

JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY, WAKNAGHAT

TEST-2 EXAMINATION-OCTOBER-2023

M.Tech-I Semester

COURSE CODE (CREDITS): 21M11EC112 (3)

MAX. MARKS: 25

COURSE NAME: Embedded Systems and Applications

COURSE INSTRUCTOR: Dr. Pardeep Garg

MAX. TIME: 1.5 Hours

Note: (a) All questions are compulsory. (b) Marks are indicated against each question in square brackets. (c) The candidate is allowed to make suitable numeric assumptions wherever required for solving problems.

Q1. Draw and explain the architectural diagram of ARM processor. Also, discuss the registers organization in ARM processor with diagram. [CO-2, 3+2=5 marks]

Q2. It is said that the ARM processor reduces the code density, justify this statement using comparison by writing the pseudocode in Assembly language and ARM programming for the following conditional execution:

If (r4=12) then r5=r5+8-r2

[CO-2, 2.5 marks]

Q3. With the help of architecture of PIC microcontroller, discuss the importance of watch dog timer, other important features; and the functioning of all relevant blocks. [CO-2, 5 marks]

Q4. Draw and discuss the block diagram of embedded system on chip (SoC). Discuss in detail the advantages, disadvantages, and applications of SoC. [CO-3, 5 marks]

Q5. Is embedded system on module (SoM) needed, justify it properly? Discuss a few applications of SoM. Also, compare it with SoC. [CO-3, 5 marks]

Q6. Employing the common technical features, compare the ARM and PIC microcontroller.

[CO-2, 2.5 marks]