Q. 2 Attempt any NINE parts. The answer to each part should not exceed 3 to 4 lines.

(i) What is meant by Coding Scheme? Briefly explain ASCII and EBCDIC code.

(ii) Briefly explain Duality principle.

(iii) Construct Truth table for \((X+Y).X\bar{Y}\).

(iv) What is Debugging? Why is it necessary to test or debug a program?

(v) Develop an algorithm to find the average of three numbers.

(vi) Describe the following commands:
   a. EDIT
   b. RUN

(vii) Differentiate between Direct mode and Program mode.

(viii) Write a program for a table of numbers from 1 to 10 using FOR...NEXT loop.

(ix) What is an Array? Differentiate between simple and subscripted variables.

(x) Translate \(\sqrt{16 + \pi^2}\) into DEF FN statement by writing a program.

(xi) What is the purpose and syntax of PSET statement? Explain with the help of an example.

(xii) Describe the following system defined functions:
   a. INKEYS
   b. SPACE

(xiii) Predict the output:

<table>
<thead>
<tr>
<th>Line</th>
<th>Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>10</td>
<td>Let K = 2</td>
</tr>
<tr>
<td>20</td>
<td>Let PS = &quot;I love Pakistan&quot;</td>
</tr>
<tr>
<td>30</td>
<td>Print K + 3, PS</td>
</tr>
<tr>
<td>40</td>
<td>Let K = K + 1</td>
</tr>
<tr>
<td>50</td>
<td>If K &lt; 1 then goto 20</td>
</tr>
<tr>
<td>60</td>
<td>End</td>
</tr>
</tbody>
</table>

SECTION – C (Marks 16)

Note: Attempt any TWO questions. All questions carry equal marks.

Q. 3 a. Simplify the following function using Karnaugh map: \(\overline{ABC} + \overline{ABC} + \overline{ABC}\)

b. Explain User Documentation.

Q. 4 a. Write a program to find the square and cube of any number using INPUT statement.

Print the number, its square and cube in zones.

b. Explain Nested loop.

Q. 5 a. What is the purpose of GOSUB/RETURN statement? Illustrate by an example.

b. Convert the following number in Hexadecimal system into their Decimal Equivalent and then into Octal system.

--- 25A 1211 ---
(Sheet-8)

(9x3=27)

RUN EDIT

PROGRAM MODE | DIRECT MODE

FOR NEXT 10

DEF FNF 16

SPACE INKEYS

10 Let K = -2
20 Let Ps = "I love Pakistan"
30 Print K + 3, Ps
40 Let K = K + 1
50 If K < 1 then goto 20
60 End

(2x8=16)

ABC + ABC + ABC

INPUT (Nested Loop)

GOSUB RETURN

FFAD (Hexadecimal System)

--- ZA/1211 ---
Q. 1 Circle the correct option i.e. A / B / C / D. Each part carries one mark.

(i) The radix of a computerised version of the number (+0.78E-6) is __________.
   A. 2   B. 4   C. 6   D. 8

(ii) An OR operation has 4 variables. The possible number of combinations in its truth table is __________.
   A. 4   B. 8   C. 16   D. 32

(iii) Which error do you think exists in the formula X=A+B?
   A. Logical   B. Syntax   C. Execution   D. None of these

(iv) Which of the following is an invalid numeric variable name?
   A. X55   B. NUM   C. NET-PAY   D. TOTPAY

(v) Which of the following loops is used when the number of iterations is not known in advance?
   A. For.... Next   B. While.... Wend
   C. If.... Then   D. Nested loop

(vi) DIM statement is used to declare an array especially to specify more than _____ subscripts.
   A. 6   B. 8   C. 10   D. 2

(vii) The result of execution of PRINT HEX$ (20) __________.
   A. 5   B. 10   C. 14   D. None of these

(viii) In DRAW statement the prefix/command B is used to __________.
   A. Move without leaving any mark   B. Move to starting position after finish
   C. Move leftward   D. Move diagonally left downward

(ix) Which of the following commands is used to delete the program currently in memory and clears all variables?
   A. CLEAR   B. NEW   C. DELETE   D. KILL

(x) Technical documentation is to help the __________.
   A. Students   B. Common people
   C. Programmer   D. User

(xi) Karnaugh map transforms _______ into simplified expression.
   A. Truth table   B. Boolean algebra
   C. Boolean function   D. None of these

(xii) Which of the following statements can be used for multiple branching?
   A. ON.... GOTO   B. IF.... THEN.... ELSE
   C. GOTO   D. WHILE.... WEND

For Examiner’s use only:

Total Marks: 12

Marks Obtained: __________