

VINAYAKA MISSIONS RESEARCH FOUNDATION
(Deemed to be University)
B.E.DEGREE EXAMINATIONS- APR/MAY – 2019
First semester
COMMON TO ALL BRANCHES
ENGLISH FOR ENGINEERS
(Candidates admitted under 2015 & 2016 Regulations)

Time: Three hours

Maximum: 100 marks

Answer ALL questions

PART – A (10 x 2 = 20 Marks)**1. Identify the parts of speech for the underlined words.**

- i) I really liked the book that you gave me.
- ii) Sam drives an expensive Old Italian car.

2. Correct the following sentences by identifying the errors.

- i) He was chose as the leader of the group.
- ii) I have got my M.Sc., degree in 1998.

3. Fill in the blanks with suitable articles.

- iii) I bought ----- pair of shoes.
- iv) I read ----- amazing story last night.

4. Identify the silent letters for the given words.

- i) Half ii) Castle

5. Choose the correct homonyms for the following.

- i) Congradulations! I heard you won a gold -----in the swimming competition.
- ii) What kind of fish would you like – salmon or ____? Soul, sole

6. SIMPLE PRESENT TENSE

- v) The train _____ (leave) every morning at 8 A.M.
- vi) A magnet _____ (attract) iron fillings.

7. PAST PERFECT CONTINUOUS

- i) Mike wanted to sit down because he _____ (stand) all day at work.
- ii) Jason was tired because he _____ (jog)

8. Complete the following sentence:

- i) If the weather is rough, _____
- ii) If I had the time, _____

9. Identify the sentence pattern for the following sentences

- i) I congratulated her on her success
- ii) Issac Newton discovered the gravitational force of earth.

10. Write sentences of your own for the following sentence patterns.

- i) SVC ii) SVOA.

PART – B (5 x 16 = 80 Marks)

11.a) Write a telephonic conversation between an employer and his employee, who seeks permission for a day leave.

OR

b) Define diphthongs and explain with examples.

12. a) Describe a memorable incident in your life

OR

b) What are the points to remember while making a call and receiving a call.

13. a) As a Project leader in a software company you are asked to prepare a report on the on going project and send it to the company head quarters. Prepare a report on the project.

OR

b) Write a report of an accident you have witnessed to the daily news paper.

14. a) Explain in detail about Scanning.

OR

b) Define and describe about the washing machine.

15. Read the passage and draw a flow chart.

a) The earth contains a large number of metals which are useful to man. One of the most important of these is iron. The iron we find in the earth is not pure. It contains some impurities which we must remove by smelting. The process of smelting consists of heating the ore in a blast furnace with coke limestone and reducing it to metal. Blasts of hot air enter the furnace from the bottom and provide the oxygen which is necessary for the reduction of the ore. The ore becomes molten, and its oxides combine with the limestone to form a liquid slag. This floats on top of the molten iron, and passes out of the furnace through a tap. The metal which remains is pig iron.

We can melt this down again in another furnace-a cupola-with more coke and limestone, and tap it out into a ladle or directly into moulds.

OR

b) Write a letter to your friend inviting him for your birthday celebration.

VINAYAKA MISSIONS RESEARCH FOUNDATION
(Deemed to be University)
B.E.DEGREE EXAMINATIONS- APR/MAY - 2019
COMMON TO ALL BRANCHES
FIRST SEMESTER
PHYSICS FOR ENGINEERS

(Candidates admitted under 2015/2016 Regulations-CBCS)

Time : Three Hours

Maximum Marks:100 Marks

Answer **ALL** questions
Part-A (10 x 2 =20 Marks)

- 1 What are elastic bodies?
- 2 What is I-shaped girder?
- 3 Define: no. of atoms per unit cell.
- 4 Give the atomic radius and packing factor for SC
- 5 Define: Stimulated absorption
- 6 What is population inversion?
- 7 Draw the structure of optical fibre.
- 8 What is Numerical aperture.
- 9 What is a developer? Give example.
- 10 What are the difference between X-ray radiography and X-ray fluoroscopy?

PART-B (5 x 16 = 80)

- 11 a. Describe about the three types of elastic moduli.

OR

- b. Describe about the experimental determination of rigidity modulus.

- 12 a. Explain in detail about seven crystal systems with neat diagram.

OR

- b. Write a note on the following i) Point defect, ii) line defect.

- 13 a. Describe the construction and working of CO₂ laser with necessary diagram.

OR

- b. Explain the following terms

i. population inversion ii. pumping process iii. laser action

- 14 a. Describe briefly the optical fibre communication system.

OR

- b. Write down the classification of fibers on the basis of (i) material (ii) number of modes (iii) refractive index.

- 15 a. Explain the working of ultrasonic flaw detector with neat diagram.

OR

- b. Explain different ultrasonic scanning techniques.

VINAYAKA MISSIONS RESEARCH FOUNDATION
(Deemed to be University)
B.E.DEGREE EXAMINATIONS- APR/MAY - 2019
COMMON TO CSE,BME,CIVIL,EEE,ECE,MECH AND MECT
FIRST SEMESTER
ESSENTIALS OF COMPUTER SCIENCE AND ENGINEERING
(Candidates admitted under 2015/2016 Regulations-CBCS)

Time : Three Hours

Maximum Marks:100 Marks

Answer **ALL** questions
Part-A (10 x 2 =20 Marks)

- 1 What is mean by hardware?
- 2 Write any four applications of Computer.
- 3 How you can add page number in MS Word?
- 4 List out the major features of Power Point.
- 5 Define flowchart.
- 6 What is mean by looping?
- 7 What is top down approach of software development?
- 8 How to implement in an algorithm in an efficient way?
- 9 Mention any four HTML Tags.
- 10 What are the Hyperlink, Anchors and Link in the HTML?

PART-B (5 x 16 = 80)

- 11 a. Describe the various types of Computers.

OR
- b. Describe the services provided by Internet.
- 12 a. Briefly explain table menu in MS Word.

OR
- b. Explain Tools menu in MS Word
- 13 a. What is flowchart? Explain the symbols used in drawing the flowchart. Also write the rules and advantages of using flowcharts.

OR
- b. Write an algorithm and flowchart to find the given number is odd or even.
- 14 a. Explain in detail about problem solving strategies with example.

OR
- b. Discuss in detail about analysis of algorithm.
- 15 a. To create a web page to showing an ordered & unordered list of name of your five friends.

OR
- b. Explain in detail about HTML image tags.

VINAYAKA MISSIONS RESEARCH FOUNDATION

(Deemed to be University)

B.E. DEGREE EXAMINATION- NOV /DEC – 2018

COMMONTO AERO, AUTO, CIVIL, ECE, EEE,

EIE, CSE, IT, BME, MECH& & MECT

Second Semester

BUSINESS ENGLISH

(Candidates admitted under 2015&2016 Regulations - CBCS)

Time: Three hours

Maximum: 100 marks

Answer **ALL** questions

PART – A (10 x 2 = 20 Marks)

1. Correct the following sentences using subject and verb agreement.

- a). He can able to operate the computer.
- b) One of my books are missing.

