G 1423 (Pages : 2) Reg. No.....ECE.....

Name.....

B.TECH. DEGREE EXAMINATION, MAY 2012

Sixth Semester

Branch : Electronics Communication/Applied Electronics/E and I

INDUSTRIAL MANAGEMENT AND ECONOMICS (LAS)

(Regular/Improvement/Supplementary)

Time : Three Hours Maximum : 100 Marks

Section I

Part A

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

1. Explain the function of communication.
2. Define Scientific Management.
3. What are the objectives of Personnel Management ?
4. What is meant by Industrial Fatigue ?
5. Explain any two sales promotion techniques.
6. What are the characteristics of Mass Production ? (6 × 4 = 24 marks)

Part B

7. (a) Explain any two types of organisational structure.
   (b) Explain the process of communication.

Or

8. (a) What is meant by Management by Objectives ?
   (b) Explain the importance of Directing.
9. (a) Explain the steps involved in recruitment.
   (b) What is meant by on the job training ?

Or

10. Write short notes on :
    (a) Joint stock companies and
    (b) Co–operative sector companies.
11. (a) What are the functions of Inventory ? What are the costs associated with inventory control ?
    (b) Define Market research.

Or

12. (a) Explain the project planning using PERT network.
    (b) How does CPM differ from PERT ?

(3 × 12 = 36 marks)

Turn over

Section II

Part A

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

1. How can we estimate GDP ?
2. Discuss the consequences of inflation.
3. Discuss the impact of privatisation on Indian economy.
4. What is the role of NABARD in Indian economy ? Discuss.

(4 × 4 = 16 marks)

Part B

5. (a) What is the importance of demand analysis ? What are the different types of demand ?
   (b) Distinguish between increase and extension of demand.

Or

6. (a) What is the importance of supply analysis ? Discuss.
   (b) Explain the nature and managerial uses of production function.
7. (a) Draw the role of RBI in the regulated money market environment.
   (b) Define Privatisation.

Or

8. Write notes on the following financial institution.
   (a) IDBI.
   (b) SIDBI and
   (c) ICICI.

(2 × 12 = 24 marks)

G 1432 (Pages : 2) Reg. No.....

Name.....

B.TECH. DEGREE EXAMINATION, MAY 2012

Sixth Semester

Branch : Electronics and Communication Engineering

DIGITAL COMMUNICATION TECHNIQUES (L)

(Regular/Improvement/Supplementary)

Time : Three Hours Maximum : 100 Marks

Part A

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

1. Define and explain Random variable and Random processes.
2. State the properties of Gaussian probability function.
3. Explain the principle of Duobinary base band RAM system with a neat diagram.
4. State and define the parameters of Eye pattern.
5. What is PRBS ? What is its application ?
6. What is constellation diagram ? Explain.
7. State and explain A law and μ law.
8. What is compander ? Explain.
9. Define : (1) SNR ; (2) BER.
10. Define Noise figure. What is its significance ?

(10 × 4 = 40 marks)

Part B

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

11. Draw a neat block schematic of base band binary data transmission system. Explain it in detail.

Or

12. Explain in detail about ISI and its effect in Digital communication receivers.
13. Differentiate binary from M-ary signalling schemes. Explain the difference.

Or

14. Explain the principles of Adaptive and preset equalizers with neat diagrams.

Turn over

15. Define and explain BFSK. Derive its probability of Error.

Or

16. Compare and contrast all the digital modulation formats. Explain the comparison.

17. Differentiate the following :—

    (a) Scrambler from unscrambler. (6 marks)

    (b) PCM from DPCM. (6 marks)

Or

18. Explain the principle of Delta modulation system with a neat schematic diagram.

19. State and prove the properties of optimum filter.

Or

20. Derive the relation between effective noise temperature and noise figure.

[5 × 12 = 60 marks]

G 1449 (Pages : 2) Reg. No.....

Name.....

B.TECH. DEGREE EXAMINATION, MAY 2012

Sixth Semester

Branch : Electronics and Communication Engineering

RADIATION AND PROPAGATION (L)

(Regular/Improvement/Supplementary)

Time : Three Hours Maximum : 100 Marks

Answer **all** *questions.*

Part A

Each question carries 4 *marks.*

1. Define effective area of an antenna. Write an expression for the effective area of an antenna in terms of the gain.
2. What do you mean by radiation pattern of an antenna ?
3. State and explain the principle of pattern multiplication.
4. Write short notes on Chebyshev arrays.
5. What do you mean by travelling wave antennas ?
6. Explain about microstrip antennas.
7. Explain the characteristics of space wave propagation.
8. Explain the significance of the term Maximum Usable Frequency.
9. Define beam width of an antenna. Illustrate using a diagram.
10. Explain how directivity can be found out from radiation pattern.

