VI Semester B.C.A. Examination, September/October 2021
(Y2K8 Scheme)
COMPUTER SCIENCE
BCA 602 : System Programming

Time : 3 Hours

Max. Marks : 90/100

Instructions : *1) Answer **all** questions.*
*2) Section **D** is applicable for **100** marks students **only***
*(F+R – **100** : **2013 – 14** Onwards R – **90** : Prior to **2013 – 14**)*

SECTION – A

I. Answer **any ten** questions. **Each** carries **two** marks. **(10×2=20)**

1) List out the differences between application software and system software.

2) Explain different types of operands used in an instruction.

3) Explain BALR and BR opcodes.

4) Write the syntax to define a macro.

5) Define base table. What are its uses ?

6) Differentiate between linear and binary search algorithms.

7) What is the use of AIF pseudo op ?

8) Define formal system.

9) List out the functions performed by a loader.

10) Define dynamic loading.

11) What is a token ? Give an example.

12) Write the format of a literal table used by a compiler.

SECTION – B

II. Answer **any five** questions. **Each** question carries **five** marks. **(5×5=25)**

13) Explain various instruction formats supported by IBM 360.

14) Explain any five pseudo ops used to write an assembly language program.

15) Write the format of Machine-op table, pseudo-op table and symbol table used by an assembler.

16) Explain shell sort algorithm with an example.

17) Explain the databases used by a macroprocessor.

P.T.O.

18) Explain compile-and-go loader. What are its disadvantages ?

19) Briefly explain machine independent optimisation.

20) Explain syntax phase of a compiler.

SECTION – C

III. Answer **any three** questions. **Each** question carries **fifteen** marks.   (3×15=45)

21) a) Explain general machine structure of IBM 360 with a neat diagram.   8

   b) Draw the micro flowchart for ADD instruction.   7

22) a) Draw the detailed Pass 2 flowchart of an assembler.   9

   b) Explain Radix sort algorithm with a suitable example.   6

23) a) Draw the flowchart for Pass 2 of a macroprocessor.   8

   b) Explain the terms macro definition, macro call, macro expansion with an example.   7

24) a) Explain the design of an absolute loader.   7

   b) Draw the Pass 2 flowchart of a direct linking loader.   8

25) a) Explain with a neat diagram general model of a compiler.   9

   b) Explain databases used by lexical phase of a compiler.   6

SECTION – D

IV. Answer **any one** question. **Each** question carries **ten** marks.   (1×10=10)

26) a) Discuss different data formats supported by IBM 360.   5

   b) List the databases used in Pass I and Pass II of an assembler.   5

27) a) Explain macros defined inside a macro with an example.   5

   b) Explain the different types of cards generated by a direct linking loader.   5