G 6871 (Pages : 2) Reg. No.....ECE.....

Name.....

B.TECH. DEGREE EXAMINATION, APRIL 2011

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. List the common principles of organization.
2. Explain the concept of organization structure.
3. List the steps involved in selection process of employees.
4. Explain (a) Aptitude test (b) Intelligence test.
5. Explain the characteristics of mass production.
6. Distinguish between PERT and CPM.

(6 × 4 = 24 marks)

PART B

7. (a) Explain in detail the contributions made by F.W. Taylor and Gilbreth.
   (b) Explain in detail the contributions made by Henri Fayol and Gantt.

Or

8. (a) Explain the different types of organization.
   (b) List out its advantages, disadvantages and applications.
9. (a) Explain the purpose of employment interview and types of interviews.
   (b) Explain the procedure for conducting the interview.

Or

Turn over

10. (a) Explain the different training methods.

(b) List the advantages of employee training.

11. (a) Explain in detail any one type of inventory model.

(b) Explain the different types of production system.

Or

12. (a) Explain in detail the different sales promotion tools.

(b) Explain the importance of effective advertising programs.

(3 × 12 = 36 marks)

Section II

Part A

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

1. Define demand. Illustrate the law of demand.
2. Distinguish between direct tax and indirect tax.
3. What are the causes of inflation.
4. What are types of assistance that SIDBI provides to SMEs.

(4 × 4 = 16 marks)

Part B

5. (a) Explain in detail the factors of production.

(b) Discuss about the causes and consequences of black money.

Or

6. (a) Explain the concept of demand and demand schedule.

(b) Explain demand curve and Elasticity of demand.

7. (a) Explain in detail different types of banks.

(b) Compare commercial bank with State Bank of India.

Or

8. (a) Discuss the differences between the capital and stock market.

(b) Discuss the methods of estimation of National Income.

(2 × 12 = 24 marks)

G 6880 (Pages : 2) Reg. No.....

Name.....

B.TECH. DEGREE EXAMINATION, APRIL 2011

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. What is Error function ? Explain.
2. State and explain Nyquist Criteria.
3. What is ISI ? Explain in detail.
4. Explain the need for equalization in detail.
5. What is 'OOK' ? Explain in detail.
6. What is Constellation diagram ? Explain.
7. Define and explain Sampling Rate.
8. What is CVSD ? Explain in detail.
9. Define Noise. Explain the types of noise.
10. What is BER ? Explain its significance.

(10 × 4 = 40 marks)

Part B

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

11. Derive the condition for Nyquist pulse shaping criteria. Explain the condition.

Or

12. Explain the baseband binary data transmission system with a neat diagram.
13. Explain the M-ary signalling scheme with a neat diagram.

Or

14. What is ZFE ? Explain it in detail with a neat diagram.

Turn over

15. Define and explain BPSK. Derive its probability of error.

Or

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

17. Explain the DPCM with a neat diagram.

Or

18. Explain the following in detail :—

    (a) ADM ;

    (b) A law and μ law.

(6 + 6 = 12 marks)

19. Explain the Maximum likelihood Receiver structure with a neat diagram.

Or

20. Write technical notes on :

    (i) Correlation realization of matched filter. (6 marks)

    (ii) Noise Figure. (6 marks)

[5 × 12 = 60 marks]

G 6897 (Pages : 2) Reg. No.....

Name.....

B.TECH. DEGREE EXAMINATION, APRIL 2011

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. Differentiate between power gain and Directive gain.
2. Define and explain the significance of the term Radiation Resistance.
3. Explain the importance of antenna arrays.
4. Discuss the characteristics of binomial arrays.
5. Compare between grounded and ungrounded antennas.
6. What do you mean by loop antennas ?
7. What do you mean by skip distance ? Explain with the help of a diagram.
8. Write brief notes on Diversity Reception.
9. Explain how directivity can be found out from Radiation pattern.
10. Define input impedance of an antennas.

(10 × 4 = 40 marks)

Part B

Each question carries 12 *marks.*

11. Discuss the importance of retarded potentials. Derive the expression for magnetic field component of a small current element.

Or

12. Derive expressions for the power radiated by a current element and hence find its radiation resistance.
13. What do you mean by endfire array ? Derive equations for the maxima and minima of the field pattern of an end-fire array of '*n*' isotropic point sources.

Or

Turn over

14. (i) State and explain the principle of pattern multiplication.

    (ii) Write short notes on Parabolic reflector antennas.

15. What do you mean by effective height of an antennas ? Explain the effect of ground on antennas performance.

Or

16. Explain the constructional features and working of an yagi Uda Antennas. Explain its important characteristics.

17. What do you mean by ionospheric propagation ? Explain the mechanism of radio wave bending by the ionosphere.

Or

18. Differentiate between Ground wave propagation and Space wave propagation.

19. What do you mean by radiation pattern of an antennas ? With neat sketches, explain how radiation pattern is measured experimentally ?

