

**2 0 1 5**

**COMPUTER SCIENCE**

**( CANDIDATES WITH PRACTICAL/INTERNAL ASSESSMENT )**

*Full Marks : 80*

*Pass Marks : 24*

**( CANDIDATES WITHOUT PRACTICAL/INTERNAL ASSESSMENT )**

*Full Marks : 100*

*Pass Marks : 30*

*Time : 3 hours*

( For Both Categories of Candidates )

*The figures in the margin indicate full marks for the questions*

**SECTION—A**

**( COMPUTER FUNDAMENTALS )**

( *Maximum Marks : 20* )

( OBJECTIVE-TYPE QUESTIONS )

**I.** Choose and write the correct answer for the following  
(any three) : 1×3=3

1. In the octal number system, the greatest digit is

(a) 2

(b) 7

(c) 8

(d) 9

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2. Which one of the following Boolean expressions represents the NOT operation?

(a)  $A B$

(b)  $A \bar{B}$

(c)  $\bar{A}$

(d)  $A \bar{B}$

3. The equivalent octal number of the decimal number 25 is

(a) 4

(b) 30

(c) 32

(d) 31

4. In hexadecimal number system, B stands for

(a) 11

(b) 10

(c) 12

(d) 13

5. The 2's complement of  $(110010011)_2$  is

(a)  $(001101101)_2$

(b)  $(010100111)_2$

(c)  $(000001011)_2$

(d)  $(010100000)_2$

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6. Which of the following is also called the unary operator?

- (a) OR operator
- (b) AND operator
- (c) NOT operator
- (d) ADD operator

**II.** State whether the following statements are *True* or *False*  
(any two) : 1×2=2

1. Logic gates are electronic circuits that implement the Boolean operations.
2. The BCD code uses 2 bits to encode each character.
3. According to binary arithmetic, 1+1 is 10.
4. The number of digits in hexadecimal number system is 16.

**III.** Fill in the blanks in the following sentences (any two) : 1×2=2

1. If the octal number is 732, then the equivalent decimal number is —.
2. Byte is a string of — bits.
3. The full form of the abbreviation ASCII is —.
4. The base or radix of the binary number system is —.

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( SHORT ANSWER-TYPE QUESTIONS )

**IV.** Answer the following : 1×3=3

1. Give the truth table of OR operation.
2. Convert the following :  
 $(11011)_2$   $(?)_{10}$
3. Define the term BIT.

( DESCRIPTIVE-TYPE QUESTIONS )

**V.** *Either*

- (a) (i) Explain briefly the AND operation and give its truth table. 1+1=2
- (ii) Define NOR gate and NAND gate. Write their truth tables. 1½+1½=3

*Or*

- (b) (i) What do you mean by binary number system? 1
- (ii) Subtract  $(1111101)_2$   $(1010110)_2$  using 2's complement method. 2
- (iii) Convert the following : 2  
 $(351)_9$   $(?)_5$

**VI.** *Either*

- (a) (i) What are alphanumeric data? How do we store them in the computer? 1+1=2

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(ii) Draw the logic circuit of the following : 3

$$Y = (A B C) (\overline{B C}) (A B)$$

[ For the Visually Handicapped (Blind) Students only  
in lieu of the above Question No. VI. (a) (ii) ]

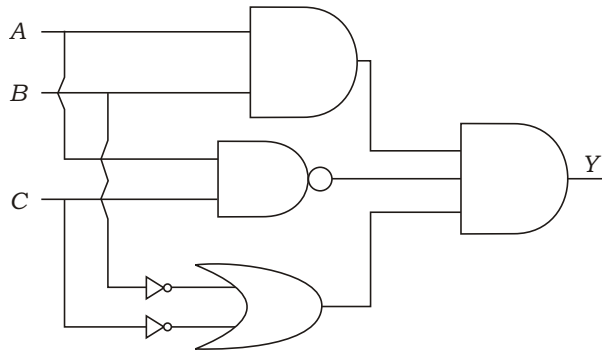
(ii) Differentiate between decimal and octal number systems with examples.  $1\frac{1}{2} + 1\frac{1}{2} = 3$

Or

(b) (i) Calculate the following : 2

$$(11101011)_2 (101)_2$$

(ii) Give the Boolean expression of the following logic circuit : 3



[ For the Visually Handicapped (Blind) Students only  
in lieu of the above Question No. VI. (b) (ii) ]

