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JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY, WAKNAGHAT
TEST-2 EXAMINATION – October 2019
B.Tech, VIIth Semester, ECE

COURSE CODE: **18B1WEC735** MAX. MARKS: **25**

COURSE NAME: **EMBEDDED SYSTEM DESIGN**

COURSE CREDITS: **3** MAX. TIME: **1.5 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. What are the three main characteristics of embedded system that distinguish it from other computing systems? Briefly describe each of these characteristics. **(3)**

2. What is the importance of the design metric 'Time to market'? Briefly explain using a simplified revenue model. **(3)**

3. What are the three different processor technologies which are used in an embedded system? Describe each of them with their features, advantages and disadvantages. **(4)**

4(a) Describe the working of an accelerometer with a suitable sketch. **(3)**

(b) With a suitable sketch, show how the outputs from accelerometer and gyroscope can be combined to increase the overall accuracy in the case of a self balancing robot. **(2)**

5. Write an assembly level program for ARM processor to display a null terminated ASCII character array labeled MYNAME. 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). **(5)**

6. What is the advantage of Harvard architecture implemented in PIC microcontrollers? With a neat sketch, explain the architecture of a PIC16 microcontroller. **(5)**