(10 × 4 = 40 marks)

Part B

Each question carries 12 *marks.*

11. Starting from an expression for the retarded magnetic vector potential, obtain the expression for magnetic field of an alternating current element. Identify various components of the obtained magnetic field.

Or

12. (a) State and explain reciprocity theorem.

    (b) Explain the following terms :—

    (i) Directivity.

    (ii) Antennae beam width.

Turn over

13. Derive expressions for maxima and minima of the field pattern of an end fire array of n isotropic sources. Also find the beam width of its major lobe.

Or

14. Explain the principle and characteristics of binomial arrays. Discuss its application.

15. Write short notes on :

    (i) Very low frequency antennas.

    (ii) Inverted V-antennas.

Or

16. Explain the construction, features and working of Rhombic antennae.

17. Explain the characteristics of ionospheric propagation. Explain the mechanism of radiowave bending by the ionosphere.

Or

18. Write brief notes on :

    (i) Diversity reception.

    (ii) Duct propagation.

19. Explain the experimental set-up for the measurement of the radiation pattern of an antenna.

Or

20. Explain how antenna importance can be measured experimentally.

(5 × 12 = 60 marks)

G 1458 (Pages : 2) Reg. No.....

Name.....

B.TECH. DEGREE EXAMINATION, MAY 2012

Sixth Semester

Branch : Electronics and Communication Engineering

ELECTRONIC INSTRUMENTATION (L)

(Regular/Improvement/Supplementary)

Time : Three Hours Maximum : 100 Marks

Part A

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

1. Draw a block diagram of a basic measuring system and explain it in detail.
2. Differentiate static data from dynamic data.
3. What are active and passive transducers ? Explain.
4. Explain the general requirements of a transducer.
5. Explain the principle of an Isolation amplifier.
6. Differentiate PDM from PPM.
7. Explain the bridge balance conditions.
8. Explain the basic principles of signal Analyzer.
9. What is the need for multiplexing ? Explain.
10. Define and explain Gauge factor.

(10 × 4 = 40 marks)

Part B

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

11. Discuss the classification of various measurement errors in detail.

Or

12. Discuss in detail the objectives of an engineering measurement.
13. Define and explain all the parameters of electrical transducers.

Or

Turn over

14. Explain the working principles of :

    (a) Piezo electic and

    (b) Photo voltaic type transducers with neat diagrams.

(6 + 6 = 12 marks)

15. Draw a neat block diagram of a telemetering system and explain it in detail.

Or

16. Give an account on :

    (a) RF telemetry.

    (b) Pulse telemetry.

(6 + 6 = 12 marks)

17. Explain the measurement procedures of Shering bridge and Wien bridge with neat diagrams.

Or

18. Draw a neat block diagram of a spectrum analyzer and explain its working principle in detail.

19. Explain the principle of flow measurement with a neat diagram.

Or

20. Write technical notes on :

    (a) D/A multiplexing.

    (b) Pressure measurement.

(6 + 6 = 12 marks)

[5 × 12 = 60 marks]

G 1467 (Pages : 2) Reg. No.....

Name.....

B.TECH. DEGREE EXAMINATION, MAY 2012

Sixth Semester

Electronics and Communication

CONTROL SYSTEMS (L)

(Regular / Improvement / Supplementary)

Time : Three Hours Maximum : 100 Marks

Answer **all** *questions.*

Part A

Each question carries 4 *marks.*

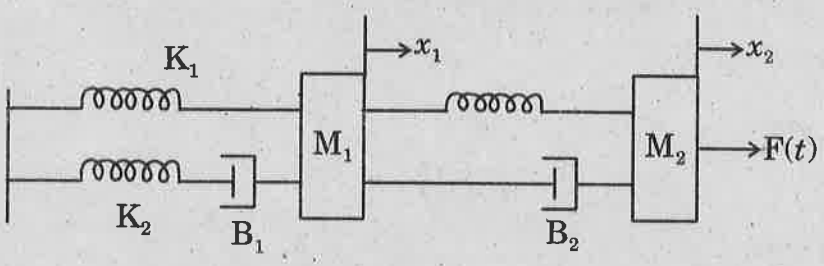
1. Define open loop, and closed loop control systems.
2. Write any two rules of block diagrams algebra .
3. What is meant by type and order of a system ?
4. Define : Routh Hurwitz criterion.
5. List out any four frequency domain specifications.
6. Define Phase and Gain Margin.
7. Explain the properties of root loci.
8. Write notes on error detectors.
9. What is meant by Compensation ? Explain.
10. What is State transition Matrix ?

