



FIJI NATIONAL UNIVERSITY

**COLLEGE OF ENGINEERING, SCIENCE AND TECHNOLOGY
SCHOOL OF ELECTRICAL AND ELECTRONICS ENGINEERING
TRADE DIPLOMA IN ELECTRICAL ENGINEERING
EEE 507 COMPUTER TECHNOLOGY
FINAL EXAMINATION (SEMESTER 1, 2016)**

DATE/TIME/ROOM – Refer to Timetable

INSTRUCTIONS TO CANDIDATES

1. You are allowed 10 minutes extra reading time during which you are NOT to write.
2. Begin each answer on a fresh new page and use both sides of the sheets.
3. Write your identification number on the top of each attached sheet.
4. The paper contains three sections, Sec A, Sec B & Sec C.
5. For all sheets of paper in which rough work has been done, cross it through and you must attach to your answer script.
6. Write clearly the number(s) of the question(s) attempted on the top of each sheet.
7. Good handwriting and way of representation of answers has weight with respect to marks.
8. Draw diagrams if any with pencil only and label it.
9. Always check your work before you leave the exam room.
10. **The paper is of 100 marks.**

Section A: Multiple Choice Questions (10x1= 20 marks)

1. An operating system that allows several processors to perform computation at the same time is called:
 - a. Single program
 - b. Multitasking
 - c. Real time processing
 - d. Multiprocessing
2. What characteristic of RAM memory makes it not suitable for permanent storage?
 - a. Too slow
 - b. It is volatile
 - c. Too bulky
 - d. Unreliable
3. The ALU of a computer normally contains a number of high speed storage elements called:
 - a. Semiconductor memory
 - b. Hard disks
 - c. Registers
 - d. Magnetic disk
4. Which of the following memories needs refreshing?
 - a. SRAM
 - b. ROM
 - c. DRAM
 - d. All of above
5. Computer instructions written with the use of English words instead of binary machine code is called:
 - a. Mnemonics
 - b. Gray code
 - c. Symbolic code
 - d. Opcode
6. Which of the following machines was not invented by Charles Babbage?
 - a. Tabulating machine
 - b. Difference engine
 - c. Analytical engine
 - d. Both c & d
7. Which technology is used in Compact disks?
 - a. Mechanical
 - b. Electromagnetic
 - c. Electrical
 - d. Laser
8. The data recording format in most of the modern magnetic tape is:
 - a. 7-bit-ASCII
 - b. 8-bit-ASCII
 - c. 7-bit-EBCDIC
 - d. 8-bit-EBCDIC
9. Access time is:
 - a. Seek time + Latency time
 - b. Down time
 - c. Seek time
 - d. Latency time
10. Floating point representation is used to store:
 - a. Boolean values
 - b. Real numbers
 - c. Whole numbers
 - d. Integers

Section B: Short Answer Questions (Each question carry 5 marks)

1. Convert below decimal into binary.
 - (a) 100
 - (b) 120
 - (c) 56
 - (d) 90
 - (e) 36

2. Explain the below terms.
 - (a) RS-32
 - (b) Assembler
 - (c) Loader
 - (d) Bootstrap program

3. What are the instruction types with respect to ISA?

4. What is the difference between Static RAM and Dynamic RAM?

5. What is clock speed and clock rate with respect to CPU?

6. Write the difference between
 - (a) RAM vs. ROM
 - (b) Isolated vs. Memory mapped I/O

7. Explain the components of CPU.

8. What do you understand by pipelining? Explain in brief pipelining hazards.

9. Draw the diagram of UART and explain its function.

10. Explain the advantage of writing Assemble Language program.

Section C: Long Answer Questions

1. Briefly explain [10 marks]
 - (a) Direct addressing mode
 - (b) Immediate addressing mode
 - (c) Indirect addressing mode

2. With respect to MIPS answer the below questions. [10 marks]
 - (a) Is it based on RISC or CISC? Explain MIPS features.
 - (b) In how many categories MIPS instruction can be divided?
 - (c) Draw the diagram of R, I and J instruction format.

3. With respect to instruction set architecture answer the below questions. [10 marks]
 - (a) What processor's functionalities instruction set specifies?
 - (b) In how many classes instructions can be divided?
 - (c) What are the components of an ISA?

4. Write an Assembly language programming for 8085 microprocessor: [10 marks]
 - (a) Addition of two 8 bits numbers
 - (b) Addition of two 8 bits numbers stored in memory

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