2. Fill in the blank with suitable prepositions.

- a) They ceased work _____ sunset.
- b) He wrote the answer _____ ink.

3. Combine the sentences showing cause and effect relations.

- a) The machine was tested. It was installed.
- b) He was sick. He went to consult a doctor.

4. Write the meaning for the following phrasal verbs and make sentences of your own.

- a). Break up
- b). Agree with

5. Make your own sentences using the following idiomatic phrases

- a) Catch one's eye
- b) Jack of all trades

6. Write British English words for the following American English words.

- a) Fulfill
- b) Favor

7. Write American English words for the following British English Words.

- a) Litre
- b) Mould

8. Make your own sentences for the following compound words.

- a) Boat house
- b) . Animal behavior.

9. Read the answers and frame the questions.

- a) My father is sixty years old.
- b) I come from Bangkok

10. Find out the stress for the following words.

- a). Before
- b). Television

PART-B (5 x 16 = 80 Marks)

11.a) Write some interpersonal etiquette for negotiation skill.

OR

b) What are the important points to be followed by the e-mail users?

12.a) Write a note on Stress.

OR

Rewrite the following jumbled sentences in the correct order.

- b) i. If that strikes oil, then production wells can be drilled.
 ii. They carry out surveys from the ground and from the air using a variety of instruments.
 And they bore into the rocks to take samples.
 iii. When Petroleum engineers search for oil, they look for certain types of rock layers, or strata, which they know from past experience, can trap oil.
 iv. If it indicates that oil may be present, a test well is drilled.
 v. Oil is found underground trapped in the layers of rock.
 vi. When all the information is collected and analyzed, of the underground strata is obtained.
 vii. They also set off explosions in the ground and record the waves reflected from the underground rock layers.
 viii. This is called seismic surveying.

13.a) Recommendations that should be followed for safety in a factory.

OR

b) Write a set of eight recommendations following which you could avoid the attack of swine flu.

OR

14.a) Write instructions that should be followed in computer Laboratory.

OR

b) Write a letter to the Manager of Sharptronics, Chennai. Calling for quotation for the following items. Assume that you are the purchase officer.

Items	Nos
Blue Star AC	3
Usha fans	7
L G Television 32"	1
L G Refrigerator	1

15.a) Prepare a checklist to find a suitable accommodation for your family.

OR

b) Explain the following Proverbs 'No pain, no gain' and Cleanliness is next to Godliness.

VINAYAKA MISSIONS RESEARCH FOUNDATION
(Deemed to be University)
B.E.DEGREE EXAMINATIONS- NOV/DEC - 2018
COMMON TO ALL BRANCHES
SECOND SEMESTER
CHEMISTRY FOR ENGINEERS

(Candidates admitted under 2015 & 2016 Regulations-CBCS)

Time : Three Hours

Maximum Marks:100 Marks

Answer **ALL** questions

Part-A (10 x 2 =20 Marks)

- 1 Define oxidation and reduction.
- 2 State the reaction when a lead storage battery is recharged?
- 3 Name any two Coagulants.
- 4 What is cathodic protection?
- 5 Why are plastics indispensable in everyday life?
- 6 What is degree of polymerization?
- 7 Define component with example.
- 8 Calculate the degree of freedom for $2 \text{H}_2(\text{g}) + \text{O}_2(\text{g}) \rightarrow 2 \text{H}_2\text{O}(\text{v})$
- 9 Give the frequency region of Infrared spectrum?
- 10 State Retention time.

PART-B (5 x 16 = 80)

- 11 a. Explain the determination of EMF by Poggendorff's method.

OR

- b. Discuss the electrochemical series and its applications.

- 12 a. (i) How is internal treatment of boiler water carried out?
(ii) Describe the principle and method involved in the determination of different types and amount of alkalinity of water.

OR

- b. (i) Differentiate between chemical corrosion and electrochemical corrosion.
(ii) Illustrate the reactions involved in differential aeration corrosion with reference to the iron material.

- 13 a. (a). What are ceramics and how they are classified? Write the uses of ceramics.
(b). Write a note on Special cements.

OR

- b. Write the preparation, properties and uses of the following
(i) PVC (ii) Teflon (iii) Bakelite

(P.T.O)

14 a. With suitable examples explain the terms phase, component and degree of freedom.

OR

b. Write a detail note on harmful effects of radioactive isotopes.

15 a. Describe Gas chromatography with neat diagram.

OR

b. How will you estimate metals by flame photometer?

Sl.No. 1292

VINAYAKA MISSIONS RESEARCH FOUNDATION
(Deemed to be University)
B.E.DEGREE EXAMINATIONS- APR/MAY - 2019
COMMON TO
AERO,AUTO,CSE,BME,CIVIL,EEE,ECE,IT,MECH,MECT

SECOND SEMESTER
TRANSFORMS AND MATRICES

(Candidates admitted under 2015/2016 Regulations-CBCS)

Time : Three Hours

Maximum Marks:100 Marks

Answer **ALL** questions

Part-A (10 x 2 =20 Marks)

1

Find the sum and product of the Eigen values of $\begin{pmatrix} 1 & 2 & -2 \\ 1 & 0 & 3 \\ -2 & -1 & -3 \end{pmatrix}$

2

Using Cayley- Hamilton theorem, find A^{-1} of $\begin{pmatrix} 1 & 2 \\ 4 & 3 \end{pmatrix}$

3

Prove that $L\left[t^{-\frac{1}{2}}\right] = \sqrt{\frac{\pi}{s}}$

4

If $L[t \sin \omega t] = \frac{2\omega s}{(s^2 + \omega^2)^2}$, evaluate $L[\omega t \cos \omega t + \sin \omega t]$

5

Find $L^{-1}\left[\frac{1}{(s+1)^2 + 1}\right]$

6

State convolution theorem

7

State Fourier integral theorem

8

Find the Fourier sine transform of e^{-3x}

9

Show that $Z\left[a^n f(n)\right] = f\left(\frac{z}{a}\right)$

10

Define Inverse Z-transforms:

PART-B (5 x 16 = 80)

11 a.

Verify Cayley Hamilton theorem for the matrix $\begin{bmatrix} 1 & 2 & 3 \\ 2 & -1 & 4 \\ 3 & 1 & -1 \end{bmatrix}$ and hence find A^4

OR

b.

Diagonalise the matrix $A = \begin{bmatrix} 1 & -1 & 0 \\ -1 & 2 & 1 \\ 0 & 1 & 1 \end{bmatrix}$ by orthogonal reduction

12 a.

(i) Find the Laplace transform of $e^{-t} \int_0^t t \cos t dt$

(ii) Find the Laplace transform of $\int_0^t (u^2 - u + e^{-u}) du$

OR

b.

(i) If $L[f(t)] = F(s)$, prove that $L[f(at)] = \frac{1}{a} F\left(\frac{s}{a}\right)$

(ii) Find the Laplace transform of $f(t) = \begin{cases} \sin t, & 0 < t < \pi \\ 0, & t > \pi \end{cases}$

13 a.

