F 9374

(Pages : 2)

Reg. No.....ECE.....

Name.....

B.TECH. DEGREE EXAMINATION, NOVEMBER 2011

Sixth Semester

Branch : Electronics and Communication/ Applied Electronics and Instrumentation/ Electronics and Instrumentation

INDUSTRIAL MANAGEMENT AND ECONOMICS (LAS)

(2002 Admissions onwards—Supplementary)

Time : Three Hours

Maximum : 100 Marks

Sections I and II must be answered in **separate** *answer books.*

Section I (Industrial Management)

Part A

Answer **all** *questions.*
Each question carries 4 *marks.*

1. Define organization theory.
2. What is delegation ?
3. Define the concept of labour welfare.
4. Explain :
   (a) Performance test.
   (b) Personality test.
5. Explain the purpose of sales promotion.
6. Explain about PERT.

(6 × 4 =24 marks)

Part B

Answer **all** *questions.*
Each question carries 12 *marks.*

7. (a) Explain in detail the principles of management.
   (b) Briefly explain the different levels of management.

Or

8. (a) Explain in detail the objectives of labour welfare.
   (b) Explain the different labour welfare methods.
9. (a) Explain partnership, joint stock companies and co operative organizations.
   (b) List out and explain the differences between joint sector and co-operative sector.

Or

10. (a) What are the objectives of training of employees ?

    (b) Explain in detail the steps involved in training process of employees.

11. (a) Briefly explain the commonly used channels of distribution.

    (b) Explain CPM and steps involved in CPM technique.

Or

12. (a) Explain about marketing research process in detail.

    (b) What is functional organization ? List its advantages and disadvantages.

(3 × 12 = 36 marks)

Section II (Economics)

Part A

Answer **all** *questions.*

Each carries 4 *marks.*

1. How price for a product is determined in a market ?
2. Discuss about stock markets.
3. Explain the law of substitution.
4. Explain the role of public sector.

(4 × 4 = 16 marks)

Part B

Answer **all** *questions.*

Each carries 12 *marks.*

5. (a) Explain progressive tax and proportional tax.

    (b) What are the merits and demerits of progressive taxation ?

Or

6. (a) Explain in detail the inflationary process.

    (b) Distinguish between regressive tax and degressive tax.

7. (a) Discuss the difference between IDBI and ICICI banking policies.

    (b) Compare the price mechanisms based on cost and based on market.

Or

8. (a) Explain the functions of Reserve Bank of India .

    (b) Explain in detail the causes of inflation.

(2 × 12 = 24 marks)

F 9400 (Pages : 2) Reg. No.....

Name.....

B.TECH. DEGREE EXAMINATION, NOVEMBER 2011

Sixth Semester

Branch : Electronics and Communication Engineering

RADIATION AND PROPAGATION (L)

(2002 Admission onwards—Supplementary)

Time : Three Hours Maximum : 100 Marks

Answer **all** *questions.*

Part A

Each question carries 4 *marks.*

1. Explain the term radiation resistance. What is its value for a half wave dipole ?
2. What do you mean by induction field and radiation field ?
3. Differentiate between end fire array and broad-side array.
4. State and explain the principle of pattern multiplication.
5. Write down the applications of VLF antennae.
6. Discuss the effect of earth on radiation pattern.
7. What are the different modes of propagation of electromagnetic waves ?
8. Write short notes on duct propagation.
9. Define beam width of an antenna. Illustrate using a diagram.
10. Explain a method to measure SWR.

(10 × 4 = 40 marks)

Part B

Each question carries 12 *marks.*

11. Derive expression for the power radiated by a half wave dipole.

Or

12. (a) State and explain reciprocity Theorem.

    (b) Explain :—

    (i) Radiation Pattern.

    (ii) Directive Gain.

13. What do you mean by a broad-side array ? Derive expressions for maxima and minima of field radiated by a broadside array of '*n*' isotropic sources.

Or

Turn over

14. Write short notes on :

(a) Binomial arrays.

(b) Parabolic Reflector Antennae.

15. Explain the construction, working and features of rhombic Antennae.

Or

16. Explain the construction features and working of Yogi-Uda antennae. Explain its important characteristics.

17. Explain the characteristics of space wave propagation. Derive expressions for the range of space wave propagation.

Or

18. Define and explain the significance of the following terms :

(a) Skip distance. (4 marks)

(b) Critical frequency. (4 marks)

(c) Maximum usable frequency. (4 marks)

19. Explain the method of antennae impedance measurement of low and high frequency.

Or

20. With neat diagrams explain how radiation resistance and radiation efficiency of an antennae is measured ?

(5 × 12 = 60 marks)

F 9418 (Pages : 2) Reg. No.....

Name.....

