Reg. No. : | | | | | | | | | | |

Question Paper Code: 44404

B.E. / B.Tech. DEGREE EXAMINATION, NOV 2019

Fourth Semester

Electronics and Communication Engineering

14UEC404- SIGNALS AND SYSTEM

(Regulation 2014)

Duration: 1.15 hrs   Maximum: 30 Marks

PART A - (6 x 1 = 6 Marks)

(Answer any six of the following questions)

1. Which is the following is signal

   (a) mobile phone   (b) walkie-talki

   (c) personal computer   (d) human speech

2. A signal is defined at every instant of time is

   (a) output signal   (b) input signal

   (c) DT signal   (d) CT signal

3. Fourier series is only applicable for

   (a) Energy signals   (b) power signals

   (c) a periodic signals   (d) periodic signals

4. The frequency response usually represented in graph by its

   (a) magnitude   (b) phase
   (c) both magnitude and phase   (d) none of these

5. The Laplace transform of *u(t)* is

   (a) *1/s*   (b) *s²*   (c) *1/ s²*   (d) *s*

6. Given that $H(s)=e^{-4s}$. What is the impulse response of the system?

   (a) $\delta(t-4)$ (b) $u(t-4)$ (c) $e^{-4t}u(t)$ (d) $e^{4t}u(t)$

7. For a finite duration causal or positive time sequence the ROC is the entire Z plane except at

      (a) z=0   (b) z=∞   (c) z=0 and z=∞   (d) z=1

8. The Drawback of DTFT is

      (a) 0 inverse is in CT   (b) inverse is in DT

      (c) all the above   (d) none of these

9. The output due to impulse input is called as _____ response.

      (a) impulse   (b) frequency   (c) step   (d) output

10. The Z-transform of correlation of the sequence x(n) & y(n) is,

      (a) $X^*(z)Y^*(Z^{-1})$ (b) $X(z)Y(z^{-1})$ (c) $X(z)*Y(z)$ (d) $X(z^{-1})Y(z^{-1})$

PART – B (3 x 8= 24 Marks)

(Answer any three of the following questions)

11. Examine whether the following signal is periodic or not? If periodic determine the fundamental period.

    (i) je^{j6t},

    (ii) $X(t) = 3u(t) + 2\sin 2t$.,

    (iii) $x(n) = \cos 4n$

    (iv) $x(n) = 1 + e^{j2\pi n/3} - e^{j4\pi n/7}$.   (8)

12. Determine the trigonometric form of the Fourier series of the ramp signal shown in Fig.   (8)
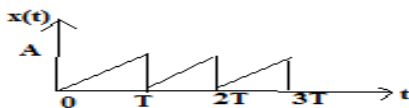
13. Develop $H(S) = S(S+3)/(S+2)(S+1)(S+4)$ Using Cascade form.   (8)

14. Describe a real value band limited signal having no spectral components above a frequency of B Hz is determined uniquely by its values at uniform interval spaced no greater than 1/2B second apart.   (8)

15. Find the state variable matrices *A, B, C* and *D* for the equation   (8)

    $y(n) - 3y(n - 1) - 2y(n - 2) = x(n) + 5x(n - 1) + 6x(n - 2)$.

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