Reg. No. : | | | | | | | | | | | | |

Question Paper Code : 50455

B.E./B.Tech. DEGREE EXAMINATION, NOVEMBER/DECEMBER 2017
Seventh/Eighth Semester
Electronics and Communication Engineering
EC6703 – EMBEDDED AND REAL TIME SYSTEMS
Common to : Biomedical Engineering/Computer Science and Engineering Medical Electronics
(Regulations 2013)

Time : Three Hours | Maximum : 100 Marks

Answer ALL questions

PART – A (10×2=20 Marks)

1. What is the role of Microprocessor in embedded computing ?
2. How traps are handled in ARM processor ?
3. List the memory devices used in the design of embedded system.
4. How power can be optimized at the program level ?
5. List the advantages and limitations of Priority based process scheduling.
6. State the major functions of POSIX RTOS.
7. Give the design flow used in embedded system design.
8. Draw the block diagram of Distributed embedded system.
9. What are the major components used in the design of Alarm clock ?
10. Write the main functions performed by Video accelerator.

PART – B (5×16=80 Marks)

11. a) Explain in detail the embedded system design process with an illustrative example of Model Train controller. (16)

(OR)

b) i) Explain the function of ARM processor instructions. (8)

ii) Discuss on the operation of Coprocessor used with ARM processor. (8)

12. a) i) Explain the various components and programming models used for developing embedded programs. (8)

ii) With an example in consumer electronics, explain the embedded system design with computing platform. (8)

(OR)

b) i) Explain the principle of various compilation techniques. (8)

ii) Discuss about the embedded system software performance analysis and optimization. (8)

13. a) i) Explain how multiple processes are handled by Preemptive real time operating system. (6)

ii) Discuss about the features and services of Windows CE real time operating system. (10)

(OR)

b) i) Write short note on the power optimization strategies for processes in real time operating system environment. (6)

ii) Compare the principle, merits and limitations of Inter-process communication mechanisms. (10)

14. a) i) Discuss about the embedded system design methods and explain the importance of Requirement Analysis. (8)

ii) Explain the principle of Quality Assurance techniques used in embedded system design. (8)

(OR)

b) Explain how the concepts of Multiprocessor System-On-Chip (MPSoC) and shared memory multiprocessors are used in embedded applications. (16)

15. a) Explain operation of the following : (5+6+5)

i) Audio Player

ii) Digital still camera

iii) Software modem.

(OR)

b) Justify that Engine Control Unit is an embedded system. Explain in detail the hardware and software components of Engine Control Unit. (16)
