E 2491   (Pages : 3)   Reg. No.................................

Name.................................

B.Sc. DEGREE (C.B.C.S.S.) EXAMINATION, NOVEMBER 2015

First Semester

Vocational Course—COMPUTER FUNDAMENTALS

(For Vocational Subject : Computer Application of B.Sc. Physics - Model II)

[2013 Admission onwards]

Time : Three Hours   Maximum : 80 Marks

Part A (Very Short Answer Questions)

*Answer **all** questions.*
Each carries 1 mark.

1. Differentiate between super computers and main frame computers.

2. Write the five fundamental units in a digital computer.

3. What is a microprocessor ? How it revolutionized the computer industry ?

4. What are the differences between flat bed and sheet-fed image scanners ?

5. Name the different types of buses in a computer.

6. What is the purpose of the FLUSH pin in 80486 ?

7. Name different modes of Pentium.

8. What is ASCII code ? Explain with an example.

9. How does a computer language differ from Natural language ?

10. What are the differences between compiler and interpreter ?

$(10 \times 1 = 10)$

Part B (Brief Answer Questions)

*Answer any **eight** questions.*
Each carries 2 marks.

11. Describe the features of fourth generation computers.

12. Discuss the impact of computers in our society.

13. Describe how a word is stored in a memory and explain, what is meant by its address ?

14. State the differences among RAM, ROM, PROM and EPROM.

15. List the advantages and limitations of magnetic disks as a secondary storage device ?

Turn over

16. What is an optical disk ? How are data recorded/read from an optical disk ?

17. What types of errors in a program a compiler can detect ? What type of errors it cannot detect ?

18. What are the factors considered while a particular language is selected for an application ?

19. What is the value of the base for decimal, hexadecimal, octal and binary number systems ? Why do we use the hexadecimal numbers as shortcut notations ?

20. Add the BCD numbers and express the result in BCD : (i) 74 + 23 ; (ii) 147 + 380.

21. What are the advantages and limitations of high level languages as compared to machine and assembly languages ?

22. List the names of buses found on the Pentium motherboard. Identify the high and low speed buses.

$(8 \times 2 = 16)$

Part C (Descriptive/Short Essays)

Answer any six questions.
Each carries 4 marks.

23. Explain the main features of a mainframe computer ?

24. Explain the important features provided by the processor 80286.

25. Convert the decimal numbers 267 and 123 to BCD and find their sum in BCD.

26. Perform the following binary operations on the given binary numbers :

    (i)   1101 + 1010.   (ii)   1101 − 1010.

    (iii) 1101 × 1010.   (iv) 1101 ÷ 1010.

27. A memory has a capacity of $8K \times 8$:

    (a) How many address lines are needed ?

    (b) What is the total number of bytes in this memory ?

28. With neat diagrams, explain the working principles of (i) static RAM ; (ii) dynamic RAM. How data is stored and read ?

29. A certain memory stores 8K sixteen bit words. How many data input and data output lines does it have ? How many address lines does it have ? What is its capacity in bytes ?

30. Explain the important features of the ASCII and EBCDIC codes.

31. Explain how the addition of the decimal numbers 3 and 4 takes place with the help of the ALU inside a computer.

$(6 \times 4 = 24)$

Part D (Long Essays)

Answer any **two** *questions.*
Each carries 15 *marks.*

32. Discuss the different software technologies and memory types used in the different computer generators. Compare their performances.

33. Explain the working principle of an LCD panel as an output unit to a digital computer. How each point is accessed ? Compare and contrast it with CRT terminal.

34. Describe the working principle of :

    (i) Dot matrix printer.

    (ii) Laser printer and

    (iii) Dye sublimation printer. compare their performances.

35. Describe the various steps involved in writing and executing a high level language program, starting from designing the algorithm. Illustrate with an example.

$(2 \times 15 = 30)$