F 3565 (Pages : 2) Reg. No.....E.C.E.....

Name.....

B.TECH. DEGREE EXAMINATION, NOVEMBER 2010

Sixth Semester

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

INDUSTRIAL MANAGEMENT AND ECONOMICS (L, A, S)

(Supplementary – Prior to 2007 admissions only)

Time : Three Hours Maximum : 100 Marks

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

Section A

PART A

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

1. Explain the concept and characteristics of an organization.
2. Explain span of control.
3. Explain the concept of personnel management.
4. Discuss the causes of industrial disputes.
5. Explain the characteristics of batch production.
6. Explain the concept of Economic order quantity. (6 × 4 = 24 marks)

PART B

7. (a) Explain in detail the concept of scientific management.

   (b) Explain the key benefits of motivating employees.

Or

8. (a) Explain in detail the different organization theories.

   (b) Explain the design of organization structure.

9. (a) Explain the different procedural steps involved in the selection process of employees.

   (b) Explain in detail the different types of employment tests.

Or

Turn over

10. (a) Explain in detail the different types of ownership.

(b) Discuss the needs and scope of marketing research.

11. (a) Explain PERT and steps involved in PERT planning technique.

(b) Discuss about demand based pricing.

Or

12. (a) Discuss any four methods of pricing strategies.

(b) List out the various factors influencing pricing. (3 × 12 = 36 marks)

Section II

Part A

1. Explain elasticity of demand.
2. Explain the principles of taxation.
3. Define inflation.
4. What is a commercial bank

(4 × 4 = 16 marks)

Part B

5. (a) Explain supply price and supply schedule.

(b) Explain supply curve and Elasticity of supply.

Or

6. (a) Diagrammatically explain the demand pull inflation.

(b) Explain in detail cost pull inflation.

7. (a) What is a bank. Explain in detail the functions of a bank.

(b) Distinguish between direct tax and indirect tax.

Or

8. (a) Discuss the functions of share market.

(b) Explain the economic impact of MNCs on the Indian economy.

(2 × 12 = 24 marks)

F 3591

Reg. No.....

Name.....

B.TECH. DEGREE EXAMINATION, NOVEMBER 2010

Sixth Semester

Branch : Electronics and Communication Engineering

RADIATION AND PROPAGATION (L)

(Prior to 2007 admissions—Supplementary)

Time : Three Hours Maximum : 100 Marks

Answer **all** *questions.*

Part A

1. Define and explain :
   (i) Antenna Beamwidth.
   (ii) Antenna Bandwidth.
2. Define directive gain. Calculate directive gain for an isotropic antenna.
3. What is the need for antenna array ? Explain.
4. State the merits and applications of binomial array.
5. Differentiate dipole from monopole antennas.
6. Explain the limitations of YAGI–UDA antenna.
7. Explain about ground wave propagation.
8. What is duct propagation ? Explain.
9. What is the need for anechoic chamber for antenna measurements ? Explain.
10. What is SWD ? Explain.

(10 × 4 = 40 marks)

Part B

11. State and prove Lorentz recriprocity theorem. Show the application of this theorem to a receiving antenna.

Or

12. Derive an expression for radiation resistance of an oscillating electric dipole.
13. Explain the construction of V antenna and Rhombic antenna with neat diagrams.

Or

14. Explain the working principle of super directive array with a neat diagram.
15. Draw a 3 element YAGI–UDA antenna and explain its application of operation.

Or

16. Explain the principle of radiation pattern multiplication with neat diagrams.
17. Discuss the factors involved in the propagation of radio waves.

Or

18. Explain the structure of ionosphere. Derive the characteristic equations of ionosphere.
19. Draw a neat block diagram for antenna input impedance measurement and explain the procedure in details.

Or

20. Draw a neat block diagram for antenna gain measurement and explain its procedure in detail.

(5 × 12 = 60 marks)

F 3600 (Pages : 2) Reg. No.....

Name.....

B.TECH. DEGREE EXAMINATION, NOVEMBER 2010

Sixth Semester

Branch : Electronics and Communication Engineering

ELECTRONIC INSTRUMENTATION (L)

(Supplementary—Prior to 2007 Admissions only)

Time : Three Hours Maximum : 100 Marks

Part A

Answer **all** *the questions.*

1. Define :
   (i) Response time ; (ii) Setting time.
   Explain them.
2. What are static and dynamic data ? Explain.
3. What is a transducer ? Explain its characteristics.
4. Give an account on "Digital Encoders".
5. Explain the characteristics and applications of isolation amplifiers.
6. What are PPM and PLM ? Explain them.
7. Explain the bridge balance condition.
8. Explain the merits and applications of distortion analyzer.
9. Define and explain Gauge factor.
10. What is the need for multiplexing ? Explain.

