

Government College of Engineering, Aurangabad
(An Autonomous Institute of Government of Maharashtra)

B.E. (ETC) Examination
End semester Examination 2016-17

ET403: EMBEDDED SYSTEMS

Time: Three Hours

18 NOV 2016

Max. Marks: 60

“Verify the course code and check whether you have got the correct question paper”

N.B.:-

- *Attempt any **FOUR** questions*
- *Figures to the right indicates full marks*
- *Assume suitable data if necessary and state it clearly*
- *Use of non-programmable calculator is allowed*

I Attempt the following

- a) How an embedded system differs from other computing system. What are the challenges in designing such a system? 06
- b) Draw block diagram of embedded system and describe the hardware units of an embedded system. 09

II Attempt the following

- a) Explain the need of serial communication standards such as RS 232 and write about it. 06
- b) Discuss features and functions of USB and I2C bus. 09

III Attempt the following

- a) Write about any four data types available in embedded 'C'. Explain the role of pointer in embedded application development. 06
- b) Draw diagram to interface LCD to a microcontroller. Write functions of RS, EN, and R/W. Write a program in embedded C to display “GECA” on line 1 and “ELECTRONICS” on line 2. 09

IV Attempt the following

- a) Write about kernel services in an Operating System. 06
- b) List scheduling algorithms of RTOS. Describe concept of preemptive scheduling algorithm with suitable example and illustrations. 09

V Attempt the following

- a) Explain the design cycle in the development phase for an Embedded System. 06
- b) Draw hardware schematic and explain basic system of an Automatic Chocolate Vending Machine to dispense three different types of chocolates. 09