Find $L^{-1}\left[\frac{1-s}{(s+1)(s^2+4s+13)}\right]$ by using method of partial fractions

OR

b.

Solve $\frac{dx}{dt} - 2x + 3y = 0$; $\frac{dy}{dt} - y + 2x = 0$, with $x(0) = 8, y(0) = 3$

14 a.

Find the Fourier cosine transform of e^{-x^2}

OR

b.

(i). Find Fourier cosine transform of $f(x) = \begin{cases} \cos x & \text{if } 0 < x < 1 \\ 0 & \text{otherwise} \end{cases}$

(ii) Find the Fourier sine transform of $3e^{-4x} + 4e^{-3x}$

15 a.

Find the inverse Z-transform of $F(z) = \frac{1}{1-az^{-1}}$, $|z| > |a|$ using power series method.

OR

b.

(i) Prove that $Z[\cosh at \sin bt]$

(ii) Find $Z\left[\sin^2 \frac{n\pi}{4}\right]$ and $Z[\sin(3n+5)]$

Sl.No. 24830

Sl.No. 24411

Sub.Code: 34115403/ 34116404

**VINAYAKA MISSIONS RESEARCH FOUNDATION
(Deemed to be University)**

B.E- DEGREE EXAMINATIONS – APRIL/MAY-2019

ELECTRONICS AND COMMUNICATION ENGINEERING

Fourth Semester

NUMERICAL METHODS & RANDOM PROCESS

(Candidates admitted under 2015/2016 Regulations-CBCS)

Time: Three hours

Maximum: 100Marks

Answer **ALL** questions

PART – A (10 x 2 = 20 marks)

1. What is the difference between Interpolation and Extrapolation?
2. State the properties of divided difference.
3. State which is better. Taylor's method or R.K. method.
4. What is the error term in Milne's corrector formula?
5. State any two properties of Poisson process.
6. What is a stochastic matrix? When it will be regular?
7. Define covariance.
8. Define power spectral density
9. Define discrete random variable.
10. State Wiener-Khichine Theorem

PART – B (5 x 16 = 80 marks)

11. a) Given $\log_{10} 654 = 2.8156$, $\log_{10} 658 = 2.8182$, $\log_{10} 659 = 2.8189$, and $\log_{10} 661 = 2.8202$, find the value of $\log_{10} 656$ using Newton's Divided Difference Formula.

OR

- b) A continuous random variable X has the P.D.F $f(x) = kx^2e^{-x}$, $x \geq 0$. Find the r^{th} moment of X about the origin. Hence find mean and variance of X.

12. a) Solve $\frac{dy}{dx} = xy + y^2$, $y(0) = 1$, $y(0.1) = 1.11666$, $y(0.2) = 1.27668$. Find $y(0.3)$

by Taylors series method and continue the solution at $x = 0.4$ by Milne's predictor corrector method.

OR

- b) The probability distribution function of a random variable X is

$$f(x) = \begin{cases} x, & 0 < x < 1 \\ 2 - x, & 1 < x < 2 \\ 0, & x > 2 \end{cases}$$

Find the mean and variance.

(p.t.o)

13. a) Obtain the value of $y(5)$, using Bessel's formula given

x	0	4	8	12
f(x)	143	158	177	199

OR

b) If the power Spectral density of a WSS process is given by

$$S(\omega) = \begin{cases} \frac{b}{a}(a - |\omega|), & |\omega| \leq a \\ 0, & |\omega| > a \end{cases}$$

Find the autocorrelation function of the process.

14. a) The random processes $\{X(t)\}$ and $\{Y(t)\}$ are defined by

$X(t) = A \cos \omega t + B \sin \omega t, Y(t) = B \cos \omega t - A \sin \omega t$, where A & B are uncorrelated and zero mean random variables with same variance. Find its autocorrelation function. Also find power spectrum of the process.

OR

b) The transition probability matrix of a Markov chain $\{X_n\}$, having states 1, 2,

and 3 is $P = \begin{bmatrix} 0.1 & 0.5 & 0.4 \\ 0.6 & 0.2 & 0.2 \\ 0.3 & 0.4 & 0.3 \end{bmatrix}$ and the initial distribution is $P^{(0)} = (0.7, 0.2, 0.1)$.

Find (i) $P\{X_2 = 3 / X_0 = 1\}$ (ii) $P\{X_2 = 3\}$ and (iii) $P\{X_3 = 2, X_2 = 3, X_1 = 3, X_0 = 1\}$

15. a) Using Runge – Kutta method of order 4 find y for $x = 0.1, 0.2$ given that

$$\frac{dy}{dx} = xy + y^2, y(0) = 1.$$

OR

b) Given a random variable Y with characteristic function

$$\phi(\omega) = E(e^{i\omega Y}) = E(\cos \omega Y + i \sin \omega Y) \text{ and a random process } X(t) = \cos(\lambda t + Y).$$

Show that $\{X(t)\}$ is WSS if $\phi(1) = \phi(2) = 0$

(Sl.No. 24411)

VINAYAKA MISSIONS RESEARCH FOUNDATION
(Deemed to be University)
B.E.DEGREE EXAMINATIONS- APR/MAY - 2019
COMMON TO ECE & MECT
FOURTH SEMESTER
CONTROL SYSTEMS

(Candidates admitted under 2015/2016 Regulations-CBCS)

Time : Three Hours

Maximum Marks:100 Marks

Answer **ALL** questions

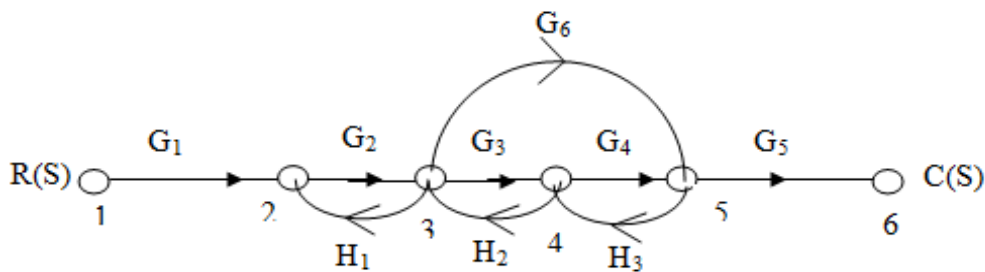
Part-A (10 x 2 =20 Marks)

- 1 Write the Force Balance Equation of Ideal Mass Element.
- 2 Write the Mason's Gain formula.
- 3 How is system classified depending on the value of Damping?
- 4 Mention the different types of Controllers.
- 5 Shorty Explain about Phase cross over Frequency and give its Expression.
- 6 How are the Resonant Peak(M_r), Resonant frequency(ω_r), and band width determined from Nichols chart?
- 7 Write the Routh's criterion for stability.
- 8 Mention the application of Routh Stability criterion.
- 9 Give two types of compensation.
- 10 List out the limitations of phase lead compensation.

PART-B (5 x 16 = 80)

11 a.