(10 × 4 = 40 marks)

Part B

11. Explain the various classification of errors in detail.

Or

12. Draw the block diagram of a basic instrumentation system. Explain its functioning in detail.
13. Explain the principles of potentiometric and piezoelectric transducers with neat diagrams.

Or

14. Explain the following in detail :—
    (i) Digital encoder.
    (ii) Optoelectrical transducers.
    (iii) Inductive transducer.

(4 + 4 + 4 = 12 marks)

Turn over

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

Or

16. Explain the working principle of :

    (i) RF telemetry.

    (ii) Pulse telemetry systems in detail.

(6 + 6 = 12 marks)

17. Draw a neat block diagram of a spectrum analyzer. Explain its principle in detail.

Or

18. Explain the principles of Owen's bridge and Shering bridge in detail with neat diagrams.

19. Explain the procedure for pressure measurement with a neat block diagram.

Or

20. Write technical notes on :

    (i) D/A Multiplexing. (6 marks)

    (i) Temperature measurement. (6 marks)

[5 × 12 = 60 marks]

F 3609 (Pages : 3) Reg. No.....

Name.....

B.TECH. DEGREE EXAMINATION, NOVEMBER 2010

Sixth Semester

Branch : Electronics and Communication

CONTROL SYSTEMS (L)

(Supplementary—Prior to 2007 Admission Only)

Time : Three Hours Maximum : 100 Marks

Part A

1. State and explain the Mason's gain formula.
2. Write any *two* merits and demerits of closed loop system.
3. Discuss on the various test signals used in control systems.
4. State and explain Rowth Hurwitz criterion.
5. What are the applications of Nicohl's chart ?
6. Discuss about the various frequency domain specification.
7. Write note on Techo generator.
8. Write any *four* properties of root loci.
9. What are the effects of lead compensation on system response ?
10. Explain the advantages of state variable analysis.

(10 × 4 = 40 marks)

Part B

11. Determine the overall transfer function of the system shown in Fig.1 using Mason's gain formula.

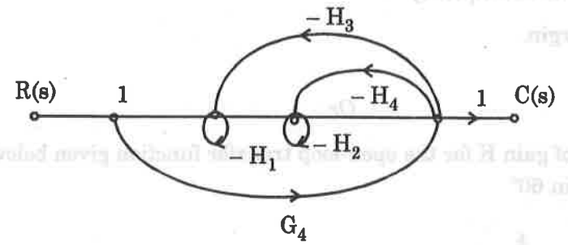

Fig.1.

(12 marks)

Or

Turn over

12. Determine the overall transfer function of the system shown in Fig.2.

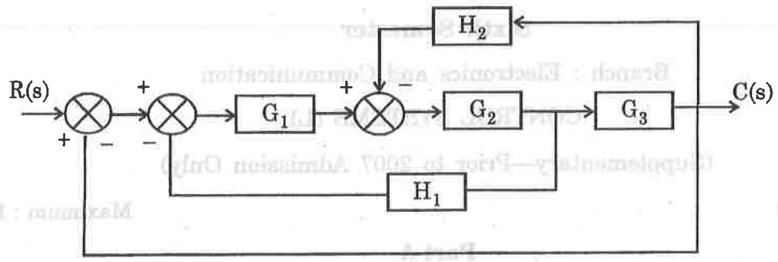

Fig.2.

(12 marks)

13. Using Routh Hurwitz critierion determine the range of k over which the following system is stable.

$$s^4 + 2s^3 + (4 + k)\, s^2 + 9s + 25 = 0.$$

(12 marks)

Or

14. The open loop transfer function of a Unity feedback system is given by $G(s) = k/[\, s(1 + sT)]$. By factor should the gain K be reduced so that the peak overshoot for unit step input is reduced from 75% to 25%.

(12 marks)

15. Sketch the Bode plot for the transfer function $G(s)\, H(s) = \dfrac{2(s + .25)}{s^2\,(s + 1)\,(s \mid .5)}$. Determine,

(a) The phase crossover frequency

(b) The gain cross over frequency

(c) The phone margin.

(12 marks)

Or

16. Determine the values of gain K for the open-loop transfer function given below with gain margin 15 dB and phase margin 60°

$$G(s)\, H(s) = \frac{k}{s(0.1s + 1)\,(s + 1)}.$$

(12 marks)

17. Sketch the root locus diagram for transfer function $G(s)\, H(s) = \dfrac{(s + .1)}{s^3\,(s + 10)}$. (12 marks)

Or

18. Sketch the root locus of the control system with transfer function :

$$G(s)\, H(s) = \frac{1}{s(s + 4)\left(s^2 + 4s + 8\right)}.$$

(12 marks)

19. Obtain the state variable representation of the system given by :

$$\frac{C(s)}{R(s)} = \frac{2}{s^4 + s^3 + bs^2 + 11s + b}.$$

(12 marks)

Or

20. Derive the state space representation of the system shown :

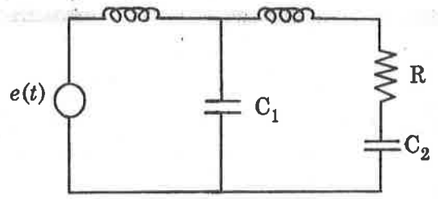

Fig.3.

