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Question Paper Code : X 20461

B.E./B.Tech. DEGREE EXAMINATIONS, NOVEMBER/DECEMBER 2020

Seventh/Eighth Semester

Electronics and Communication Engineering

EC 6703 – EMBEDDED AND REAL TIME SYSTEMS

Common to : Computer Science and Engineering/ Medical Electronics

Engineering/Biomedical Engineering

(Regulations 2013)

(Also Common to : PTEC 6703 – Embedded and Real Time Systems for B.E.

(Part-Time) – Sixth Semester – Electronics and Communication Engineering/

Seventh Semester – Computer Science and Engineering)

(Regulations 2014)

Time : Three Hours

Maximum : 100 Marks

Answer ALL questions

PART – A

(10×2=20 Marks)

1. Differentiate between Von Neumann architecture and Harvard architecture.
2. Define supervisor mode.
3. What is four cycle handshake bus protocol ?
4. List the high performance features of AMBA high performance bus.
5. What happens when a process misses a deadline in automotive control system and in multimedia system ?
6. Define power management policy.
7. What are the different phases in water development model ?
8. Draw the frame structure of IIC bus.
9. What are the basic classes for the alarm clock ?
10. What are the advantages of software MODEM ?

**PART – B****(5×13=65 Marks)**

11. a) Summarize the major steps in the embedded system design process.
(OR)
- b) i) Elaborate the interface between CPU and I/O devices and the signals for interrupting. **(9)**
ii) List the interrupts supported by ARM. **(4)**
12. a) Discuss the basic characteristics of memories and describe the organization of RAM and ROM.
(OR)
- b) Analyze the optimization of programs in high level language without rewriting them in assembly language.
13. a) Explain the any two algorithms to assign priorities to processes. And compare those algorithms.
(OR)
- b) Elaborate on various interprocess communication mechanism.
14. a) Describe control oriented specification language and explain how it can be used.
(OR)
- b) Discuss the distributed architecture for an embedded system. Explain the seven OSI layers.
15. a) Evaluate the principle and operation of Data Compressor that takes in data with a constant number of bits per data element and puts out a compressed data stream in which the data is encoded in variable-length symbols.
(OR)
- b) Describe the different design stages used in the telephone answering machine.

PART – C**(1×15=15 Marks)**

16. a) Build the block motion estimator to perform block motion estimation within the PC system.
(OR)
- b) i) Analyze the system level data flow and performance. **(10)**
ii) Discuss on the paths of data transfers without and with DMA when transferring from memory to device. **(5)**
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