B.TECH. DEGREE EXAMINATION, NOVEMBER 2011

Sixth Semester

Branch : Electronics and Communication Engineering

CONTROL SYSTEMS (L)

(2002 admission onwards—Supplementary)

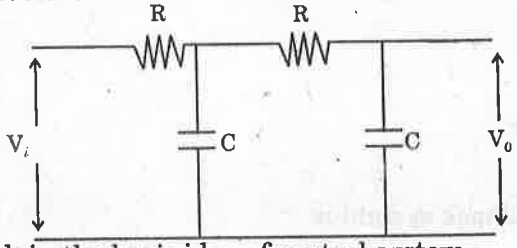
Time : Three Hours Maximum : 100 Marks

Answer **all** *questions.*

Part A

Each question carries 4 *marks.*

1. Derive the transfer function of the networks shown in Fig below.



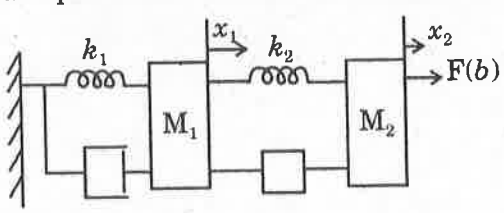
2. Explain the basic idea of control system.
3. Plot the time response of the first order system to a unit step and unit ramp input.
4. Write the transfer function of PD and PID controllers.
5. State the magnitude criterion with represent to a root locus plot.
6. Write notes on Nicol's chart'.
7. Explain basic theory of root loci.
8. Write notes on servo motor.
9. List out the function of a compensator in a control systems.
10. Draw the circuit of lead compensator.

(10 × 4 = 40 marks)

Part B

Each question carries 12 *marks.*

11. Obtain the differential equations of motion for the mechanical system shown in Fig below.



(12 marks)

Or

12. (a) Compare electrical, mechanical and electromechanical systems. (6 marks)

(b) Define Masons gain formula. (6 marks)

13. Obtain the dynamic error co-efficients for a system where open-loop transfer function.

$$G(s)\,H(s) = \frac{10(s+1)}{S(1+0.1s)}$$

and also determine the steady state error if the input $r(t) = 1 + 0.75\ t$.

Or

14. Explain the impulse response of second order system. (12 marks)

15. Sketch the Bode-plot for the following transfer function and determine Gain Margin and phase margin

$$G(s) = \frac{50\,(0.1+s)}{s\,(s+1)\,(s+2)}.$$

(12 marks)

Or

16. Explain frequency domain specification. (12 marks)

17. The open-loop transfer function of a unity feedback system is

$$G(s) = \frac{k}{s^2\,(0.2s+1)}$$ sketch the root locus.

(12 marks)

Or

18. Explain the working of servometer. (12 marks)

19. Write notes on state transition matrix. (12 marks)

Or

20. Discuss about different compensators. (12 marks)

[5 × 12 = 60 marks]

F 9392 (Pages : 3) Reg. No.....

Name.....

B.TECH. DEGREE EXAMINATION, NOVEMBER 2011

Sixth Semester

Branch : Electronics and Communication/Information Technology/Applied Electronics and Instrumentation/Electronics and Instrumentation

DIGITAL SIGNAL PROCESSING (LTAS)

Time : Three Hours Maximum : 100 Marks

Answer **all** *questions.*

Part A

Each question carries 4 *marks.*

1. Explain why IIR filters cannot have linear phase.
2. Impulse invariant transformation is a many to one transformation. Explain.
3. Compare different window functions.
4. Discuss on the position of the zeros of linear phase FIR filter in the Z plane.
5. Obtain the relationship between Z–Transform and DFT.
6. Explain why DIT FFT and DIF FFT algorithms are called in-place algorithms. Draw the basic butterfly diagram for DIT FFT and DIF FFT algorithms.
7. Compare fixed point and floating point number arithmetic.
8. Explain the possible errors that can occur in the implementation of a digital filter.
9. Explain any two real world applications of Digital signal processing.
10. How do you select a DSP chip for a given application ?

(10 × 4 = 40 marks)

Part B

Each question carries 12 *marks.*

11. Design a digital Butterworth filter to satisfy the following constraints using impulse invariant transformation.

$$\sqrt{0.5} \le \left|H(e^{jw})\right| \le 1, \quad 0 \le w \le 0.5\pi$$

$$\left|H(e^{jw})\right| \le 0.2, \quad 0.75\pi \le w \le \pi.$$

(12 marks)

Or

Turn over

12. Design a digital Chebyshev filter to satisfy the following specifications using impulse invariant transformation.

Stop band attenuation $\geq$ 18 dB

Pass band Edge = 500 Hz

Pass band attenuation $\leq$ 3.01 dB

Stop band Edge = 750 Hz

Sampling Frequency = 1 kHz. (12 marks)

13. (a) Obtain the direct form and lattice of realization for the system described by $H(z) = 1-0.9z^{-1} + 0.64z^{-2} - 0.57z^{-3}$. (8 marks)

(b) Realize the filter with impulse response $h[n] = \{1, 2, 3, 4, 3, 2, 1\}$ using minimum number of multipliers. (4 marks)

Or

14. Design filter with the following specifications using Bartlett window. Take N = 7.

$$H_d(e^{jw}) = e^{-j3w} \quad 0 \leq |w| \leq \frac{\pi}{4}$$

$$= 0 \qquad \frac{\pi}{4} \leq |w| \leq \pi. \qquad \text{(12 marks)}$$

15. Using DFT perform circular convolution of the two sequences

$x[n] = \cos\left(\frac{n\pi}{2}\right) n = 0, 1, 2, 3$ and $h[n] = 2^n \quad n = 0, 1, 2, 3$. (12 marks)