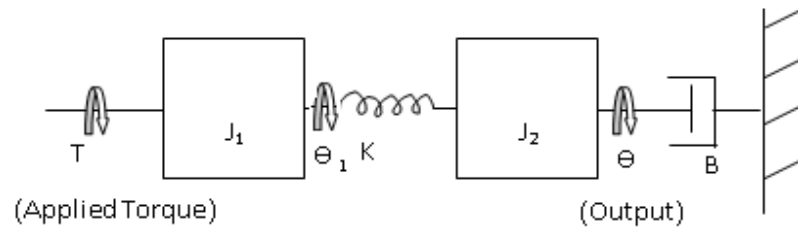
The signal flow graph for a feedback control system is shown in fig. Determine the Closed loop transfer function $C(s)/R(s)$ using Manson's formula.



OR

P.T.O

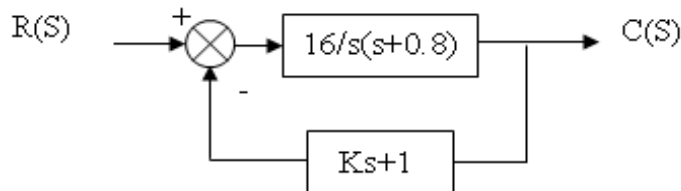
- b. Write the differential equations governing the mechanical rotational system shown in fig. Obtain the transfer function of the system.



- 12 a. Explain the time domain specifications of control system.

OR

- b. A positional control systems with velocity feedback is shown in fig. what is the response $c(t)$ to the unit step input. Given that $\zeta = 0.5$. also calculate the rise time, peak time, maximum overshoot and settling time.



- 13 a. Derive M circle with neat sketch.

OR

- b. Derive the frequency domain specifications in details.

- 14 a. Describe the necessary conditions for stability.

OR

- b. Explain the procedure for construction of Routh array in detail.

- 15 a. Realize Lag-lead compensator using electrical network.

OR

- b. Write the design procedure of lag compensator using bode method

VINAYAKA MISSIONS RESEARCH FOUNDATION
(Deemed to be University)
B.E.DEGREE EXAMINATIONS- APR/MAY - 2019
ELECTRONICS AND COMMUNICATION ENGINEERING
FOURTH SEMESTER
DIGITAL SIGNAL PROCESSING

(Candidates admitted under 2015/2016 Regulations-CBCS)

Time : Three Hours

Maximum Marks:100 Marks

Answer **ALL** questions

Part-A (10 x 2 =20 Marks)

- 1 Draw the basic flow graph of DIT radix-2 FFT.
- 2 Give any two applications of DFT.
- 3 Mention the advantages of Digital filters.
- 4 Compare the digital and analog filter.
- 5 What are the conditions to be satisfied for constant phase delay in linear phase FIR filters?
- 6 What is the principle of designing FIR filter using frequency sampling method?
- 7 Draw the quantization noise model for a first order system.
- 8 What is zero input limit cycle?
- 9 What are the advantages of special addressing modes in DSPs?
- 10 What the operations performed by auxiliary register arithmetic unit?

PART-B (5 x 16 = 80)

- 11 a. An 8 point sequence is given by $x(n)=(2,1,1,2,1,1,1,1)$ compute 8 point DFT of $x(n)$ by Radix-2 DIT-FFT

OR

- b. An 8 point sequence is given by $x(n)=(2,2,2,2,1,1,1,1)$ compute 8 point DFT of $x(n)$ by Radix-2 DIT-FFT .

- 12 a. i) Obtain the Direct form-I realizations of the LTI system governed by the equation

$$y(n) = 0.5y(n-1) - 0.25y(n-2) + x(n) + 3x(n-1)$$

- ii) Determine the direct form II realizations for the following system

$$y(n) = -0.1y(n-1) + 0.72y(n-2) + 0.7x(n) - 0.252x(n-2)$$

OR

- b. Design a Chebyshev IIR filter with the following specifications

$$0.9 \leq |H(\omega)| \leq 1.0; 0 \leq \omega \leq 0.25\pi$$

$$|H(\omega)| \leq 0.24; 0.5\pi \leq \omega \leq \pi$$

Using impulse invariant method.

13 a.

A low pass filter is to be designed with the following desired frequency response

$$H(e^{j\omega}) = \begin{cases} e^{-j2\omega}, & -\pi/4 \leq \omega \leq \pi/4 \\ 0, & \pi/4 \leq \omega \leq \pi \end{cases}$$

determine the filter coefficients $h_d(n)$ if the window function is defined as

$$w(n) = \begin{cases} 1, & 0 \leq n \leq 4 \\ 0, & \text{otherwise} \end{cases}$$

OR

- b. Design a FIR low pass filter with cutoff frequency 2 kHz and sampling rate of 5 kHz with 9 samples using fourier series method.

14 a. Briefly explain finite word length effect in digital filters>

OR

- b. Write detailed notes on
i) Channel vocoder
ii) Homomorphic vocoder

15 a. Elucidate simplified architecture of TMS320C5x processor.

OR

- b. Explain any four addressing modes of TMS320C5x processors with examples.

Sl.No. 24539

VINAYAKA MISSIONS RESEARCH FOUNDATION
(Deemed to be University)
B.E.DEGREE EXAMINATIONS- APR/MAY - 2019
ELECTRONICS AND COMMUNICATION ENGINEERING
FIFTH SEMESTER
MICROCONTROLLERS & APPLICATIONS

(Candidates admitted under 2015 Regulations-CBCS)

Time : Three Hours

Maximum Marks:100 Marks

Answer **ALL** questions

Part-A (10 x 2 =20 Marks)

- 1 What is the use of MN/MX signals in 8086?
- 2 How clock signal is generated in 8086? What is the maximum internal clock frequency of 8086?
- 3 What are the modes of operation used in 8253?
- 4 What is BSR mode?
- 5 Define SP of 8051
- 6 What is the function of SM2 bit present in SCON register in 8051?
- 7 What is the type of instruction set in 8051 microcontroller?
- 8 Mention the I/O instructions of 8051 microcontroller.
- 9 List out the major components of the keyboard/Display interface.
- 10 Define Relay

PART-B (5 x 16 = 80)

- 11 a. Describe the logical and branching instruction set of 8086 with examples.

OR

b. Write short notes on: i)Data Transfer Instruction ii)Arithmetic Instruction
- 12 a. With a neat diagram explain the function of 8253.

OR

b. With neat diagram explain the D/A Convertor using 8086.
- 13 a. Explain in detail about the special function registers available in 8051

OR

b. Difference between Microprocessor & Microcontroller.
- 14 a. Describe the various addressing modes in 8051.

OR

b. Write an assembly language program for Interrupt & UART Operations. in 8051.
- 15 a. Discuss on ADC interfacing with a neat diagram.

OR

b. Discuss in detail interfacing a microcontroller to Sensor interfacing with a diagram.

