



# MASENO UNIVERSITY

## UNIVERSITY EXAMINATIONS 2017/2018

### FIRST YEAR FIRST SEMESTER EXAMINATIONS FOR THE DEGREE OF BACHELOR OF SCIENCE IN INFORMATION AND COMMUNICATIONS TECHNOLOGY

#### MAIN CAMPUS

#### CIM 111: COMPUTER ORGANIZATION AND ARCHITECTURE

Date: 22<sup>nd</sup> February, 2018

Time: 8.30 - 11.30 am

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#### **INSTRUCTIONS:**

- Answer question ONE and any other TWO questions
- Write your registration number on all sheets of the answer book used.
- Use a NEW PAGE FOR EVERY QUESTION attempted, and indicate number on the space provided on the page of the answer sheet.



**1. UNIVAC is**

- A) Universal Automatic Computer
- B) Universal Array Computer
- C) Unique Automatic Computer
- D) Unvalued Automatic Computer

**2. The basic operations performed by a computer are**

- A) Arithmetic operation
- B) Logical operation
- C) Storage and relative
- D) All the above

**3. The two major types of computer chips are**

- A) External memory chip
- B) Primary memory chip
- C) Microprocessor chip
- D) Both b and c

**4. Microprocessors as switching devices are for which generation computers**

- A) First Generation
- B) Second Generation
- C) Third Generation
- D) Fourth Generation

**5. What is the main difference between a mainframe and a super computer?**

- A) Super computer is much larger than mainframe computers
- B) Super computers are much smaller than mainframe computers
- C) Supercomputers are focused to execute few programs as fast as possible while mainframe uses its power to execute as many programs concurrently
- D) Supercomputers are focused to execute as many programs as possible while mainframe uses its power to execute few programs as fast as possible.

**6. ASCII and EBCDIC are the popular character coding systems. What does EBCDIC stand for?**

- A) Extended Binary Coded Decimal Interchange Code
- B) Extended Bit Code Decimal Interchange Code

- C) Extended Bit Case Decimal Interchange Code
- D) Extended Binary Case Decimal Interchange Code

**7. The brain of any computer system is**

- A) ALU
- B) Memory
- C) CPU
- D) Control unit

**8. Storage capacity of magnetic disk depends on**

- A) tracks per inch of surface
- B) bits per inch of tracks
- C) disk pack in disk surface
- D) All of above

**9. The two kinds of main memory are:**

- A) Primary and secondary
- B) Random and sequential
- C) ROM and RAM
- D) All of above

**10. A storage area used to store data to a compensate for the difference in speed at which the different units can handle data is**

- A) Memory
- B) Buffer
- C) Accumulator
- D) Address

**11. Computer is free from tiresome and boardoom. We call it**

- A) Accuracy
- B) Reliability
- C) Diligence
- D) Versatility

**12. Integrated Circuits (Ics) are related to which generation of computers?**

- A) First generation
- B) Second generation
- C) Third generation
- D) Fourth generation

**13. CD-ROM is a**

- A) Semiconductor memory
- B) Memory register
- C) Magnetic memory
- D) None of above

**14. A hybrid computer**

- A) Resembles digital computer
- B) Resembles analogue computer
- C) Resembles both a digital and analogue computer
- D) None of the above

**15. Which type of computers uses the 8-bit code called EBCDIC?**

- A) Minicomputers
- B) Microcomputers
- C) Mainframe computers
- D) Super computer

**16. The ALU of a computer responds to the commands coming from**

- A) Primary memory
- B) Control section
- C) External memory
- D) Cache memory

**17. Chief component of first generation computer was**

- A) Transistors
- B) Vacuum Tubes and Valves
- C) Integrated Circuits
- D) None of above

**18. To produce high quality graphics (hardcopy) in color, you would want to use a/n**

- A) RGB monitor
- B) Plotter
- C) Ink-jet printer
- D) Laser printer

**19. What are the stages in the compilation process?**

- A) Feasibility study, system design and testing
- B) Implementation and documentation

- C) Lexical Analysis, syntax analysis, and code generation
- D) None of the above

**20. Which of the following IC was used in third generation of computers?**

- A) SSI
- B) MSI
- C) LSI
- D) Both a and b

**21. The main electronic component used in first generation computers was**

- A) Transistors
- B) Vacuum Tubes and Valves
- C) Integrated Circuits
- D) None of above

**22. A dumb terminal has**

- A) an embedded microprocessor
- B) extensive memory
- C) independent processing capability
- D) a keyboard and screen

**23. One millisecond is**

- A) 1 second
- B) 10<sup>th</sup> of a seconds
- C) 1000<sup>th</sup> of a seconds
- D) 10000<sup>th</sup> of a seconds

**24. The output quality of a printer is measured by**

- A) Dot per sq. inch
- B) Dot per inch
- C) Dots printed per unit time
- D) All of the above

**25. Which of the following was a special purpose computer?**

- A) ABC
- B) ENIAC
- C) EDVAC
- D) All of the above

**26. What was the computer invented by Attanasoff and Clifford?**

- A) Mark I
- B) ABC
- C) Z3
- D) None of above

**27. Which of the following storage devices can store maximum amount of data?**

- A) Floppy Disk
- B) Hard Disk
- C) Compact Disk
- D) Magneto Optic Disk

**28. Which computer was considered the first electronic computer until 1973 when court invalidated the patent?**

- A) ENIAC
- B) MARK I
- C) Z3
- D) ABC

**29. A physical connection between the microprocessor memory and other parts of the microcomputer is known as**

- A) Path
- B) Address bus
- C) Route
- D) All of the above

**30. High density double sided floppy disks could store \_\_\_\_\_ of data**

- A) 1.40 MB
- B) 1.44 GB
- C) 1.40 GB
- D) 1.44 MB

## QUESTION TWO

20 MARKS

1. What are the registers generally contained in the processor? 4 Marks
2. State the steps in executing a program? 4 Marks
3. Define 6 Marks
  - a. Locality of reference
  - b. Cache memory
  - c. Flash Memory
4. Discuss the two independent mechanisms for controlling interrupt request? 6 Marks

## QUESTION THREE

20 MARKS

1. What are the differences among sequential access, direct access, and random access? 6 Marks
2. What is the general relationship among access time, memory cost, and capacity? 6 Marks
3. How does the principle of locality relate to the use of multiple memory levels? 2 Marks
4. What are the differences among direct mapping, associative mapping, and set associative mapping? 6 Marks

## QUESTION FOUR

20 MARKS

1. What are the key properties of semiconductor memory? 4 Marks
2. What are two senses in which the term *random-access memory* is used? 2 Marks
3. What is the difference between DRAM and SRAM in terms of application? 4 Marks
4. What is the difference between DRAM and SRAM in terms of characteristics such as speed, size, and cost? 4 Marks
5. Explain why one type of RAM is considered to be analog and the other digital. 4 Marks
6. What are some applications for ROM? 2 Marks

## QUESTION FIVE

20 MARKS

1. Define 6 Marks
  - a. Memory mapped I/O.
  - b. Program controlled I/O.
  - c. An I/O Interface.
2. What is the benefit of using a multiple-bus architecture compared to a single-bus architecture? 4 Marks
3. What are advantages and disadvantages of using EEPROM? 4 Marks
4. What are the differences among EPROM, EEPROM, and flash memory? 6 Marks

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