

Dr Emjee

JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY, WAKNAGHAT
TEST-3 EXAMINATION – December 2018
B.Tech, VIIth Semester, ECE

COURSE CODE: 18B1WEC735

MAX. MARKS: 35

COURSE NAME: EMBEDDED SYSTEM DESIGN

COURSE CREDITS: 3

MAX. TIME: 2 Hrs

Note: All questions are compulsory. Carrying of mobile phone during examinations will be treated as case of unfair means. Missing data, if any, can be appropriately assumed.

- 1(a) Explain design productivity gap with a suitable example [CO1, 2M]
- (b) What are the three different IC technologies used for the embedded system design? Explain each of them highlighting merits and drawbacks. [CO1, 3M]
- 2(a) What are the block data transfer instructions used in the ARM processor? Briefly describe how they can be used for block data transfer. [CO2, 2M]
- (b) Write an assembly level program for ARM processor to print r1 in hexadecimal format. Use ARM system calls to display character and end the program. (System call type 0 displays ASCII character stored in r0 at the standard output; system call type 11 end the program. [CO3, 3M]
3. List different types of temperature sensors that can be used with an embedded system. Describe with suitable diagram, how an RTD can be used in an embedded system to measure temperature. [CO1, 5M]
- 4(a) What is wired-AND logic in CAN controller? Explain with a suitable example [CO5, 2M]
- (b) How does CAN controller uses CSMA/CD protocol to improve the efficiency of data transmission? Explain the CAN bus protocol in detail. [CO5, 3M]
- 5(a) What are the advantages and disadvantages of ZigBee over other wireless network technologies? Give some applications where ZigBee can be used. [CO5, 2M]
- (b) Explain the Physical layer MAC layer of ZigBee protocol in detail [CO5, 3M]
- 6(a) What is a Real Time System? Differentiate between Hard Real Time System and Soft Real Time System. [CO4, 2M]
- (b) Explain Clock Driven Scheduling, Weighted Round Robin Scheduling and Priority Scheduling with respect to Real Time Operating System [CO4, 3M]
7. Describe the Analysis, Design and Implementation stages in Embedded System Development Life Cycle. What are the different steps involved in Embedded System Development Life Cycle. Explain them briefly. [CO6, 5M]