

AMIETE – ET (Current & New Scheme)

Time: 3 Hours

June 2018

Max. Marks: 100

PLEASE WRITE YOUR ROLL NO. AT THE SPACE PROVIDED ON EACH PAGE IMMEDIATELY AFTER RECEIVING THE QUESTION PAPER.

NOTE: There are 9 Questions in all.

- Question 1 is compulsory and carries 20 marks. Answer to Q.1 must be written in the space provided for it in the answer book supplied and nowhere else.
- The answer sheet for the Q.1 will be collected by the invigilator after 45 minutes of the commencement of the examination.
- Out of the remaining EIGHT Questions answer any FIVE Questions. Each question carries 16 marks.
- Any required data not explicitly given, may be suitably assumed and stated.

Q.1 Choose the correct or the best alternative in the following (2×10)

- a. Which is the primary memory?

(A) RAM	(B) Hard Disk
(C) CD-ROM	(D) Floppy disk
- b. Which is the secondary memory?

(A) ROM	(B) RAM
(C) Optical Memory	(D) None of these
- c. Which is output unit of the embedded system?

(A) Touch screen	(B) Keyboard
(C) Mice	(D) Digitizer
- d. Which is input unit of the embedded system?

(A) LCD Screen	(B) Video monitor
(C) Printer	(D) Scanner
- e. Which is non-networking unit of the embedded system?

(A) Ethernet card	(B) Front processor based server
(C) Bus driver	(D) Semiconductor memories
- f. RTOS is known as

(A) Real time open system	(B) Real time optical system
(C) Real time operating system	(D) None of these
- g. ASIC is known as

(A) American Standard Integrated Circuit	(B) African Standard Integrated Circuit
(C) Application Specific Internal Circuit	(D) Application Specific Integrated Circuit
- h. ASSP is known as

(A) Application Specific System Processor	(B) Application Specific synchronous processor
(C) American Standard Specific Processor	(D) None of these
- i. In current market embedded chip power consumptions are decreasing due to

(A) increase in area of chip	(B) decreases area of chip
(C) increase in current	(D) None of these

- j. Fetch instructions can be considered as:
 (A) The task of reading previous instruction
 (B) The task of reading next instruction
 (C) The task of writing a register
 (D) None of above

Answer any FIVE Questions out of EIGHT Questions.

Each question carries 16 marks.

- Q.2** a. Explain the importance of embedded system. (3)
 b. Write the common characteristics of Embedded System; Give the five examples of embedded system. (5)
 c. Show the difference between FPGA & CPLD. And also show the difference between microcontroller and microprocessor. (8)
- Q.3** a. Differentiate between state encoding and state minimization. (3)
 b. Draw the circuit diagram of three input CMOS NAND Gate with suitable aspect ratio; show the switching action of all the transistors. (5)
 c. What is RTOS Semaphores? Explain its sequence. (8)
- Q.4** a. How memory space saving is important in embedded system? What are the ways to save code space? (8)
 b. What is memory Hierarchy? Draw and explain architecture of basic DRAM. (8)
- Q.5** a. Identify the difference between DSP and microcontroller. (3)
 b. Explain counter, reaction timer, and watchdog timer. Show the difference between counter and timer. (5)
 c. How memory is composed. Show with example for composing $4^K \times 16$ memory from $2^K \times 8$ available memory. (8)
- Q.6** a. What is strobed Hand shake protocol? (3)
 b. Show the importance of embedded system in advanced Wireless communication system. Explain the OSI model to explain the essential protocols. (5)
 c. What is Scheduler? Show with example. (8)
- Q.7** a. What are pointers, queus, and mail boxes? (3)
 b. What are the rules for Interrupt routines in an RTOS environment? (5)
 c. Show the role play of ATM. Explain the controlling process of stepper motor with suitable diagram. (8)
- Q.8** a. What is task structure? (3)
 b. Demonstrate the machine interfacing. Show the standard structure & protocol for advance communications. (5)
 c. Define the theme of serial protocols, parallel protocols, and wireless protocols, and HTTP. (8)
- Q.9** a. Define the Real time operating systems. (3)
 b. Explain the difference between computer and embedded systems with suitable examples. (5)
 c. Demonstrate the roles of real time embedded system in current market. (8)