

Code : 303402

BCA 4th Semester Exam., 2022

**DIGITAL ELECTRONICS COMPUTER
SYSTEM ARCHITECTURE AND
ORGANIZATION**

Time : 3 hours

Full Marks : 60

Instructions :

- (i) The marks are indicated in the right-hand margin.
- (ii) There are **SEVEN** questions in this paper.
- (iii) Attempt **FIVE** questions in all.
- (iv) Question Nos. **1** and **2** are compulsory.

1. Choose the correct answer (any six) : $2 \times 6 = 12$

(a) Any number with an exponent of zero is equal to

(i) zero

(ii) one

(iii) that number

(iv) ten

(b) Which of the following statements does not describe an advantage of digital technology?

(i) The values may vary over a continuous range.

(ii) The circuits are less affected by noise.

(iii) The operation can be programmed.

(iv) Information storage is easy.

(c) What is a digital-to-analog converter?

(i) It takes the digital information from an audio CD and converts it to a usable form

(ii) It allows the use of cheaper analog techniques, which are always simpler

(iii) It stores digital data on a hard drive

(iv) It converts direct current to alternating current

(d) A full subtractor circuit requires

(i) two inputs and two outputs

(ii) two inputs and three outputs

(iii) three inputs and one output

(iv) three inputs and two outputs

(e) The output of an AND gate is LOW

(i) all the time

~~(ii) when any input is LOW~~

(iii) when any input is HIGH

(iv) when all inputs are HIGH

(f) A demultiplexer has

~~(i) one data input and a number of selection inputs, and they have several outputs~~

~~(ii) one input and one output~~

(iii) several inputs and several outputs

~~(iv) several inputs and one output~~

(g) What is an analog-to-digital converter?

(i) It makes digital signals

~~(ii) It takes analog signals and puts them in digital format~~

(iii) It allows the use of digital signals in everyday life

(iv) It stores information on a CD



(h) Which among the following is volatile?

(i) ROM

(ii) EPROM

(iii) DRAM

(iv) RAM

(i) Which determines the address of I/O interface?

(i) Register select

(ii) Chip select

(iii) Both of the above

(iv) None of the above

(j) A set of physical addresses is also known as

(i) disk space

(ii) address space

(iii) memory space

(iv) locations

(5)

2. Answer any *three* of the following : $4 \times 3 = 12$

(a) Explain briefly about flip-flops.

(b) What are internal interrupts?

(c) List the components of the von Neumann architecture.

(d) Write some of applications of buffer.

(e) What is race-around problem? How can you rectify it?

3. Explain generation of computers. 12

4. Discuss the various number systems in computer. 12

5. Explain different logic gates. 12

6. What is programmable logic array? Explain. 12

7. What do you mean by register organization? Explain. 12
