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MC(A)/UG/S-I/2017

**End Semester Examination of Semester-I, 2017**

**Subject : BCA**

**Paper : BCA-101**

**(Computer Fundamental &  
Problem Solving Technique)**

**Full Marks : 70**

**Time : 3 Hrs**

*The figures in the margin indicate the marks  
corresponding to the question*

*Candidates are requested to give their answers  
in their own word as far as practicable.*

*Illustrate the answers wherever necessary*

**Group A**

1. Answer **any five** out of nine questions: 2X5=10
- i) What is the difference between fourth and fifth generation computer?
  - ii) What is the usefulness of Computer Network?
  - iii) Why are binary numbers used instead of decimal numbers?
  - iv) What is the difference between a line printer and a character printer?
  - v) What is flowchart?
  - vi) Write down the function of a BIOS in PC's.
  - vii) Convert  $111.011_2$  to its equivalent decimal.

viii) What is L1 Cache?

ix) How many types of registers are there in a CPU?

**Group B**

Answer **any five** out of seven questions : 5×4=20

2. Differentiate between simplex, half-duplex and full duplex modes of data transmission.
3. Write the difference among system software, utility software and application software?
4. What is the purpose of using a parity check bit? Convert the decimal number 678920.45 to hexadecimal. What is the advantage of using hexadecimal numbers? 2+1+1=4
5. What are “seek time” and “latency time” of a hard disk? What are the main differences between a floppy disk and a hard disk? 2+2=4
6. Find  $A - B$  using 1's and 2's complement where  $A = 110001$  &  $B = 111001$ .
7. What do you mean by positional number? Give example of non positional number. 3+1=4
8. What are the main characteristics of memory cell? What is the size of MAR of a 16K byte memory? Assume that the word size is 1 byte. 2+2=4

**Group C**

Answer **any four** out of six questions:

10x4=40

9. a) Distinguish between SRAM and DRAM. 3  
b) Explain optical bar code reader? 3  
c) What are the characteristics of DOS Operating System? 2  
d) What is the difference between internet and intranet? 2

10. Write short notes:

$2\frac{1}{2} \times 4 = 10$

- a) Protocol  
b) Main frame computer  
c) Memory organisation  
d) FTP
11. a) Show that  $X.Y + X.Z + X.Y.Z = X.Y + X.Z$  by method of perfect induction. 3  
b) Using theorems of Boolean algebra prove that  $(X.Y).(\bar{X}.\bar{Z} + Z).(\overline{X.Z + Y}) = 0$  3  
c) What is PCB? Explain how PCB is fabricated? 1+3
12. a) Why do we need an operating system? 2  
b) Write down the major facilities provided by a modern operating system. 3  
c) What is batch operating system? 2

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- d) What is multitasking? How it is different from multiprogramming? 1+2
13. a) Write algorithm to check number palindrome or not. 6
- b) What are the differences between programme and algorithm? 4
14. a) Draw flow chart to calculate sum of digits of a number. 6
- b) Convert  $1001101_2$  to its equivalent gray and excess-3 code. 4
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