[5 × 12 = 60 marks]

F 3574 (Pages : 2) Reg. No.....

Name.....

B.TECH. DEGREE EXAMINATION, NOVEMBER 2010

Sixth Semester

Branch : Electronics and Communication Engineering

DIGITAL COMMUNICATION TECHNIQUES (L)

(Prior to 2007 Admission—Supplementary)

Time : Three Hours Maximum : 100 Marks

Answer **all** *the questions.*

Part A

1. What is an Optimum filter ? Explain.
2. Explain the principle of Nyquist pulse shaping.
3. What is meant by controlled ISI ? Explain.
4. Explain in detail about Manchester coding.
5. What is constellation diagram ? Explain.
6. Differentiate ASK from FSK modulation format.
7. What is μ law ? Explain.
8. Explain the principle of slope overloading.
9. Define and explain Noise figure.
10. Explain the significance of probability of error.

(10 × 4 = 40 marks)

Part B

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

Or

12. Explain in detail the following :—

    (i) Intersymbol interferences. (6 marks)

    (ii) Base band binary data transmission system. (6 marks)

13. Explain the principle of duobinary base band PAM system with a neat diagram.

Or

14. Write technical notes on :

    (i) Eye pattern. (6 marks)

    (ii) Scrambler and unscrambler. (6 marks)

15. Explain in detail about QPSK and DPSK with neat diagram.

Or

Turn over

16. Derive the probability of error for the PSK and QPSK.

17. Explain the principle of companding and Quantization in detail.

Or

18. Give an account on :

    (i) ADM.

    (ii) Delta Modulation System.

(6 + 6 = 12 marks)

19. Explain the Maximum likelihood receiver structure with a neat sketch.

Or

20. Write short notes on :

    (i) Types of noise. (4 marks)

    (ii) Detection of binary signals in Gaussian noise. (4 marks)

    (iii) SNR. (4 marks)

[5 × 12 = 60 marks]

F 3583 (Pages : 2) Reg. No.....

Name.....

B.TECH. DEGREE EXAMINATION, NOVEMBER 2010

Sixth Semester

Branch : E&I/IT/AE&I/ECE

DIGITAL SIGNAL PROCESSING (LTAS)

(Prior to 2007 admissions—Supplementary)

Time : Three Hours Maximum : 100 Marks

Answer **all** *the questions.*

Part A

1. How can design digital filters from analog filters ?
2. Draw direct form I and direct form II structure of second order system realization.
3. State the condition for a digital filter to be causal and stable.
4. Give the equation specifying Bartlet and Hamming windows.
5. Draw the basic butterfly diagram for DIT, DIF algorithm.
6. Compute the DFT of a sequence $(-1)^n$ for N = 4.
7. What are the advantages of floating point arithmetic ?
8. What is coefficient quantization error ? What is it's effect ?
9. Briefly explain the applications of DSP.
10. Write short notes on sub-band coding.

(10 × 4 = 40 marks)

Part B

11. For the given specifications design an analog butterworth filter :

$0.9 \leq |H(j\Omega)| \leq 1$ for $0 \leq \Omega \leq 0.2\pi$; $|H(j\Omega)| \leq 0.2$ for $0.4\pi \leq \Omega \leq \pi$.

Or

12. Obtain the direct form I, direct form II cascade and parallel form realization for the system :

$$y(n) = -0.1\,y(n-1) + 0.2\,y(n-2) + 3x(n) + 3.6x(n-1) + 0.06x(n-2)$$

13. Explain how linear phase response is achieved in filters.

Or

14. Using a rectangular window technique design an LPF with pass band gain of unity, cut-off frequency of 1000 Hz. and working at a sampling frequency of 5 kHz. (N = 7).

15. Find 8-point DFT of the sequence $x(n) = \cos\frac{n\pi}{2}$.

Or

Turn over

16. Find the circular convolution of the following sequences :—

$x_1(n) = \{1, -1, 2, 3\}$, $x_2(n) = \{0, 1, 2, 3\}$

17. Explain quantization effects in the computation of the DFT.

Or

18. Explain "Finite and length effects in FIR digital filters.

19. Write notes on DSP based measurement systems.

Or

20. Explain homomorphic processing speech using block diagram.

(5 × 12 = 60 marks)