

PGIIS-001-A-22**M.Sc. III Semester (CBCS) Degree Examination****APPLIED ELECTRONICS****Networks and Systems****Paper : HCT 3.1****Time : 3 Hours****Maximum Marks : 80****Instructions to Candidates:**

- i) Answer the questions as per the given instructions.
- ii) Write Question number clearly.

PART - A**Answer any EIGHT of the following****(8×2=16)**

1.
 - i) Define pole and give its significance.
 - ii) Define the network function
 - iii) Show the pole-zero plot and response for $F_1(s)=1/(s+2)$ and $F_2(s)=1/(s+5)$.
 - iv) State the advantages of state variable analysis.
 - v) What do you mean by diagonalization?
 - vi) Write the significance of PR function
 - vii) What do you mean by open loop control system?
 - viii) Define transfer function of a system.
 - ix) Define steady state error.
 - x) Mention time domain analysis specifications.

PART - B**Answer any FOUR of the following.****(4×7=28)**

2. Explain the time domain response from pole zero plot by considering the network function with
 - a) Real and negative pole, and
 - b) Real positive pole, located at $s = -a$ and at $s = +a$, respectively.

3. Realize the following function using Foster 's 2nd form: $Y(s) = s(s^2=16)/8(s^2+4)(s^2+25)$.
4. Discuss the Mason's gain formula.
5. Explain the response of the first order system with unit step input signal.
6. Find the stability of the control system having characteristics equation $s^4+s^3+3s^2+2s+1=0$ by Routh- Hurwite critewan
7. Explain the concept of root locus.

PART - C

Answer any **THREE** of the following

(3×12=36)

8. Highlight the necessary and sufficient conditions to satisfy PR function.
9. Describe the basic concepts related to signal flow graph.
10. With suitable example, discuss a typical application of Nyquist stability criterion.
11. Show the response of a stable system. Explain the classification of the systems based on stability.
12. Write short notes on any **TWO** of the following :
 - a) Properties of PR function
 - b) Linear transformation
 - c) Transient response of Ist Order LTI system to ramp input
 - d) One port network in canonical forms.

PGIIS-003-A-22

M.Sc. III Semester (CBCS) Degree Examination

APPLIED ELECTRONICS

Modern Digital Communication

Paper : SCT 3.1

Time : 3 Hours

Maximum Marks : 80

Instructions to Candidates:

- 1) Answer the questions as per the given instructions.
- 2) Write Question number clearly.

PART - A

Answer any EIGHT of the following

(8×2=16)

1.
 - i) Define Binits, Bits and Bauds.
 - ii) What do you mean by line code?
 - iii) Define DC wander.
 - iv) What do you mean by aliasing effect / Illustrate it.
 - v) Define pulse modulation
 - vi) Draw a basic block diagram of digital communication system.
 - vii) Give classification of synchronization at different levels of communication System.
 - viii) What do you mean by antipodal signals?
 - ix) Differentiate between coherent and noncoherent detection.
 - x) State the significance of signal space diagram.

PART - B

Answer any FOUR of the following.

(4×7=28)

2. With a neat sketch, give the classification of line codes and explain them with relevant example.
3. Explain M-ary encoding.

4. Differentiate between PAM and PWM.
5. List the advantages, disadvantages and applications of PFM.
6. Give the salient features of synchronization and asynchronization transmission.
7. Describe coherent binary FSK.

PART - C

Answer any **THREE** of the following

(3×12=36)

8. a) Explain Inter-symbol interference. (4)
b) Define pulse shaping and how will you avoid it? Explain its effects. (8)
9. With a neat diagram, explain delta modulation.
10. Discuss the carrier recovery circuits.
11. Describe noncoherent binary modulation techniques.
12. Write short notes on any **TWO** of the following : (2×6=12)
 - a) Differential encoding
 - b) Sigma-Delta A/D conversion
 - c) Eye diagrams
 - d) Differential Phase-shift keying.

PGIIS-002-A-22**M.Sc III Semester (CBCS) Degree Examination****APPLIED ELECTRONICS****Microwave Electronics and Measurements****Paper : HCT 3.2****Time : 3 Hours****Maximum Marks : 80*****Instructions to Candidates:***

- 1) Answer the questions as per the give instructions.
- 2) Write Question number clearly.

PART - A**Answer any EIGHT of the following****(8×2=16)**

1.
 - a) Sketch and define microstrip line.
 - b) Define transmission line and give its significance.
 - c) Mention the possible configurations for the lumped networks.
 - d) Sketch the two formats of single stub tuning circuits.
 - e) Give the basic properties of power dividers.
 - f) Define the directivity of a directional coupler.
 - g) State the major advantage and disadvantage of Wilkinson power divider.
 - h) What is the condition for reciprocal and nonreciprocal 3-port network?
 - i) Give the significance of free space attenuation.
 - j) Why is electromagnetic compatibility is important?

PART - B**Answer any FOUR of the following.****(4×7=28)**

2. How is a hybrid integrated circuit fabricated? Explain.
3. Explain the quarter-wave transformers.

4. Sketch and explain the various T-junction power dividers.
5. Discuss the design parameters for broadband amplifier.
6. How will you convert transmitter power and voltage to the electric field intensity? Explain
7. Discuss the performance of plane wave propagation in anechoic chamber.

PART - C

Answer any THREE of the following

(3×12=36)

8. Discuss the advantages and disadvantages of strip lines.
9. Describe the response of taper lines with its different matching sections.
10. Draw an equal split Wilkinson power divider in microstrip form and its equivalent transmission circuit. Explain the Wilkinson power divider circuit in normalized and symmetric forms.
11. Describe the safety standards of microwave radiation.
12. Write short notes on any **TWO** of the following :
 - a) Types of microstrip lines
 - b) Double stub tuning circuit
 - c) Chebyshev transformer
 - d) Microwave biological effects.