D 132384   (Pages : 2)   Name...

Reg. No....................................

FIRST SEMESTER (CUFYUGP) DEGREE EXAMINATION, NOVEMBER 2025

Computer Science

CSC1CJ01—FUNDAMENTALS OF COMPUTERS AND COMPUTATIONAL THINKING

(2024 Admission onwards)

Time : Two Hours   Maximum : 70 Marks

Section A

All questions can be answered.
Each question carries 3 marks, Ceiling 24 marks.

1. What are the key differences between binary, octal, and hexadecimal number systems ?

2. How can a binary number be converted to its octal equivalent ? Explain the process.

3. What is an Accelerated Processing Unit (APU), and how is it different from a Graphics Processing Unit (GPU) ?

4. In an electronic circuit, what is the purpose of a diode ?

5. Define an inductor and describe its role in an electrical circuit.

6. Explain the function of RAM and how it compares to storage devices like HDDs and SSDs.

7. With examples, differentiate between application software and system software.

8. What distinguishes a cold boot from a warm boot ?

9. What are the fundamental components of computational thinking ?

10. What are the key characteristics of a well-designed algorithm ?

(Ceiling 24 marks)

Section B

All questions can be answered.
Each question carries 6 marks, Ceiling 36 marks.

11. Describe the Von Neumann architecture of a computer system.

12. Perform the following conversions:

    a) $(1110.011)_2$ to decimal.

    b) $(256)_{10}$ to hexadecimal.

    c) $(4A)_{16}$ to binary.

Turn over

13. Compare and contrast the roles of resistors, capacitors, and inductors in a circuit, and draw their circuit symbols.

14. Explain the functions of the BIOS/UEFI chip and the role of SATA/NVMe slots on a motherboard.

15. What are the main functions of an operating system in a computer ?

16. What role do device drivers play in a computer, and how do they interact with hardware and the operating system ?

17. How has computer science impacted various fields like healthcare, education, and business?

18. What is Raptor ? Explain how it is used to learn algorithm design and flowcharting.

(Ceiling 36 marks)

Section C

Answer any one of the following questions.
The question carries 10 marks.

19. Outline the evolution of computers through the different generations, highlighting the key technologies and innovations in each era.

20. Explain the principles of computational thinking and discuss its application in problem solving and algorithm design in computer science.

(1 × 10 = 10 marks)