Or

20. Define gain of an antennas. Explain how gain can be determined experimentally.

(5 × 12 = 60 marks)

G 6906 (Pages : 2) Reg. No.....

Name.....

B.TECH. DEGREE EXAMINATION, APRIL 2011

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. What is Random Error ? Explain in detail.
2. Explain the static and dynamic characteristics of an Instrument.
3. Explain the advantages and potential applications of transducers..
4. Explain the principle of optoelectrical transducer.
5. Explain the characteristics of an Instrumentation amplifier.
6. Define and explain PPM and POM.
7. Explain the basic principle of digital recording.
8. Explain the potential applications of spectrum analysis.
9. Differentiate bonded from unbonded straingauges.
10. Explain the need for multiplexing.

(10 × 4 = 40 marks)

Part B

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

11. Explain in detail the performance characteristics of static and dynamic Instruments.

Or

12. Discuss in detail the classification of measurement errors.
13. Explain the working principle of Inductive and capacitive transducers with neat diagrams.

(12 marks)

Or

14. Differentiate analog transducers from digital transducers. Explain the difference.

Turn over

15. Describe in detail the classification of telemetering system.

Or

16. Explain the functioning of voltage and current electrical telemetering system with neat diagrams.

17. Explain the principles of Owen's bridge and wien bridge with neat diagrams.

Or

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

19. Explain the principle of Temperature and force measurements with neat diagrams.

Or

20. Give an account on 'D/A multiplexing'.

(5 × 12 = 60 marks)

G 6915 (Pages : 3) Reg. No.....

Name.....

B.TECH. DEGREE EXAMINATION, APRIL 2011

Sixth Semester

Branch : 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 Mason's gain formula.
2. Define transfer function.
3. List out any four time-domain specifications.
4. Explain Nyquist stability criterion.
5. How is Gain Margin and Phase Margin determined from Bode Plot ?
6. Explain PID controllers.
7. List out the properties of root loci.
8. Write notes on servo motor.
9. Draw the circuit of lead compensator and draw its pole-zero diagram.
10. Write notes on state transition matrix.

(10 × 4 = 40 marks)

Part B

Each question carries 12 *marks.*

11. Obtain the transfer function of the mechanical system as shown in Fig.1

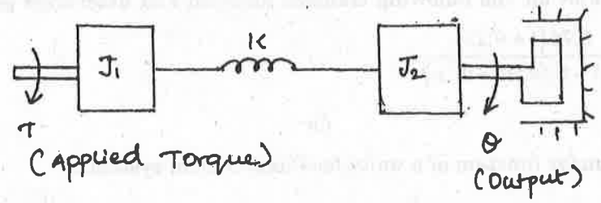

Fig.1

Or

Turn over

12. For the signal flow graph given in Fig.2 evaluate the closed loop transfer function of a system.

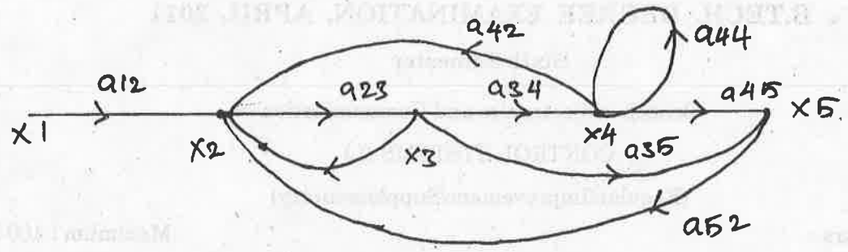

Fig.2

13. Obtain the dynamic error co-efficients for a system where open-loop transfer function $G(s)H(s)=\frac{10(s+3)}{s(0.1s+1)}$ and also determine the steady state error if the input $r(t)=\alpha_0+\alpha_1 t\frac{\alpha_2}{2}t^2$.

(12 marks)

Or

14. For the control system shown in Fig.3 find the steady state error without the proportional and derivative (PD) controller for a unit ramp input.

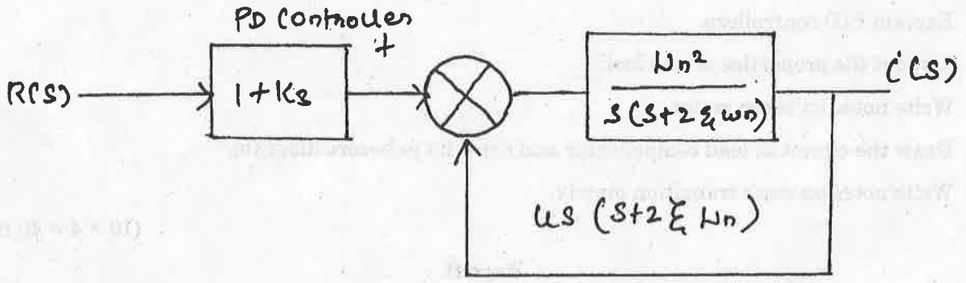

Fig.3

(12 marks)

15. Sketch the Bode-Plot for the following transfer function and determine gain margin and phase margin $G(s)=\frac{0.75(1+0.2s)}{s(1+0.5s)(1+0.1s)}$.

