Time : 3 Hours   **[Total Marks: 80]**

Note: 1. Question No. 1 is compulsory.

    2. Solve any three from the remaining questions.

    3. All questions carry equal marks.

1 .a. Explain Content providers and Intents w.r.t. Android operating system   (05)

  b. Explain low power features for ARM Cortex M3.   (05)

  c. List and explain the factors that contribute to Interrupt latency in Embedded   (05)

    systems.

  d. Explain OSFlagPost() and OSFlagPend() functions of the MicroOS/II   (05)

2. a. Explain Multi-processor Priority Ceiling Protocol with a relevant example.   (10)

  b. Explain the Context Saving process and Retrieval process in MicroOS/II   (10)

3. a. Schedule the following Task Set using the next Fit algorithm for RM   (10)

    scheduling where $T_i=(e_i, p_i)$

    T1(5,10)   T2(7,21)   T3(3,22)   T4 (1,24)   T5(10,30)

    T6(16,40)   T7 (1,50)   T8(3,55)   T9(9,70)   T10 (17,90)

    T11(21,95)

b. Explain the structure of Android applications.   (10)

4. Design an embedded system for a Railway Ticketing database system. For this   (20)
design

(a) Requirement Analysis
(b) Describe system functioning using appropriate method/model
(c) Draw hardware block-diagram of the system
(d) Show software modules/functions/drivers
(e) Testing and Debugging techniques

5. a. Explain the working principle of RFID. Elaborate on the RFID Middleware   (10)

  Functionality.

b. Explain the Memory Management Unit of ARM Cortex M3.   (10)

6. Write short notes on: (Any Two)   (20)

a. Real-time sytem Design Issues

b. New strategies for assigning Real-time tasks to Multi-processor systems

c. Hardware-Software Co-Design issues

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