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<b>Question Paper Code : 70481</b>
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B.E./B.Tech. DEGREE EXAMINATIONS, NOVEMBER/DECEMBER 2021.

Sixth Semester

Electrical and Electronics Engineering

EE 6602 – EMBEDDED SYSTEMS

(Common to : Electronics and Instrumentation Engineering /  
Instrumentation control Engineering)

(Regulations 2013)

Time : Three hours

Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. What is in-circuit emulator?
2. What is real time clock?
3. Why do we need at least one timer device in an embedded system?
4. Why the device drivers are processors sensitive programs?
5. Why does an embedded system need the highest quality software?
6. Compare state machine model with sequential program model.
7. What is priority inversion?
8. What is real time operating system?
9. Differentiate between soft and hard real time system with an example.
10. How does contactless smart card hardware derive power?

PART B — (5 × 13 = 65 marks)

11. (a) Describe the concept used during a design process in embedded systems and the design metrics used in the embedded systems.

Or

- (b) Discuss about the selection of processor and memory devices for designing an embedded system in detail.

12. (a) Explain three modes of serial communication from the serial devices with one example from each.

Or

- (b) What is CAN Bus? Describe the working of CAN protocol with frame bits in detail.

13. (a) Describe various activities performed during an embedded software development process in detail.

Or

- (b) Describe issues in hardware software design and co-design.

14. (a) Explain various mechanisms for task communication in RTOS.

Or

- (b) Briefly compare any three real time operating systems.

15. (a) Describe the requirements and function of smart card communication system in detail.

Or

- (b) Describe the requirements of an adaptive cruise control system in a car in detail.

PART C — (1 × 15 = 15 marks)

16. (a) Design an embedded system(s) to control the following functions in a car.

Engine control

Speed and brake control

Safety control

Route and traffic monitors

Clearly show the hardware and software architecture of the system.

Or

- (b) Design an embedded system(s) to control the water level and loading capacity in an automatic washing machine. Clearly show the hardware and software architecture of the system.

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