(ii) What is Boolean algebra? Name the person who realized its use in computer. What is the purpose of a truth table?  $1+1+1=3$

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SECTION—B

( **ADVANCED DOS** )

( *Maximum Marks : 20* )

( OBJECTIVE-TYPE QUESTIONS )

I. Choose and write the correct answer for the following  
(any two) : 1×2=2

1. Which of the following commands belongs to internal DOS command?

(a) DISKCOPY

(b) XCOPY

(c) ERASE

(d) REPLACE

2. Which of the following commands is a terminate-and-stay-resident (TSR) program?

(a) ATTRIB

(b) DEFRAG

(c) FORMAT

(d) DOSKEY

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3. The DOS command which deletes the directory, its attached subdirectories and files is

(a) DELTREE

(b) DEL

(c) ERASE

(d) RD

4. Which of the following commands is used to relocate files and directories from one location to another?

(a) SCANDISK

(b) CHKDSK

(c) MSBACKUP

(d) MOVE

**II.** Write *True* or *False* for the following statements (any two) :

1×2=2

1. Internal and external commands have their instructions coded in the file COMMAND.COM.
2. DIR/S/O:-S, list the contents of the current directory and its subdirectories by size, largest first.
3. MEM command is used to display the memory information of the computer.
4. ECHO is a batch file command which is used only to turn the display off during the batch file operation.

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**III.** Fill in the blanks in the following sentences (any *two*) :  $1 \times 2 = 2$

1. — command is used to search a file for one or more occurrences of a given set of characters called string.
2. — batch file when placed in a root directory will execute every time we boot the computer.
3. In a batch file, the — command is used to run another batch file from the current batch file.
4. — command checks the status of the selected disk.

( SHORT ANSWER-TYPE QUESTIONS )

**IV.** Write the command and its switches for the following (any *two*) :  $2 \times 2 = 4$

1. Replace all the files in B: with the files having the same name in A:
2. Delete all the files of the current directory with the option to confirm before each one is deleted.
3. List the attributes of all the files of the current directory.
4. Transfer the system file to a floppy disk to make it bootable.



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( DESCRIPTIVE-TYPE QUESTIONS )

**V.**

*Either*

- (a) (i) What is the purpose of MORE command? 1  
(ii) Differentiate between LABEL and VOL commands with their syntaxes. 2+2=4

*Or*

- (b) (i) What is the purpose of PAUSE command in a batch file? 1  
(ii) Write short notes on the following : 2+2=4  
(1) DEFRAG command  
(2) DISKCOPY command

**VI.**

*Either*

- (a) Explain in detail the FORMAT command with syntax and its various switches. 2+1+2=5

*Or*

- (b) Create a batch file SCHOOL.BAT to execute the following :  $\frac{1}{2}+2+2+\frac{1}{2}=5$   
(i) Remove the directory C:\TEMP and all its attached subdirectories and files.  
(ii) Rename the directory D:\MBOSE\SYLLABUS to D:\MBOSE\COMPUTER.  
(iii) Display the current system time.

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SECTION—C

( QBasic )

( Maximum Marks : 40 )

( OBJECTIVE-TYPE QUESTIONS )

I. Choose and write the correct answer for the following  
(any three) : 1×3=3

1. Which of the following is a string constant?
  - (a) MBOSE
  - (b) 12345
  - (c) MBOSE'
  - (d) "MBOSE"
  
2. The library function that returns the absolute value of the argument is
  - (a) ASC
  - (b) INT
  - (c) ABS
  - (d) CHR
  
3. The string MEGHALAYA will consume a storage space of
  - (a) 9 bytes
  - (b) 3.5 bytes
  - (c) 12 bytes
  - (d) 0 byte

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4. If the QBASIC expression is  $(A \ B \ C^2) / A \ B$ , then the ALGEBRAIC expression is

(a)  $\frac{abc^2}{a \ b}$

(b)  $\frac{abc}{2a \ b}$

(c)  $\frac{abc^2}{a} \ b$

(d)  $\frac{abc^2}{a} \ b$

5. Which of the following statements is used to take in values from the user?

(a) INPUT

(b) OUTPUT

(c) PRINT

(d) REM

6. Which of the following is the output of `STRING$(5,"XYZ")`?

(a) XYZXYZXYZXYZXYZ

(b) XXXXX

(c) ZZZZZ

(d) YYYYY

**II.** State whether the following statements are *True* or *False*  
(any *three*) : 1×3=3

1. The PUT# statement is used to retrieve data from a random file.
2. A language in zeroes and ones is called a machine language.
3. If the dimension of an array is B(9), then this array can store 9 elements in it.
4. ON...GOTO statement is a conditional branching statement.
5. The output of the expression CHR\$(ASC("E")) is 69.
6. All records in a random data file are identified by a record number.

