Nepal college of information technology

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|  | **Unite Test**  Fall 2012 | Time : 2 hrs |
| Program : BE ELX  Semester : Fall(V) | | FM : 50 |
| Subject : Signal & System | | PM : 25 |

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| *Candidates are required to give their answers in their own words as far as practicable.* |
| *The figures in the margin indicate full marks.* |
| Attempt all the questions. |

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|  | 1. Determine the total energy and total average power of the continuous time unit step signal and decide whether it is energy signal or power signal or neither. Also draw the resulting signal. 2. Given Determine whether the given system   y(t) = e-ax(t) + b is   1. Causal 2. Linear 3. Shift Invariance 4. Static 5. Stable   Also define the above systems with suitable example | 5        10 |
|  | 1. Define Convolution. Find the convolution of two continuous time signals, x(t)=e-at u(t), a>0 and h(t)=u(t) 2. Define DTFS. Also determine the DTFS coefficient s of the given signal x[n] = sin (πn/8+3π/8) +2. What is the period of the given signal? | 7  8 |
|  | 1. Define DTFT. Prove convolution property of continuous time Fourier Transform. 2. Obtain the CTFT of a rectangular pulse of duration 5 seconds and having magnitude of 20 volts, starting from origin. Also draw the magnitude and phase spectrum. | 7  8 |
|  | ***Write short notes on (Any Two)***   1. Properties of CTFS 2. Operation on Independent Variable 3. Elementary Signal | 5 |
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