



ELECTIVE - II
Advanced Embedded System Design
(1123)

P. Pages : 2

Time : Three Hours

Max. Marks : 100

Instructions to Candidates :

1. Do not write anything on question paper except Seat No.
2. Answer sheet should be written with blue ink only. Graph or diagram should be drawn with the same pen being used for writing paper or black HB pencil.
3. Students should note, no supplement will be provided.
4. Attempt **any five**. Each question carries equal marks.
5. Draw well label diagram and assume suitable data wherever necessary.

1. a) Describe the design matrix of the embedded system design.

b) Explain the development cycle of an embedded system ? Describe different development tools used in embedded system.
2. a) Write short notes on :
i) Pipelining.

ii) General Purpose Processor.

b) Explain in detail Standard single-purpose processors Peripherals-Timers, counters and Watch-dog timers.
3. a) Explain in detail Standard single-purpose processors peripherals.
i) LCD controller.

ii) Keypad controller.

b) Explain wireless protocol IEEE802.11.
4. a) Write short notes on :
i) IrDA.

ii) Bluetooth.

- b) What is CAN protocol and bus ? With the help of suitable timing diagram explain the 2.0A message format of CAN.
5. a) i) Explain why ARM architecture is not a perfect RISC architecture.
- ii) Describe the features of a typical embedded system that uses ARM7 processor.
- b) With block diagram describe the architecture of ARM9 processor.
6. a) What are the advantages and disadvantages of C++, and optimization of codes in embedded C++ programs to eliminate the disadvantages.
- b) Explain 5 stage pipeline organization in ARM9.
7. a) Which are the elements of scheduling algorithm for end-to-end periodic task.
- b) What is scheduling algorithm in multiprocessor.
8. a) What is an RTOS ? Exemplify existing RTOS. Briefly explain the features of RTOS.
- b) Explain w.r.t. RTOS.
- i) Queues, mailboxes, pipes.
- ii) Semaphores.
