

Roll No. 

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**MCA-13**  
**2<sup>nd</sup> Year Examination, Calendar Batch 2016**  
**(A) Visual Basic**  
**(B) Discrete Mathematics**

*Time : 3 Hours ]*

*[ Max. Marks : 100*

*Note. Attempt any **five** questions. All questions carry equal marks.*

Q.1. (a) Describe the Various Types of Arrays.  
 (b) What is Grid?

Q.2. Describe the various options on the toolbox.

Q.3. Describe the various types of data types used in Visual Basic.

Q.4. (a) What do you understand by the concepts of Projects in V.B?  
 (b) Describe the Event –Driven Programming.

Q.5. Show that inverse of an element  $a$  in a group  $G$  is unique.

Q.6. write the vector  $v = \begin{bmatrix} 3 & -1 \\ 1 & -2 \end{bmatrix}$  in the vector space of  $2 \times 2$  matrices  
 As a linear combination of

$v_1 = \begin{bmatrix} 1 & 1 \\ 0 & -1 \end{bmatrix}$ ,  $v_2 = \begin{bmatrix} 1 & 1 \\ -1 & 0 \end{bmatrix}$ ,  $v_3 = \begin{bmatrix} 1 & -1 \\ 0 & 0 \end{bmatrix}$ .

Q.7. Consider  $Z_7 = [0, 1, 2, 3, \dots, 6, +_7, \times_7]$ . show that  $Z_7$  is a field.

Q.8. Prove that  $G = \{1, 2, 3, 4, 5, 6\}$  is a finite abelian group of order 6 under multiplication modulo 7.