

AMIETE – CS (Current & New Scheme)

Time: 3 Hours

December 2016

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. Conditional jump instruction JBE which branches only when _____
 (A) CF=1 or ZF=0 (B) DF=1 or ZF=1
 (C) DF=1 or CF=0 (D) CF=1 or ZF=1
- b. A buffer is used to _____
 (A) Increase the output current (B) Increase the output voltage
 (C) Decrease the output current (D) None of these
- c. Unpacked BCD notation of decimal 39 is
 (A) 1111 0011 0000 10001 (B) 0000 0011 0000 1001
 (C) 0000 1001 0000 0011 (D) 1001 0000 0000 1001
- d. Which ROM BIOS routine checks the complete hardware once the computer is switched on
 (A) INT (B) POST
 (C) PT. (D) RST
- e. Alphabetical string that gives hints to the assembler is known as
 (A) Mnemonics (B) Compiler
 (C) Assembler directives (D) Linker
- f. If the ready signal is still zero at the end of wait state, then _____ more wait state is introduced.
 (A) 2 (B) 1
 (C) 3 (D) None of these
- g. Compare to BIOS services execution speed of DOS operating system service is _____ .
 (A) Faster (B) slower
 (C) Similar (D) None of these

- h. Clock generator of 8284 also generates
 (A) Test (B) Ready
 (C) ALE (D) None of these
- i. 80287 is a
 (A) processor (B) Co- processor
 (C) Micro controller (D) None of these
- j. Ready pin of a microprocessor is used
 (A) To indicate that the microprocessor is ready to receive inputs.
 (B) To indicate that the microprocessor is ready to receive outputs.
 (C) To introduce wait states.
 (D) To provide direct memory access.

**Answer any FIVE Questions out of EIGHT Questions.
 Each question carries 16 marks.**

- Q.2** a. Explain with examples indirect addressing modes available in microprocessor 8086. (11)
- b. In Intel 8086 microprocessors, why is the segment register content appended by 0 to generate the physical address? Using the stack, complete the code to exchange two word-size data items located at DAT1 and DAT2 in the memory. (2+3)
- Q.3** a. Explain the following instructions of INTEL's-8086. (3+3+2)
 (i) STOSB (ii) SCASB
 (iii) MOVSB
- b. Explain with examples the instructions to perform data transfer between a segment register and a register/memory location. (8)
- Q.4** a. Explain the flag status under which the branch takes place for the following instructions. (8)
 (i) JBE and JNBE (ii) JLE and JNLE
 (iii) JL and JNL
- b. What is an interrupt? Explain hardware and software interrupt of 8086. (8)
- Q.5** a. Explain the features and architecture of 8087. (10)
- b. Explain the effect of executing the following instructions of 8087 (2×3)
 (i) FADD ST, ST(2)
 (ii) FADDP ST(1), ST
 (iii) FADD MEM1
- Q.6** a. Discuss the following assembler directives with example (3×3)
 (i) DWORD (ii) OFFSET
 (iii) SEGMENT

- b. Write a program in assembly language to sort in ascending order using bubble sort algorithm. (7)
- Q.7** a. Write an 8086 assembly language program to compute factorial of a given 8 bit integer at a byte location. (8)
- b. Explain the features of BIOS and DOS services. (4)
- c. Write an 8086 assembly language program which checks whether the printer is online. (4)
- Q.8** a. Write the approach methodology & program in 'C' to create a subdirectory using DOS interrupt. (4)
- b. Write the overview of 8087 coprocessor. (4)
- c. Write a C program to read a key from the keyboard, and display its ASCII and Scan Code on the screen. (8)
- Q.9** a. What are the important features of 80286? Describe its internal architecture. (10)
- b. What are the salient features of protected virtual address mode? (6)