Reg. No. : ☐☐☐☐☐☐☐☐☐☐☐☐

Question Paper Code : 80354

B.E./B.Tech. DEGREE EXAMINATION, NOVEMBER/DECEMBER 2016.

Seventh Semester

Electronics and Communication Engineering

EC 6703 — EMBEDDED AND REAL TIME SYSTEMS

(Common to Biomedical Engineering and Computer Science and Engineering)

(Regulations 2013)

Time : Three hours   Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1.   Enumerate some embedded computers that are exists from origin of the embedded systems.

2.   In what way Interrupts differ from Exceptions?

3.   Compare Static and Dynamic RAM.

4.   What is Data Flow Graph and Control/Data Flow Graph (CDFG)?

5.   Define tasks and processes.

6.   Write about scheduling states present in the embedded system design.

7.   What do you mean by quality and quality assurance related to embedded systems?

8.   Give examples of internet enabled system.

9.   Specify the MPEG layer 1 data frame format set for the audio player application.

10.   What are the classes in data compressor?

PART B — (5 × 16 = 80 marks)

11. (a) (i) How CPU performance is affected? Explain them with example instructions. (8)

    (ii) Analyze the requirements for designing a GPS moving map in embedded system design process. (8)

Or

    (b) (i) How are the conceptual specifications and detailed specifications written in UML language to design the Model train controller. (8)

    (ii) How memory management is done for an embedded system processor in order to manage multiple programs in a single physical memory? (8)

12. (a) (i) Explain in detail the testing process involved in developing an embedded system. (8)

    (ii) Describe how embedded system is useful in competing with computing platform. (8)

Or

    (b) (i) Explain the various debugging techniques in the development of embedded system. (8)

    (ii) Discuss in detail the optimization of energy and power of an embedded system. (8)

13. (a) (i) Describe why automobile engines require a multi-rate control. (8)

    (ii) Explain the example real time operating system called windows CE in detail. (8)

Or

    (b) (i) Explain in detail rate monotonic scheduling with an example. (8)

    (ii) Discuss in detail multitasking and multiprocessing. (8)

14. (a) Briefly discuss about the design methodologies for an embedded computing system. (16)

Or

    (b) (i) Discuss in detail about the network based embedded system design. (8)

    (ii) Write notes on internet enabled systems. (8)

15. (a) Explain the hardware and software design of software modem and telephone answering machine.   (16)

Or

(b) Write in detail about the embedded concepts in the design of data compressor and video accelerator.   (16)

_____