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Question Paper Code : X 20494

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

Sixth Semester

Electrical and Electronics Engineering

EE 6602 – EMBEDDED SYSTEMS

(Common to Electronics and Instrumentation Engineering/Instrumentation and Control Engineering)
(Regulations 2013)

Time : Three Hours

Maximum : 100 Marks

Answer ALL questions

PART – A

(10×2=20 Marks)

1. What is role of watch dog timer in embedded processor ?
2. What are compiler and cross compiler in design of Embedded System ?
3. Compare handshaking in RS232 and IIC Bus standards.
4. Define Device Driver.
5. What are need for product plan phase ?
6. What is Control Data Flow Graph (CDFG) ?
7. What are Countif semaphore in Real-Time Operating Systems (RTOS) ?
8. Why is Inter Process Communication (IPC) using message is advantage ?
9. What are cause and effect of deadlock in RTOS ?
10. Give 2 reasons for use of firmware for implementation of an Embedded System.

PART – B

(5×13=65 Marks)

11. a) Draw and explain the functionalities of components of embedded system hardware. (13)

(OR)

- b) Write short notes on need for :
 - i) Direct Memory Access (DMA). (6)
 - ii) Memory Management Scheme. (7)



12. a) Elaborate the serial communication protocol of RS232 in Embedded System. (13)
(OR)
b) Briefly outline the Controller Area Network (CAN) Interface in Embedded Networking. (13)
13. a) Illustrate the main objective of Embedded Product Development Life Cycle (EDLC). Explain about different phases of EDLC in brief. (13)
(OR)
b) What is Data Flow Graph (DFG) ? Describe it with an example . (13)
14. a) Discuss the following :
i) Semaphores (7)
ii) Task Control Blocks. (6)
(OR)
b) i) List the common scheduling models used by schedulers. (5)
ii) Distinguish between Pre-emptive and non-pre-emptive scheduling of Embedded System. (3)
iii) Write a note on Round Robin Time Slicing Scheduling Algorithm. (5)
15. a) An Automatic Chocolate Vending Machine (ACVM) is to be designed, what will be functions, hardware units and software components are required for designing the application ? (13)
(OR)
b) Design an application for contact-less smart card with OS highlighting its special and limiting features of it. List the hardware components and embedded software units are required for designing the application. (13)

PART – C**(1×15=15 Marks)**

16. a) For designing an Automatic Washing Machine summarize the general design specifications, Hardware Design and Software Design in brief. (15)
(OR)
b) Write the requirements, Input, Output, Hardware Architecture and Software components for designing a Digital Camera. (15)
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