VINAYAKA MISSIONS RESEARCH FOUNDATION
(Deemed to be University)
B.E.DEGREE EXAMINATIONS- APR/MAY - 2019
ELECTRONICS AND COMMUNICATION ENGINEERING
FOURTH SEMESTER
LINEAR INTEGRATED CIRCUITS

(Candidates admitted under 2015/2016 Regulations-CBCS)

Time : Three Hours

Maximum Marks:100 Marks

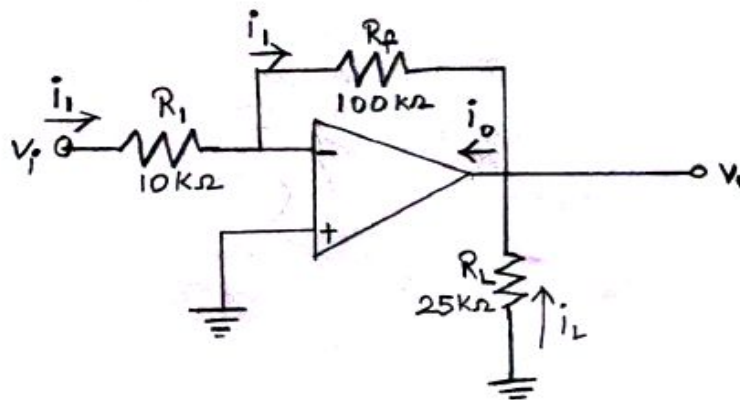
Answer **ALL** questions

Part-A (10 x 2 =20 Marks)

- 1 List out the ideal characteristics of an OP-AMP
- 2 Write the output equation of voltage follower.
- 3 Write the application of peak detector.
- 4 What is the minimum value of sampling frequency?
- 5 Compare band pass and band reject filter.
- 6 Write the application of mono stable multivibrator circuit.
- 7 What is the function of voltage controlled oscillator?
- 8 Write the output equation of voltage divider using multiplier.
- 9 Short notes on isolation amplifier.
- 10 List the limitation of linear voltage regulator.

PART-B (5 x 16 = 80)

- 11 a. In fig $R_1=10k\Omega, R_f=100k\Omega, v_i=1V$. A load of $25k\Omega$ is connected to the output terminal. Calculate
- (i) i_1
 - (ii) v_0
 - (iii) i_L and total current i_0 into the output pin.



OR

P.T.O

- b. Evaluate the operation of differential amplifier.
- 12 a. Describe the working of a dual slope A/D converter.

OR

- b. Explain the working of a Weighted resistor D/A converter.
- 13 a. Write the operation of RC phase shift oscillator.

OR

- b. Describe about the operation of Schmitt trigger circuit.
- 14 a. Explain the astable and bistable operation of IC555 with necessary diagrams.

OR

- b. (i) Briefly explain the difference between the two operating mode of 555 timer.
(ii) list the important feature of 555 timer
- 15 a. Write brief notes on
 - (a) optocouplers
 - (b) switching regulators

OR

- b. Describe about opto electronic IC's.

Sl.No. 24615

VINAYAKA MISSIONS RESEARCH FOUNDATION
(Deemed to be University)
B.E.DEGREE EXAMINATIONS- APR/MAY - 2019
ELECTRONICS AND COMMUNICATION ENGINEERING
FOURTH SEMESTER
DIGITAL COMMUNICATION

(Candidates admitted under 2015 & 2016 Regulations-CBCS)

Time : Three Hours

Maximum Marks:100 Marks

Answer **ALL** questions

Part-A (10 x 2 =20 Marks)

- 1 Classify different types of digital modulation
- 2 Draw the spectrum of white noise.
- 3 What is intersymbol interference in baseband binary PAM systems?
- 4 State LMS algorithm.
- 5 Differentiate between coherent and non coherent detection
- 6 Draw the spectral diagram of BPSK.
- 7 What is BCH code?
- 8 Define constraint length in convolutional codes?
- 9 Write down the probability of error equation for DS/BPSK system.
- 10 Mention few disadvantages of DS-SS system.

PART-B (5 x 16 = 80)

- 11 a. Draw and explain the functional blocks of Digital communication systems.
OR
b. Discuss in detail about speech coding at low bit rates and mention its applications.
- 12 a. Draw and explain the operation of duo binary encoder with precoder.
OR
b. (i) Explain the structure of Tapped delay line filters. (ii) Sketch the frequency response of signal with raised cosine pulse spectrum.
- 13 a. Illustrate the effect of Intersymbol interference in digital modulation techniques.
OR
b. Derive the probability of error equation for BFSK scheme.
- 14 a. Explain about Linear block codes with examples.
OR
b. Explain in detail about Trellis coded Modulation.
- 15 a. Give notes on: (i) signal space dimensionality and (ii) processing.
OR
b. Discuss in detail about synchronization in spread spectrum systems

VINAYAKA MISSIONS RESEARCH FOUNDATION
(Deemed to be University)
B.E.DEGREE EXAMINATIONS- APR/MAY - 2019
COMMON TO BME,ECE
FIFTH SEMESTER
ENVIRONMENTAL SCIENCE AND ENGINEERING

(Candidates admitted under 2015/2016 Regulations-CBCS)

Time : Three Hours

Maximum Marks:100 Marks

Answer **ALL** questions

Part-A (10 x 2 =20 Marks)

- 1 Define Environment.
- 2 Give one impact of over utilization of (a) ground water (b) surface water.
- 3 Name the hotspots of biodiversity in India.
- 4 Differentiate between species and genetic.
- 5 What is pollutant? Give example.
- 6 Enumerate the benefits of waste minimization?
- 7 Enlist any two problems related to the displaced people.
- 8 Define Global warming.
- 9 What are the different types of population growth curves?
- 10 Write the few of human rights.

PART-B (5 x 16 = 80)

- 11 a. Describe the effects of modern agriculture and fertilizers.

OR

b. What are the practices to be followed for the conservation of natural resources in a society.
- 12 a. Briefly explain the value of Biodiversity.

OR

b. Discuss briefly about the hotspots of India.
- 13 a. Describe the methods of disposing solid waste management.

OR

b. Discuss nuclear pollution and effect of it.
- 14 a. Briefly explain about water shed management.

OR

b. Explain the importance of ethical analysis through space-temporal graph.
- 15 a. Give the importance of value education based on the tradition and quotes of National leaders.

OR

b. Explain how the remote sensing satellites help in the study of environment.

VINAYAKA MISSIONS RESEARCH FOUNDATION
(Deemed to be University)
B.E.DEGREE EXAMINATIONS- APR/MAY - 2019
ELECTRONICS AND COMMUNICATION ENGINEERING
FIFTH SEMESTER
ANTENNAS & WAVE PROPAGATION

(Candidates admitted under 2015/2016 Regulations-CBCS)

Time : Three Hours

Maximum Marks:100 Marks

Answer **ALL** questions

Part-A (10 x 2 =20 Marks)

- 1 Define radiation resistance and write down the expression for it.
- 2 Classify the types of Polarization.
- 3 What is an array and mention the various forms of antenna arrays?
- 4 Compare Broadside and Endfire array antennas.
- 5 Define Duality principle
- 6 List out the methods of feeding the slot antenna.
- 7 List the applications of Helical antenna.
- 8 Justify antenna which is called frequency independent antenna.
- 9 Define Duct Propagation.
- 10 Define Structure of Ionosphere layers.

