machine
- C. Automatic RISC Machine
- D. Ashton Raggatt McDougall

ii. What is primary advantage of RISC architecture
- A. More Instruction per Cycle
- B. Simple instruction set, faster Execution
- C. Complex addressing Mode
- D. More Power Consumption

iii. How many maximum task can be present in Running state in single processor system
- A. Zero
- B. More than One
- C. One
- D. N number of Task (No Limit)

iv. Which register/s is/are mandatory to get loaded at the beginning before loading or transferring the contents to corresponding destination registers?
- A. INDF
- B. PCL
- C. W
- D. All of the above

v. How many minimum delay _____ and maximum delay _____ using TIMER 1 generator In PIC 16F877A.
- A. 0.2usec and 819usec
- B. 0.2usec and 13.107ms

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C. 0.2usec and 104.857ms
D. None of the above

vi. What is the meaning of RETLW instruction in PIC16F877A
A. Return from interrupt
B. Return with literal in W
C. Return from Subroutine
D. None of the above

vii. The LPC 2148 Microcontroller has ____ GPIO ports.
A. 3
B. 4
C. 2
D. 5

Q2) Solve any TWO **[14]**

a. What is embedded system? Classify them based on functionality. **[7]**

b. Draw and explain architecture of PIC16F877. **[7]**

c. Explain Timer 2 Module of PIC16F877 along with FSRs **[7]**

Q3) Solve any TWO **[14]**

a. Describe the characteristics of embedded systems . **[7]**

b. How to implement PWM concept using PIC 16F877.Explain with proper diagram and control words. **[7]**

c. Execute assembly language program to Flash LED connected to Port B using PIC 16F877. **[7]**

Q4) Solve any TWO **[14]**

a. Discus types of semaphores? **[7]**

b. Explain the architecture of UART of LPC2148 **[7]**

c. Test the embedded C code to transmit 'Welcome' using UART in LPC2148. **[7]**

Q5) Solve any TWO **[14]**

a. Describe kernel concept in RTOS (Pre-emptive and Non-Pre-emptive) **[7]**

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b. Discuss GPIO of LPC 2148? State its features. **[7]**

c. Discuss the functions of following registers of LPC 2148. **[7]**
a) IOPIN b) IOCLR c) IODIR d) IOSET

End Of Question Paper

Important Note for Chief Exam Officer / SRPD Coordinator / Sr Supervisor/ Student -
This Question Paper may be distributed for following Subjects as common code.
सदरची प्रश्नपत्रिका खालील विषयांकरिता वितरित करता येईल.

1] (101) Bachelor of Engineering (84050) Embedded Systems Part 4 SEM 7
2] (1154) B.Tech. CBCS (83824) Embedded Systems Part 4 SEM 7

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