Or

16. The open loop transfer function of a unity feedback control system is

$$G(s)=\frac{K}{s(1+0.1s)(1+5)}.$$

Draw the Bode diagram and analyze the stability of the system fork = 10.

(12 marks)

17. Sketch the root locus plot of a unity feedback system with an open loop transfer function of

$$G(s)=\frac{K}{s(s+1)(s+2)}.$$

Determine the value of "K" so that the dominant pair of complex poles of the system has a damping ratio of 0.5.

Or

18. Write notes on :
    (i) Servo motor. (6 marks)
    (ii) Tacho generator. (6 marks)

19. Consider a unit feedback system with following open loop transfer function

$$G(s)=\frac{K}{s(s+1)(s+4)}.$$

Design a lag compensator to satisfy the following specifications :—
    (i) Damping ratio $\delta = 0.5$.
    (ii) Settling time $t_s = 10$ seconds.
    (iii) $K_{ve} \geq 5\ sec^{-1}$.

Or

20. Explain state variable description of linear dynamic systems.

(5 × 12 = 60 marks)

G 6889 **(Pages : 3)** **Reg. No.....**

Name.....

B.TECH. DEGREE EXAMINATION, APRIL 2011

Sixth Semester

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

DIGITAL SIGNAL PROCESSING (LTAS)

(Regular/Improvement/Supplementary)

Time : Three Hours Maximum : 100 Marks

Answer **all** *questions.*

Part A

Each question carries 4 *marks.*

1. What are the factors that influence the choice of a specific Network structure?
2. For the analog transfer function $H(s) = \frac{1}{(s+1)(s+2)}$, determine $H(z)$ using impulse invariant method, Take T = 1 sec.
3. Realize the filter with impulse response $h[n]$ = {1,2,3,4,3,2,1} using minimum number of multipliers.
4. Distinguish between fixed and adjustable windows in FIR filter design.
5. Compare circular convolution and Linear convolution.
6. What is the improvement in speed in terms of number of complex additions and multiplications in calculating 1024 point DFT of a sequence using Direct computation and FFT algorithm.
7. Write short notes on product Quantization error.
8. Write short notes on Signal scaling.
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)

Turn over

Part B

Each question carries 12 *marks.*

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

Stop band attenuation	≥ 20 dB
Pass band Edge	= 750 Hz
Pass band attenuation	≤ 3.01 dB
Stop band Edge	= 500 Hz
Sampling frequency	= 1kHz

(12 marks)

Or

12. Obtain the direct form I, direct form II, cascade and parallel form of realization for the system described by $y[n] + 0.1\,y[n-1] + 0.2\,y[n-2] = 3x[n] + 3.6\,x[n-1] + 0.6\,x[n-2]$. (12 marks)

13. Design an FIR low pass filter satisfying the following specifications.

Pass band attenuation	≤ 0.1 dB
Stop band attenuation	≥ 44 dB
Pass band Edge	= 20 rad/sec
Stop band Edge	= 30 rad/sec
Sampling frequency	= 100 rad/sec

(12 marks)

Or

14. Obtain the direct form and lattice of realization for the system described by

$H(z) = 1 + 2.88z^{-1} + 3.4048z^{-2} + 1.74z^{-3} + 0.4z^{-4}$ (12 marks)

15. (a) Explain the method of computing IDFT using FFT algorithm (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)

Or

16. Obtain the response of the system with input $x[n] = \{1, 1, 2\}$ and impulse response $h[n] = \{1, 1\}$ using radix 2 DIT FFT algorithm. (12 marks)

17. Realise the first order trasfer function $H(z) = \dfrac{1}{1 - 0.4z^{-1}}$ and draw its quantization noise model. Also find the steady state noise power due to round off. Take no of bits $b = 4$. (12 marks)

Or

18. (a) For the first order system describe by the difference equation $y[n] - 0.6\,y[n-1] = x[n]$, comment on the limit cycle behaviour. Also determine the dead band if the no of bits $b = 4$. (8 marks)

(b) Explain the quantization effects in FFT algorithms. (4 marks)

19. Discuss the application of DSP in

(i) Speech processing.

(ii) Channel Vocoder.

(iii) Homomorphic Vococder. (12 marks)

Or

20. With neat block diagram explain how audio signal is reproduced in a CD player. (12 marks)

($5 \times 12 = 60$ marks)