

**B.Sc. Sem.-4 Examination****ELE-205 - Electronics****May - 2025****Time : 2-30 Hours]****[Max. Marks : 70**

- Instructions :** ( 1 ) All questions are compulsory.  
 ( 2 ) All question carry equal marks.  
 ( 3 ) Symbols carry their usual meaning.

- 1 ( a ) Explain Heaviside's partial function expansion theorem. 07  
 ( b ) What is inverse Laplace Transformation? Explain in detail. 07

**OR**

- 1 ( a ) Explain response of series R-L circuit to exponential driving voltage. 07  
 ( b ) Explain response of series R-C circuit to exponential driving voltage. 07

- 2 ( a ) Explain the method of evaluating the Fourier coefficients. 07  
 ( b ) Obtain the Fourier series expansion of the periodic triangular wavefom. 07

**OR**

- 2 ( a ) Discuss exponential function  $e^{-at}$  & impulse function with respect to Fourier transform. 07  
 ( b ) Give the relationship of Laplace and Fourier transformers. 07

- 3 ( a ) Explain about J. K. Flipflop in detail. 07  
 ( b ) Explain clocked D Flipflop with logic diagram, symbol and Truth table. 07

**OR**

- 3 ( a ) List the types of Registers. Explain parallel IN- Serial OUT Shift register. 07  
 ( b ) What are the application of shift registers? Explain in detail. 07

- 4 ( a ) Explain about 8085 Bus Structure in detail. 07  
 ( b ) Explain about 8085 Programmable registers in detail. 07

**OR**

- 4 ( a ) Compare Peripheral-mapped I/O with memory mapped I/O. 07  
 ( b ) Explain Primary Operation performed by microprocessor. 07

- 5 Answer in short (Any seven) : 14

- ( 1 ) What is transform pair? What is Laplace transform of  $\sin(at)$ ?  
 ( 2 ) Write the domains of  $f(t)$  &  $F(s)$ ?  
 ( 3 ) Give the Laplace transform of  $e^{-at} \sin \omega t$ .  
 ( 4 ) What is duty cycle?  
 ( 5 ) What do you find the Fourier function of a function  $f(t)$ ?  
 ( 6 ) What is an odd function? Give an example of even function.  
 ( 7 ) Define Hold time and Setup time in flip flop.  
 ( 8 ) What is ring counter?  
 ( 9 ) What is the disadvantage of R-S flip flop?  
 (10) How many address lines are necessary for Chip Of 2K (2048) memory?  
 (11) What is flag? List all the flags.  
 (12) Why is the data bus bidirectional?