**III.** Fill in the blanks in the following sentences (any *three*) : 1×3=3

1. The — structure can have a single-line or multiple-line syntax.
2. The — executes a block of statements for as long as a condition is true or unless a condition becomes true.
3. The output of the expression PRINT LEN("INDIA") is —.
4. The variables inside a DEF FN function are — by default.
5. The statement — is used to exit a subprogram prematurely.
6. For binary files, the — function returns the position of the last byte read or written.

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**IV.** Answer the following questions : 1×3=3

1. Explain the SPC function with syntax.
2. What are DYNAMIC arrays?
3. Define logical operators.

( SHORT ANSWER-TYPE QUESTIONS )

**V.** Answer the following questions within 2 or 3 sentences or steps : 2×4=8

1. Differentiate between DATE\$ function and DATE\$ statement with their syntaxes. 1+1=2
2. What is the use of KILL statement? Write its syntax. 1+1=2
3. What are the two scopes of a variable? Differentiate between them. 1+1=2
4. Distinguish between sequential and random data files with examples. 1+1=2

( DESCRIPTIVE-TYPE QUESTIONS )

**VI.** Answer the following questions : 5×4=20

1. *Either*
  - (a) Distinguish between LEFT\$ and RIGHT\$ functions. Give examples to illustrate your answer. 2½+2½=5

*Or*

- (b) Enumerate the points to be remembered while writing numbers in QBasic. 5

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2. *Either*

(a) Write the output generated by the following program :

5

```
DIM iNO1 AS INTEGER
DIM iNO2 AS INTEGER
FOR iNO1 = 0 TO 20
    IF (iNO1 MOD 5) = 0 THEN
        iNO2 = iNO2 + 1
        PRINT iNO2, iNO1
    END IF
NEXT iNO1
END
```

*Or*

(b) Develop QBasic codes to generate the following output using FOR..NEXT loop :

5

```
7 1 7
7 2 14
7 3 21
7 4 28
7 5 35
```

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3. *Either*
- (a) Write a program to display all Armstrong numbers in the range 1 to 999. 5
- Or*
- (b) Write a program to generate even numbers from 1 to 100 by using DO...LOOP and also find their sum. 5
4. *Either*
- (a) (i) What is the use of ON....GOSUB statement? 1  
(ii) Distinguish between PRINT# and WRITE# statements. 2+2=4
- Or*
- (b) Create a sequential data file to store the names, roll numbers and marks of Computer Science, Mathematics and English. 5

**[ For Private Candidates only (without Practical) ]**

( Maximum Marks : 20 )

- VII.** Answer the following questions within 2 or 3 sentences (any five) : 2×5=10
1. Define interpreter and compiler. 1+1=2
2. Explain TAB function with syntax. 1+1=2
3. What are the outputs of the following expressions? 1+1=2
- (a) PRINT 5 MOD 2
- (b) PRINT "Delhi" > "Guwahati"

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4. Explain CINT function with syntax giving an example. 1+1=2
5. Name the two Argument Passing Mechanisms. 1+1=2
6. What do you understand by Sequential Access? 2

**VIII.** Answer the following questions : 5×2=10

1. *Either*
- (a) Write a program to display only the largest of three integers. 5

*Or*

- (b) What is a loop? What are the two types of loop? Name the looping statements supported by QBasic. 1+½+½+3=5

2. *Either*
- (a) Write a QBasic program to convert a given weight from kilogram to gram. You must have one function to do the required conversion. [Hint : 1 kg = 1000 gm] 5

*Or*

- (b) (i) In which mode a sequential file is opened to add record into an existing data file? 1
- (ii) What are the purposes of EOF and LOF functions? Give their syntaxes. 2+2=4

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