PART-B (5 x 16 = 80)

- 11 a. Explain the Reciprocity theorem in detail.

OR

b. Explain the solution of Wave equations.
- 12 a. Write short notes on various forms of arrays
i) Broad side array ii) End fire array
iii) Collinear array iv) Parasitic array

OR

b. Explain the array of N- sources of equal amplitude and spacing- Broad side case
i) Direction of pattern maxima ii) Direction of pattern minima
iii) Beam width of major lobe
- 13 a. Explain the principle of Traveling Wave Radiator with neat diagram.

OR

b. Write short notes on (i) Slot radiators (ii) Loop antennas
- 14 a. Describe the Slotted line technique for Impedance measurement.

OR

b. Elaborate the modes of operation in helical antenna with neat sketch.
- 15 a. Explain the Structure of Atmosphere

OR

b. Discuss about Ionospheric abnormalities

VINAYAKA MISSIONS RESEARCH FOUNDATION
(Deemed to be University)
B.E.DEGREE EXAMINATIONS- APR/MAY - 2019
ELECTRONICS AND COMMUNICATION ENGINEERING
FIFTH SEMESTER
DIGITAL IMAGE PROCESSING

(Candidates admitted under 2015/2016 Regulations-CBCS)

Time : Three Hours

Maximum Marks:100 Marks

Answer **ALL** questions

Part-A (10 x 2 =20 Marks)

- 1 Give the matrix form of an $M \times N$ image.
- 2 List out the applications of digital image processing.
- 3 Define one dimensional DFT and its inverse.
- 4 Mention the applications of DCT.
- 5 Specify the objective of image enhancement.
- 6 Illustrate a mask for High boost filtering.
- 7 Mention the types of noise models.
- 8 Which is the best known order statistic filter?
- 9 Specify the Image compression types.
- 10 List out the fundamental steps performed in edge detection.

PART-B (5 x 16 = 80)

- 11 a. Describe the fundamental steps in digital image processing system.
OR
b. Describe about image sensing and acquisition.
- 12 a. Derive the Hadamard matrix for the order $N=8$.
OR
b. Derive the Haar transform matrix for $N=2$.
- 13 a. Elucidate the different types of point operation for image enhancement.
OR
b. Explain the concept of homomorphic filtering with a suitable diagram.
- 14 a. Explain Image Restoration in the presence of noise using spatial filtering methods.
OR
b. Explain Weiner filtering approach for image restoration.
- 15 a. Explain the concept of Arithmetic coding with an example.
OR
b. Illustrate the basic edge detection method for image segmentation.

VINAYAKA MISSIONS RESEARCH FOUNDATION
(Deemed to be University)
B.E.DEGREE EXAMINATIONS- APR/MAY - 2019
ELECTRONICS AND COMMUNICATION ENGINEERING
FIFTH SEMESTER
COMPUTER COMMUNICATION

(Candidates admitted under 2015/2016 Regulations-CBCS)

Time : Three Hours

Maximum Marks:100 Marks

Answer **ALL** questions

Part-A (10 x 2 =20 Marks)

- 1 Define Data communication.
- 2 Differentiate Guided media & unguided transmission media.
- 3 Mention the responsibilities of data link layer.
- 4 Mention the function of go-back N-ARQ.
- 5 Define Virtual circuit.
- 6 List out the user related attributes.
- 7 Mention the three events involved in the connection.
- 8 List the needs for UDP over TCP.
- 9 Why the TCP connections needed in FTP?
- 10 Define permutation.

PART-B (5 x 16 = 80)

- 11 a. Discuss about types of Guided transmission media with diagram.

OR

b. Discuss Dialup modem and DSL.
- 12 a. Give a detailed note on Flow control with neat sketch.

OR

b. Narrate on Error Correcting Codes with illustrations.
- 13 a. Discuss Distance vector routing algorithm with an example of your own.

OR

b. Elaborate on Sub netting.
- 14 a. Discuss in detail about various Congestion control techniques in Transport Layer.

OR

b. Write Short notes on
 - i) Crash Recovery
 - ii) Future of TCP
- 15 a. Narrate on Characteristics of Real-Time Interactive Audio/Video with necessary diagram.

OR

b. Define Voice Over IP. Classify it. Discuss about any 1 Protocol of Voice Over IP.

VINAYAKA MISSIONS RESEARCH FOUNDATION
(Deemed to be University)
B.E.DEGREE EXAMINATIONS- APR/MAY - 2019
ELECTRONICS AND COMMUNICATION ENGINEERING
FIFTH SEMESTER
VLSI DESIGN

(Candidates admitted under 2015/2016 Regulations-CBCS)

Time : Three Hours

Maximum Marks:100 Marks

Answer **ALL** questions

Part-A (10 x 2 =20 Marks)

- 1 Define Body effect.
- 2 What is LOCOS?
- 3 Define RC Delay model.
- 4 What is fan out?
- 5 Which MOS can pass logic 1 and logic 0 strongly?
- 6 Write the features of CMOS Domino Logic?
- 7 What is parity generator?
- 8 Define EEPROM.
- 9 What are the different types of CMOS testing?
- 10 Mention the levels at which testing of a chip can be done.

PART-B (5 x 16 = 80)

- 11 a. Explain in detail the DC transfer characteristics of CMOS.
OR
b. Give a detailed note on non ideal I-V effects of MOS transistor.
- 12 a. What is the problem encountered by VLSI circuits in driving large capacitive Loads?
OR
b. Explain about :a. Pass Transistor Logic, with examples b. Derive the expressions for Rise-Time and fall time for CMOS inverter.
- 13 a. Describe briefly about Signal Integrity Issues in Dynamic Design.
OR
b. Explain the working principle of LATCHES and REGISTERS.
- 14 a. Explain the following i) Implementation of Full Adder using transmission gate logic. ii) Parity generator.
OR
b. Explain the basic memory chip architecture.
- 15 a. Explain about different fault models in VLSI testing with examples.
OR
b. Explain system-level test techniques.

VINAYAKA MISSIONS RESEARCH FOUNDATION
(Deemed to be University)
B.E.DEGREE EXAMINATIONS- APR/MAY - 2019
ELECTRONICS AND COMMUNICATION ENGINEERING
FIFTH SEMESTER
ELECTIVE-ELECTRONICS MEASUREMENTS

(Candidates admitted under 2015/2016 Regulations-CBCS)

Time : Three Hours

Maximum Marks:100 Marks

Answer **ALL** questions

Part-A (10 x 2 =20 Marks)

- 1 Define error.
- 2 What is observational error?
- 3 What is voltmeter?
- 4 List the advantages of instrument transformer over ammeter shunt & Voltmeter multiplier.
- 5 Define Linearity.
- 6 What is the use of Maxwell's bridge?
- 7 Write the advantages of LED.
- 8 Define data logger.
- 9 Write the working principle of LVDT.
- 10 Write the advantages of RTD.

