POKHARA UNIVERSITY

Level: Bachelor   Semester: Fall   Year   : 2017
Programme: BE   Full Marks: 100
Course: Embedded Systems   Pass Marks: 45
                                                  Time   : 3hrs.

Candidates are required to give their answers in their own words as far as practicable.

The figures in the margin indicate full marks.

Attempt all the questions.

1. a) What is embedded system? Explain essential components of embedded system?   7
   b) Why single purpose processor is required when general purpose processors can execute a variety of programs and are readily available? Give reasons.   8

2. a) How can you design general purpose processor? Explain with necessary steps & diagram.   7
   b) How does a programmer view a microprocessor based embedded system? what are his/her concern?   8

3. a) Explain Briefly the different cache mapping techniques with suitable diagrams   7
   b) Explain the benefits that an interrupt address table has over the fixed and vectored interrupt methods.   8

4. a) What do you mean by arbitration? Explain the daisy chain and network- oriented arbitration briefly   7
   b) What are task states? Describe task scheduling.   8

5. a) What is semaphore? How semaphore can be used for global resource sharing?   7
   b) Draw the block diagram of 8051 microcontroller also write an assembly level program to interface a seven segment display with 8051 microcontroller. (You can give any example)   8

6. a) Discuss the various styles of modeling used in architecture body of hardware description in VHDL with suitable example   7
   b) Suppose customer 'A' need to detect 1101 by his/her system. Then, design a system, which can fulfill the customer need. Also, explain   8

with necessary state transition in system with state diagram & write the VHDL code for those system for testing purpose.

2×5

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Answer all the questions.

7. Write short notes on: (**Any two**)

a) Cross Compiler and Cross Assembler

b) Memory write and Storage Permanence

c) VHDL code for 2- bit multiplier

1. a) What is embedded system? Explain essential components of