

M.E.EXTC (Sem I) (CBUS)
Embedded Systems

3/6/15

QP Code : 1733

[Total Marks: 80]

(REVISED COURSE)
(3 Hours)

N.B. (1) Question No. 1 is compulsory.

(2) Attempt any **three** questions out of remaining **five** questions.

(3) Assume **suitable** data wherever required with justification.

(4) **Figures** to the **right** indicate full marks.

- 1) For a Network Router draw the system diagram (minimum system) and data flow diagram. Explain the need of following system requirements to make it Real-time: a. Hardware Requirements b. Software requirements c. Task partition d. Need and type of scheduler e. Release time, deadline & execution time of tasks. 20
- 2) A. Explain the interrupt structure of Mixed Signal Processors. 10
B. Explain the pipeline performance issues of an ARM processor. 10
- 3) A. Compare non Real Time Operating System versus RTOS. 10
B. What is mail box? How it passes message during inter process communication? List the difference between mail box and pipe. 10
- 4) A. Draw and explain the operating modes and states of ARM Processor. 10
B. List various internal bus interfaces of ARM Processor and explain their Performance issues. 10
- 5) A. Write a program and explain ARM and THUMB interworking. 10
B. Explain THUMB architecture. 10
- 6) Explain any **four** of the following: 20
 - A. Sensor interface I2C bus
 - B. ICE Debugging features
 - C. Write equivalent ARM code : if (a==0) func(1);
 - D. Saturation Arithmetic
 - E. RMA algorithm