PART-B (5 x 16 = 80)

- 11 a. Briefly explain about dynamic characteristics.

OR

b. Explain about different types of standards.
- 12 a. Explain about permanent magnet moving coil instrument.

OR

b. Discuss about measurement of single phase power using wattmeter.
- 13 a. With a neat circuit diagram explain the Wheatstone bridge.

OR

b. Explain about differential amplifier.
- 14 a. Explain the frequency modulation recording with neat diagram.

OR

b. Explain about florescent screen of CRT.
- 15 a. Describe in detail the construction and working of Resistance thermometer.

OR

b. Explain the operation and working principle of a pressure transducer.

VINAYAKA MISSIONS RESEARCH FOUNDATION
(Deemed to be University)
B.E.DEGREE EXAMINATIONS- APR/MAY - 2019
ELECTRONICS AND COMMUNICATION ENGINEERING
SIXTH SEMESTER
RF AND MICROWAVE ENGINEERING

(Candidates admitted under 2015/2016 Regulations-CBCS)

Time : Three Hours

Maximum Marks:100 Marks

Answer **ALL** questions

Part-A (10 x 2 =20 Marks)

- 1 Write the S- matrix of a multiport network.
- 2 Mention the general applications of RF.
- 3 Write an expression for the attenuation in dB for a rotary vane attenuator in terms of the rotation angle θ .
- 4 Write the S-matrix of an ideal E plane / H plane waveguide Tees.
- 5 What is the purpose of slow wave structures used in TWT amplifiers?
- 6 What are the advantages of TWT?
- 7 Draw the equivalent circuit of a Schottky barrier diode.
- 8 Write down the expression for resonant frequency of IMPATT diode.
- 9 Name two methods to measure the impedance.
- 10 Distinguish calorimetric direct and indirect heating method.

PART-B (5 x 16 = 80)

- 11 a. With suitable diagrams discuss the working of a satellite transponder and a ground station.

OR

 b. Discuss about Radio Frequency bands and explain its uses.
- 12 a. Explain the working principle of Magic Tee with suitable diagram.

OR

 b. With a neat diagram explain the salient features of an H-plane waveguide Tee. Also obtain its S-matrix.
- 13 a. Derive the expression for the optimum distance, power output and efficiency of a two cavity klystron amplifier.

OR

 b. A two cavity klystron amplifier has the following parameters:
 $V_0=1000\text{ V}$; $R_0=35\text{K}\Omega$; $I_0=20\text{mA}$; $f=3\text{GHz}$
 Gap spacing in either cavity, $d=1\text{mm}$; spacing between the two cavities, $L = 4\text{cm}$;
 Effective shunt impedance, excluding beam loading, $R_{sh}=30\text{K}\Omega$.
 a).Find the input gap voltage to give maximum voltage V_2 .
 b).Find the voltage gain, neglecting the beam loading in the output cavity.
 c). Find the efficiency of the amplifier, neglecting beam loading.
- 14 a. Elucidate the equivalent circuit of a parametric amplifier.

OR

 b. Discuss photo resist fabrication technique used in MMIC fabrication with a suitable example.
- 15 a. Discuss the method of measuring high microwave power.

OR

- b. Discuss with relevant expressions, measurement of antenna gain using (a) two antenna method (b) Three antenna method.

Sl.No. 24708

VINAYAKA MISSIONS RESEARCH FOUNDATION
(Deemed to be University)
B.E.DEGREE EXAMINATIONS- APR/MAY - 2019
ELECTRONICS AND COMMUNICATION ENGINEERING
SIXTH SEMESTER
OPTICAL COMMUNICATION

(Candidates admitted under 2015/2016 Regulations-CBCS)

Time : Three Hours

Maximum Marks:100 Marks

Answer **ALL** questions

Part-A (10 x 2 =20 Marks)

- 1 Convert -6 dBm into mW.
- 2 Draw the basic structure of an optical fiber.
- 3 Define Dispersion Flattening.
- 4 What are the three requirements of Laser action?
- 5 Define Avalanche Breakdown.
- 6 Mention the Operation principles of WDM.
- 7 Mention the three main Optical amplifier types.
- 8 Enumerate the advantages and limitations of Raman amplifier.
- 9 Mention the common topologies used for fiber optic networks.
- 10 List out the types of fiber Grating.

PART-B (5 x 16 = 80)

- 11 a. Compare different types of fibers with suitable diagrams.

OR

 b. With Neat diagram, explain the any 2 type of Fiber Fabrication Method.
- 12 a. Illustrate on material dispersion in optical fibers with reference to refractive index profile.

OR

 b. Write short notes on: (a) Single Mode Fiber Connector (b) Connector Return Loss.
- 13 a. Describe the structure of InGaAs APDs with a neat diagram.

OR

 b. Elucidate the Subcarrier multiplexing with a suitable block diagram.
- 14 a. Describe the operation of Raman amplifier with necessary diagram.

OR

 b. Explain the operation of Brillouin amplifier with neat diagram.
- 15 a. Write short notes on: (a) Performance of Star Architecture (b) Wavelength Selective switch configuration.

OR

 b. Derive the expression of performance of Passive Linear Buses with neat diagram.

VINAYAKA MISSIONS RESEARCH FOUNDATION
(Deemed to be University)
B.E.DEGREE EXAMINATIONS- APR/MAY - 2019
ELECTRONICS AND COMMUNICATION ENGINEERING
SIXTH SEMESTER
EMBEDDED & REAL TIME SYSTEMS

(Candidates admitted under 2015 Regulations-CBCS)

Time : Three Hours

Maximum Marks:100 Marks

Answer **ALL** questions

Part-A (10 x 2 =20 Marks)

- 1 Define Asynchronous communication
- 2 Define PCI and PCI/X Buses
- 3 Mention few Modifiers in Data structure
- 4 Define Task
- 5 What is a Kernel?
- 6 List the features of Windows CE
- 7 Define Reliability
- 8 Give the equation for Reward functions
- 9 Differentiate Real Time and General Purpose Databases.
- 10 What are the types of Mesh Networks?

PART-B (5 x 16 = 80)

- 11 a. Enumerate the hardware and software units involved in automatic chocolate vending machine.
OR
b. Explain parallel device port and parallel port interfacing with switches and key pad.
- 12 a. Discuss the Various Program Models with examples
OR
b. Explain the functions of Message Queue, Mailbox and Pipes with suitable Examples.
- 13 a. Elucidate the memory management strategy and device management functions in RTOS.
OR
b. Enumerate the windows CE RTOS basic features with neat diagram.
- 14 a. Discuss the various Classical Uniprocessor Scheduling Algorithms.
OR
b. Elucidate the Uniprocessor Scheduling of IRIS Tasks
- 15 a. Explain the Databases for Hard Real Time Systems with diagram.
OR
b. Discuss about the Token Based Protocols with suitable example.

