COURSE CODE (CREDITS): 21M11EC112 (3) MAX. MARKS: 15

COURSE NAME: Embedded Systems and Applications

COURSE INSTRUCTOR: Dr. Pardeep Garg MAX. TIME: 1 Hour

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. Employing a few suitable examples, define embedded system. Are embedded systems same as other computing systems or different? Justify your answer with proper discussion of characteristics of embedded systems. **[CO-1, 1+3=4 marks]**

Q2. The embedded system designer constructs an implementation which fulfills the desired functionality. However, the designer faces a number of design challenges for optimization. Describe in detail those challenges. **[CO-1, 3 marks]**

Q3. Using a neat and clean sketch, discuss in detail the ideal top-down design process, and productivity improvers for embedded systems. **[CO-1, 2 marks]**

Q4. Define technology in the context of embedded system; discuss in detail the 3 processor technologies w.r.t their functioning, architecture and other technical details.

Case-Study: An adder has to be designed which adds 50 elements in an array. Discuss the technologies asked earlier in respect of this. **[CO-1, 3 marks]**

Q5. Write short note on the following:

i) Why was RISC developed, discuss its features?

ii) With the help of history, and the application areas; discuss the ARM processor along with its main features.

iii) Discuss the advanced features of ARM over RISC which led to the development of ARM processor. **[CO-1, 1*3 = 3 marks]**