



# VIT<sup>®</sup>

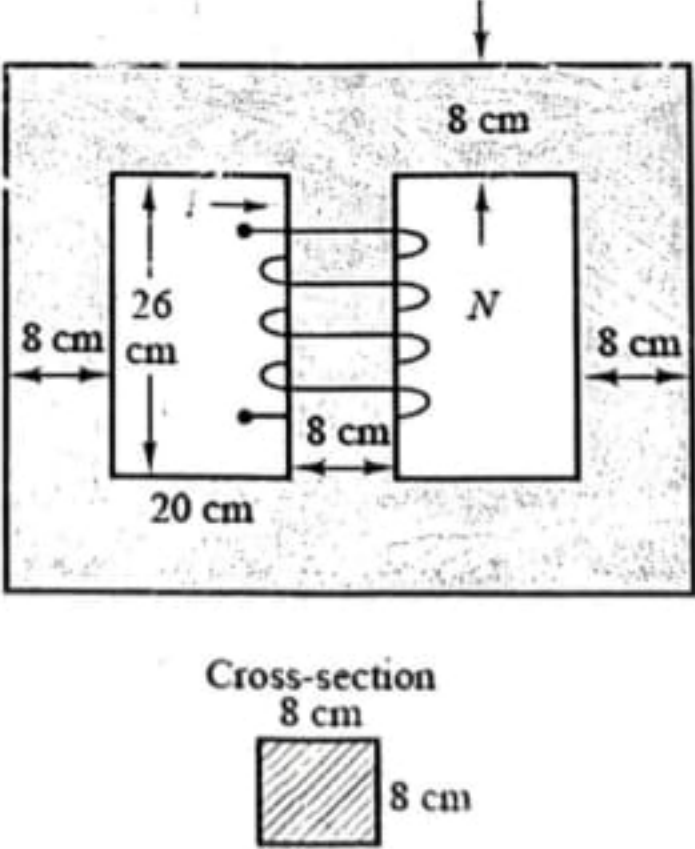
Vellore Institute of Technology  
(Deemed to be University under section 3 of UGC Act, 1956)

SLOT: C2

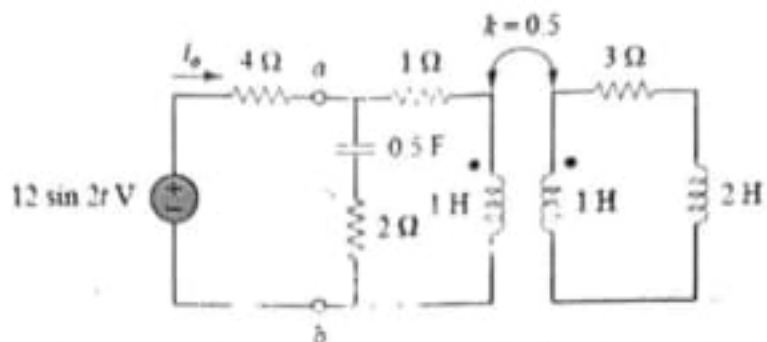
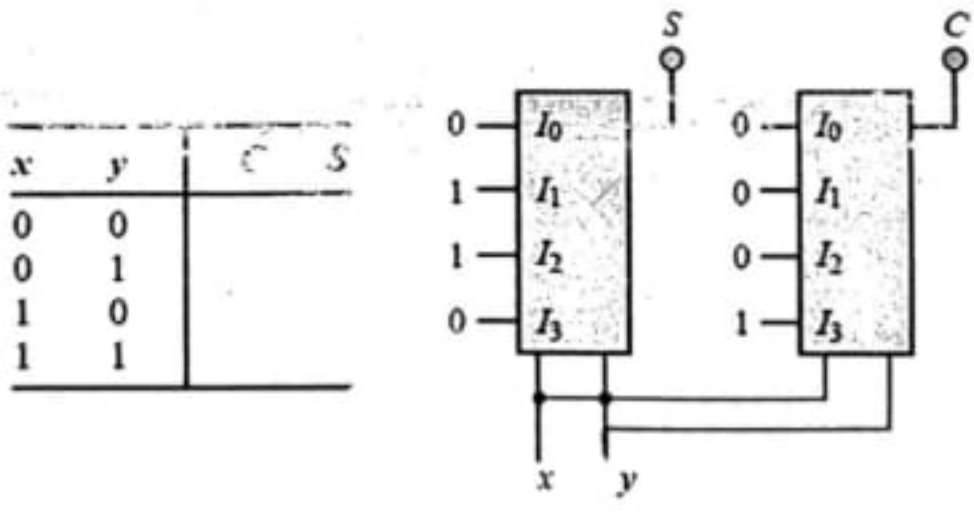
## School of Electronics Engineering

### CONTINUOUS ASSESSMENT TEST - 2

Programme Name : B.Tech  
 Course Code : BEEE102I  
 Course Name : Basic Electrical and Electronics Engineering  
 Class Number(s) : VL2022230107502  
 Faculty Member : Hemanta Kumar Sahu  
 Date of the Examination : 13-Dec-2022  
 Duration : 90 minutes Max. Marks : 50

SLNo.	Question	Max Marks
1	<p>A Core is shown below with <math>\mu_r = 2000</math>, and <math>N=100</math>. Evaluate the current needed to produce a current density of <math>0.8 \text{ Wb/m}^2</math> in the center leg.</p> 	10



2	<p>For the network below, find the <math>Z_{ab}</math> and <math>I_0</math></p> 	10																				
3	<p>i) Convert the following base 10 numbers to binary a) 53.375 b) 37.32</p> <p>ii) Find the sign-magnitude form binary representation of the following decimal numbers a) 126 b) -126</p> <p>iii) Perform the following subtractions all in the binary system using 1's Complement a) 10001011 - 1101111 b) 11000011 - 10111011</p>	4 2 4																				
4	<p>Find the simplified Sum-of-Product expression of the function using Karnaugh-map and draw the circuit using two input logic gates.</p> <p><math>F(A, B, C, D) = \sum m(1, 5, 6, 12, 13, 14) + d(2, 4)</math></p>	10																				
5	<p>i) Fill in the truth table for the multiplexer circuit</p> <p>ii) What binary function is performed by these multiplexers?</p>  <table border="1" data-bbox="682 1795 987 2047"> <thead> <tr> <th>x</th> <th>y</th> <th>C</th> <th>S</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>0</td> <td></td> <td></td> </tr> <tr> <td>0</td> <td>1</td> <td></td> <td></td> </tr> <tr> <td>1</td> <td>0</td> <td></td> <td></td> </tr> <tr> <td>1</td> <td>1</td> <td></td> <td></td> </tr> </tbody> </table>	x	y	C	S	0	0			0	1			1	0			1	1			10
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