Or

16. (a) If $x[n] = \delta[n] + 3\delta[n-1] + 2\delta[n-3] + 6\delta[n-4]$, find a finite length sequence $y[n]$ that has a 6 point DFT Y(k) given by $Y(k) = W_3^{2k} X(k)$, where $X(k)$ is the DFT of $x[n]$. (6 marks)

(b) If $x[n] = 2\delta[n] + \delta[n-1] + \delta[n-3]$, find 5 point IDFT of $Y(k) = X^2(k)$, where $X(k)$ and $Y(k)$ are the 5 point DFT of the sequences $x[n]$ and $y[n]$ respectively. (6 marks)

17. For the transfer function $H(z) = H_1(z)\ H_2(z)$, where $H_1(z) = \frac{1}{1-0.4z^{-1}}$ and $H_2(z) = \frac{1}{1-0.3z^{-1}}$, find the output round off noise power. Take $b = 4$. (12 marks)

Or

18. Explain the quantization effects in the floating point realization of second order IIR digital filters and hence derive the expression for output noise variance in second order system. (12 marks)

19. Discuss the application of DSP in :

(a) Measurement systems.

(b) Radar Signal Processing. (12 marks)

Or

20. Discuss the application of DSP in :

(a) Speech Processing.

(b) Digital processing of audio signals. (12 marks)

[5 × 12 = 60 marks]

F 9409 (Pages : 2) Reg. No.....

Name.....

B.TECH. DEGREE EXAMINATION, NOVEMBER 2011

Sixth Semester

Branch : Electronics and Communication Engineering

ELECTRONIC INSTRUMENTATION (L)

(2002 Admissions onwards—Supplementary)

Time : Three Hours Maximum : 100 Marks

Answer **all** *the questions.*
Each question carries 4 *marks.*

1. Define and explain rise time, response time and settling time.
2. Explain the objectives of an engineering measurement.
3. Differentiate active transducer from passive transducer.
4. State and explain piezoelectric effect.
5. Draw a neat block diagram of telemetering system and explain it in detail.
6. Define and explain PPM and PLM.
7. Explain the principle of strip chart recorder.
8. Explain in detail the basic principle of Signal analyzer.
9. What is the principle of multiplexing ? Explain.
10. Explain the principle of pressure measurement in detail.

(10 × 4 = 40 marks)

Part B

11. Discuss in detail the objectives of engineering measurement.

Or

12. State and explain the performance characteristics of instruments.
13. Explain in detail the selection criteria for transducers.

Or

14. Write short notes on the following :—
    (a) Strain gauge.
    (b) Photoconductive transducer.
    (c) Electromechanical type transducer.

Turn over

15. Explain in detail the classification of telemetering system.

Or

16. Explain the working principle of pulse telemetery system with a neat diagram.

17. Explain the principles of Wheatstone and guarded Wheatstone bridge in detail with neat sketches.

Or

18. Compare and contrast Distortion analyzer and Spectrum analyzer.

19. Explain the D/A and A/D multiplexing in detail.

Or

20. Explain the procedure for Force and Torque measurement with neat diagrams.

(5 × 12 = 60 marks)

F 9383 (Pages : 2) Reg. No.....

Name.....

B.TECH. DEGREE EXAMINATION, NOVEMBER 2011

Sixth Semester

Branch : Electronics and Communication Engineering

DIGITAL COMMUNICATION TECHNIQUES (L)

(2002 Admission onwards—Supplementary)

Time : Three Hours Maximum : 100 Marks

Answer **all** *questions.*

Part A

Each question carries 4 *marks.*

1. What is ISI ? Explain in detail.
2. Whata are the characteristics of receiving filters ?
3. What is PRBS ? Explain in detail.
4. Differentiate scrambler from unscrambler.
5. What is 'cook' ? Explain in detail.
6. Define probability of error. Explain its significance.
7. State A law and μ law.
8. What is C VSD ? Explain in detail.
9. Enumerate the types of noise.
10. Define :
    (i) Noise figure.
    (ii) Noise temperature.

($10 \times 4 = 40$ marks)

Part B

Each question carries 12 *marks.*

11. State and derive the properties of Gaussian probability function.

Or

12. Derive the condition for Nyquist pulse shaping criteria.
13. Differentiate duobinary base band PAM system from modified duobinary base band PAM system.

Or

14. Explain the significance of eye pattern with neat diagrams.
15. Define and explain DPSK. Derive its probability of error.

Or

Turn over

16. Compare and contrast all the digital modulation formats.

17. Explain in detail the principle of sampling and quantination.

Or

18. Write technical notes on :

    (a) Delta modulation system.

    (b) ADM.

19. State and derive the properties of matched filter.

Or

20. Write short notes on :

    (a) Performance of binary transmission system.

    (b) Maximum likelihood receiver structure.

(5 × 12 = 60 marks)