(10 × 4 = 40 marks)

Part B

Each full question carries 12 *marks.*

11. Obtain the differential equations for the Mechanical system shown in Fig below :



Or

Turn over

12. Explain block diagram reduction with any *one* example.

13. Derive an expression for the peak overshoot of a second order system for an unit step input.

Or

14. Find the dynamic error Co-efficients of the unity feed back control system whose feed forward Transfer function is given by $G(s)=\frac{10}{s(1.5+s)}$ and also obtain the steady state error to the input defined by $r(t)=a_0+a_1t+a_2t^2$.

15. Construct a Bodeplot for the system whose open-loop transfer function is given by $G(s)=\frac{10}{s(s+1)(s+2)}$ and determine the gain margin, phase margin and closed loop stability.

Or

16. Sketch the Nyquist plot for a open-loop transfer function of a unity feedback system is :

$$G(s)=\frac{10(s+5)}{s(s+1)(s+5)}.$$

17. Sketch the root locus plot of a unity feedback system with an Open loop transfer function $G(s)=\frac{k}{s(1+0.1s)(1+s)}$. Determine the value of '*k*'.

Or

18. Explain the working of tacho generator.

19. Explain State variable analysis and compensation techniques.

Or

20. Write notes on Compensator.

(5 × 12 = 60 marks)

G 1441 (Pages : 3) Reg. No.....

Name.....

B.TECH. DEGREE EXAMINATION, MAY 2012

Sixth Semester

Branch : E and I/I.T./A.E. and I/E.C.E.

DIGITAL SIGNAL PROCESSING (LTAS)

(Regular/Improvement/Supplementary)

Time : Three Hours Maximum : 100 Marks

Answer **all** *questions.*

Part A

Each question carries 4 *marks.*

1. List the advantages and disadvantages of Digital Signal Processing.
2. What are the factors that influence the choice of a specific network structure ?
3. What are the conditions to be satisfied by the impulse response $h(n)$ of a discrete time system to have linear phase ? What are the different types of linear phase filters ?
4. What is Gibb's phenomenon ? Explain the method used to control this in FIR filter design.
5. State and prove convolution property of DFT.
6. Explain Bit reversal in FFT algorithms.
7. What is meant by block floating point represenation ? What are its advantages ?
8. What is the effect of quantization on pole location ?
9. Write notes on DSP based measurement systems.
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 specifications using impulse invariant transformation.

    Stop band attenuation $\geq$ 15 dB

    Pass band Edge = 750 Hz

    Pass band attenuation $\leq$ 3.01 dB

    Stop band Edge = 500 Hz

    Sampling Frequency = 1 kHz.

(12 marks)

Or

Turn over

12. Obtain the direct form I, direct form II, cascade and parallel realizations of the system characterized by

$$H(z)=\frac{z^{-1}}{\left(1-\frac{1}{2}z^{-1}+\frac{1}{3}z^{-2}\right)\left(1+\frac{1}{5}z^{-1}\right)}.$$

(12 marks)

13. (a) Obtain the direct form and lattice of realization for the system described by

$$H(z)=1+\frac{2}{5}z^{-1}+\frac{3}{4}z^{-2}+\frac{1}{3}z^{-3}.$$

(8 marks)

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

(4 marks)

Or

14. Design a low pass digital filter with 3 dB cut off at 30π rad/sec. and an attenuation of 50 dB at 45π rad/sec. The system will use a sampling rate of 100 samples/sec.

(12 marks)

15. The four point DFT of a real sequence $x[n]$ is $X[k]=\{1, j, 1, -j\}$. Using the properties of DFT, find the DFT of the following sequences.

(a) $x_1[n]=(-1)^n x[n]$.

(b) $x_2[n]=x[n-4]_4$.

(c) $x_3[n]=x[4-n]$.

(d) $x_4[n]=x\left[\frac{n}{2}\right]$.

(12 marks)

Or

16. Consider the sequence $x[n]=\{1, 2, 3, 4\}$. If $X(k)$ is the 6 point DFT of the sequence $x[n]$,

(a) Determine the finite length sequence $g[n]$ which has a 6 point DFT equal to real part of $X(k)$.

(b) Determine the finite length sequence $h[n]$ which has a 6 point DFT equal to imaginary part of $X(k)$.

Derive the equations used.

(12 marks)

17. Explain the quantization effects in the computation of DFT and hence derive the expression for the signal to noise power ratio.

(12 marks)

Or

18. (a) Explain limit cycle oscillations. (6 marks)

(b) Explain truncation and rounding. Discuss its effect on all types of number representations. (6 marks)

19. With a neat block diagram explain :

(a) Speech coding.

(b) Subband coding of speech and audio signals. (12 marks)

Or

20. With a neat block diagram explain how audio signal is processed and recorded in a compact disc system.

(12 marks)

[5 × 12 = 60 marks]