Registration no: | | | | | | | | | | |

Total Number of Pages: 01 **M.TECH**

CSPE210

2nd Semester Back Examination – 2016-17
EMBEDDED SYSTEM

BRANCH: COMPUTER ENGG, COMPUTER SCIENCE, COMPUTER SCIENCE AND ENGG, COMPUTER SCIENCE AND TECH., POWER ELECTRONIC, POWER ELECTRONIC & DRIVES, POWER ELECTRONIC AND ELECTRICAL DRIVES

Time: 3 Hours

Max marks: 70

Q.CODE:Z1222

Answer Question No.1 which is compulsory and any five from the rest.

The figures in the right hand margin indicate marks.

Q1 **Answer the following questions:** **(2 x 10)**

- **a)** What is an embedded system?
- **b)** List down the various hardware and software resources in an embedded computer system.
- **c)** What are the characteristics of embedded system?
- **d)** Why Embedded System is called as Real-Time?
- **e)** What are the types of embedded system?
- **f)** Differentiate between soft, hard and firm real time system.
- **g)** What happens if all the tasks of the RTOS are blocked?
- **h)** What are the languages used in embedded system?
- **i)** What is the difference between mutexes and semaphores?
- **j)** How does combination of functions reduce memory requirement in embedded system?

Q2 **a)** What are the components of Embedded System hardware? **(5)**

b) What are the challenges of Embedded System? **(5)**

Q3 **a)** Give some examples for sophisticated embedded systems. **(5)**

b) Explain in the DMA architecture in details. **(5)**

Q4 Explain with an example the mail boxes in an embedded system with Real time operations. **(10)**

Q5 **a)** Explain Embedded Software Development Tools in details **(5)**

b) What is meant by a pipe?. How does a pipe differ from a queue? **(5)**

Q6 **a)** Explain the operation and architecture of General Purpose processor. **(5)**

b) Explain real time operating systems. **(5)**

Q7 **a)** Explain about the interrupt routine rules used in RTOS environment. **(5)**

b) State two examples of an Embedded System and Illustrate briefly about any one. **(5)**

Q8 **Write short notes on any two from the following.** **(5 x 2)**

- **a)** Cross Compiler
- **b)** Semaphore
- **c)** Watchdog Timer
- **d)** NVRAM