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No. of Printed Pages—2

CS—021

B. TECH.

SEVENTH SEMESTER EXAMINATION, 2003-2004

EMBEDDED SYSTEMS

Time : 3 Hours *Total Marks : 100*

Note : (1) Attempt **ALL** questions.
(2) All questions carry equal marks.

1. Attempt any *TWO* parts of the following :— **(10×2=20)**

(a) How is an embedded system different from a normal desktop computer ? Explain.

(b) Explain, in detail, about the Hardware/ Software codesigns.

(c) Describe the major subtasks of embedded system design.

2. Attempt any *FOUR* parts of the following :— **(5×4=20)**

(a) Discuss clock properties and implementation of logical clocks.

(b) Is it advisable to build or buy Real Time Operating System ? Why ?

(c) Discuss Modelling issues.

(d) Write the advantages of Concurrent Tasking.

(e) Explain the Heap Management.

3. Attempt any *TWO* parts of the following :— **(10×2=20)**

(a) What are the three modelling styles of VHDL ? Write a VHDL code for a 2-input multiplexer.

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(b) What do you understand by Aliasing and how is this overcome ? Write the effect of aliasing in sampling.

(c) Write notes on the following :—

(i) Sampling Theorem

(ii) Hardware and Software languages used for embedded system.

4. Attempt any *TWO* parts of the following :— **(10×2=20)**

(a) (i) Write the Shannon's Channel Capacity Theorem.

(ii) Determine the error-free capacity for a spectrum from 4 MHz to 6 MHz. SNR is 24 dB. Also determine the number of signalling levels required.

(b) Explain the following Buses :—

(i) Synchronous Bus and Asynchronous Bus

(ii) Process-Memory Bus

(c) Explain the following controls with examples :—

(i) Proportional Plus Integral Control

(ii) Proportional Plus Derivative Control

5. Attempt any *TWO* parts of the following :— **(10×2=20)**

(a) What is Functional Decomposition ? Discuss cut-point resolution and false negative.

(b) Describe the various Fault tolerance and Fault detection techniques.

(c) Explain the following :—

(i) Binary Decision diagram

(ii) Verification Methods

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