Reg. No. :

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Question Paper Code : 70448

B.E./B.Tech. DEGREE EXAMINATIONS, NOVEMBER/DECEMBER 2021.

Seventh/Eighth Semester

Electronics and Communication Engineering

EC 6703 – EMBEDDED AND REAL TIME SYSTEM

(Common to : Biomedical Engineering/Computer Science and Engineering/ Medical Electronics Engineering)

(Regulations 2013)

(Also Common to : PTEC 6703 – Embedded and Real Time System for
B.E. (Part – Time) – Electronics and Communication Engineering/Computer Science and Engineering – Sixth Semester/Seventh Semester (Regulations 2014))

Time : Three hours   Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1.   Differentiate between RISC and CISC processor.

2.   List the major levels of abstraction in the designing process of embedded system.

3.   What are the ways to measure the performance of program?

4.   Define watchdog timer.

5.   In what way process is different from thread?

6.   What are the two different styles used for inter process communication?

7.   What are the five major phases of water fall development model?

8.   What are the merits of distributed embedded systems?

9.   What is flush in data compressor?

10.   What is the need for block motion estimation?

PART B — (5 × 13 = 65 marks)

11. (a) (i)   Analyse the challenges in designing embedded computing system?
                                                                              (6)

         (ii) Discuss the mechanism to handle internal conditions that are
               similar to interrupts in the processor.   (7)

                                    Or

     (b) Explain the ARM processor's data operation and its memory
          organization.

12. (a) Explain the basic compilation techniques and process. Discuss the
          compilation of any one arithmetic expression.

                                    Or

     (b) What are the additional bus signals required by DMA from CPU?
          Explain how DMA based processor can remove delay for higher speed
          process.

13. (a) Describe in detail about the inter process communication mechanism

         (i)   Shared Memory communication   (5)

         (ii) Message passing   (4)

         (iii) Signals   (4)

                                    Or

     (b) Elaborate on the types of algorithms to assign priority based scheduling
          policies for process.

14. (a) Discuss the CRC (Classes, Responsibilities and collaborators) card
          methodology to analyze a systems structure.

                                    Or

     (b) Define quality assurance. What are the different Quality Assurance
          techniques?

15. (a) Describe in detail about principle and operation of software MODEM.

                                    Or

     (b) Discuss briefly the following.

         (i)   Telephone answering machine   (7)

         (ii) Audio player   (6)

PART C — (1 × 15 = 15 marks)

16. (a) Design the architecture of digital still camera that performs the functions such as determine the proper exposure for the photo, display a preview of the picture for framing, capture the image from the image sensor, convert the image into a usable format, such as JPEG and store the image in a file system.

Or

(b) Explain the strategy to determine performance of certain power management operations. Describe the advanced configuration and power interface and its relationship to a complete system.

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