VINAYAKA MISSIONS RESEARCH FOUNDATION
(Deemed to be University)
B.E.DEGREE EXAMINATIONS- APR/MAY - 2019
ELECTRONICS AND COMMUNICATION ENGINEERING
SIXTH SEMESTER
VIRTUAL INSTRUMENTATION

(Candidates admitted under 2015 & 2016 Regulations-CBCS)

Time : Three Hours

Maximum Marks:100 Marks

Answer **ALL** questions

Part-A (10 x 2 =20 Marks)

- 1 What are the phases followed in instrumentation?
- 2 Sketch the distributed VI with neat diagram.
- 3 What are the major essential elements in LABVIEW environment?
- 4 Define wires.
- 5 Draw the elements of the data acquisition process.
- 6 What is the advantage of resistive transducer?
- 7 What are all the limitations for RS-232 interface?
- 8 What is IEEE488.2 standard used for in GPIB interface?
- 9 What is ODCS?
- 10 Draw the structure of robot control system.

PART-B (5 x 16 = 80)

- 11 a. Explain the stages involved in engineering of products using virtual instrument with a neat schematic diagram.

OR

- b. Discuss in detail about evolution of LABVIEW.

- 12 a. Explain in detail about the concept of an array.

OR

- b. Describe about palletes and its types.

- 13 a. With neat sketch explain the ADC architecture types.

OR

- b. How signal conditioning with SCXI is used in data acquisition. Discuss.

- 14 a. Enumerate the stages involved in data reception process using GPIB with a neat schematic diagram.

OR

- b. Describe about VISA attributes.

- 15 a. Elaborate distributed multiplatform control system with lab view.

OR

- b. Briefly explain different kinds of applications used in Lab view.

VINAYAKA MISSIONS RESEARCH FOUNDATION
(Deemed to be University)
B.E.DEGREE EXAMINATIONS- APR/MAY - 2019
ELECTRONICS AND COMMUNICATION ENGINEERING
SIXTH SEMESTER
ELECTIVE - ROBOTICS AND AUTOMATION

(Candidates admitted under 2015 Regulations-CBCS)

Time : Three Hours

Maximum Marks:100 Marks

Answer **ALL** questions

Part-A (10 x 2 =20 Marks)

- 1 Write Asimov's laws of robotics.
- 2 What are transmissions in a Robotic system?
- 3 What are the desirable features of sensors?
- 4 Mention the techniques used in object recognition.
- 5 State the different types of magnetic gripper.
- 6 What are the conventional approaches used for robot arm motion equations?
- 7 Define statics.
- 8 What is degeneracy?
- 9 What do you mean by material transfer application?
- 10 Write about the application of robot in loading and unloading.

PART-B (5 x 16 = 80)

- 11 a. Elucidate about the Asimov's Laws of Robotics and discuss Degree of Freedom.
OR
b. Discuss in detail about the Work volume.
- 12 a. Enlighten with necessary diagrams about the touch, force and torque sensors.
OR
b. Write about the segmentation, feature Extraction and Object Recognition.
- 13 a. Enumerate the design considerations of a gripper.
OR
b. Discuss in detail about the Lagrange formulation.
- 14 a. Describe the details about Reverse kinematics.
OR
b. Write in elaborate about the direct kinematics.
- 15 a. Describe about the Specific Programming Language.
OR
b. Explain about the robots for assembly.

VINAYAKA MISSIONS RESEARCH FOUNDATION
(Deemed to be University)
B.E.DEGREE EXAMINATIONS- APR/MAY - 2019
ELECTRONICS AND COMMUNICATION ENGINEERING
SEVENTH SEMESTER
WIRELESS COMMUNICATIONS

(Candidates admitted under 2015 Regulations-CBCS)

Time : Three Hours

Maximum Marks:100 Marks

Answer **ALL** questions

Part-A (10 x 2 =20 Marks)

- 1 Differentiate between Base Station & Mobile Station.
- 2 List the types of Wireless Services.
- 3 State Snell's Law.
- 4 Define Coherence Time.
- 5 Define Matched Filter.
- 6 Mention the significance of AWGN Channel.
- 7 Define Mutual coupling in Angle Diversity.
- 8 Mention the classification of Speech coder designs.
- 9 Define Multiple Access.
- 10 Define ISM Band.

PART-B (5 x 16 = 80)

- 11 a. Explain how a Cellular telephone call is initiated by Landline customer with suitable Timing diagrams.

OR

- b. Elaborate on Noise Limited Systems with suitable graph.

- 12 a. Elaborate on Time-Variant Two-Path Model.

OR

- b. Discuss about Narrowband Channel Models.

- 13 a. Discuss on transmission & reception of MSK technique with neat diagram.

OR

- b. Explain about Signal space diagram & structure of a generic Optimum Receiver.

- 14 a. Discuss on Combining Diversity with available methods.

OR

- b. Discuss about principles of Convolutional Codes.

- 15 a. Discuss the principle of Cyclic prefix. Explain its implication in OFDM Transceiver.

OR

- b. Discuss about IS-95 Mobile Station Transmitter.

VINAYAKA MISSIONS RESEARCH FOUNDATION
(Deemed to be University)
B.E.DEGREE EXAMINATIONS- APR/MAY - 2019
ELECTRONICS AND COMMUNICATION ENGINEERING
SEVENTH SEMESTER
MEDICAL ELECTRONICS

(Candidates admitted under 2015 Regulations-CBCS)

Time : Three Hours

Maximum Marks:100 Marks

Answer **ALL** questions

Part-A (10 x 2 =20 Marks)

- 1 Name three basic types of electrodes for measurement of bioelectric potentials.
- 2 Name the types of leads used for ECG.
- 3 What is Electrophoresis?
- 4 Define residual volume.
- 5 What are the different modes of operation in Cardiac pacemaker?
- 6 What is mean by artificial heart valves.
- 7 Define frequency division multiplexing.
- 8 What is angiography?
- 9 Name two different ways in which electricity can harm the body.
- 10 List some applications of laser in medicine

PART-B (5 x 16 = 80)

- 11 a. With a neat block diagram explain the working of an ECG recorder.
OR
b. Explain the origin of different heart sounds.
- 12 a. Explain about ultrasonic Doppler blood flow meter.
OR
b. Elucidate the cardiac output measurement.
- 13 a. Discuss about Artificial Valves and its types.
OR
b. With neat diagram explain about Hemodialysis Machine.
- 14 a. Explain about Single channel biotelemetry system.
OR
b. Elucidate the basic NMR Components.
- 15 a. Elucidate the principle of surgical diathermy.
OR
b. Explain the Effects of Electric Current on the Human Body.

VINAYAKA MISSIONS RESEARCH FOUNDATION
(Deemed to be University)
B.E.DEGREE EXAMINATIONS- APR/MAY - 2019
ELECTRONICS AND COMMUNICATION ENGINEERING
SEVENTH SEMESTER
RFID

(Candidates admitted under 2015 Regulations-CBCS)

Time : Three Hours

Maximum Marks:100 Marks

Answer **ALL** questions

Part-A (10 x 2 =20 Marks)

- 1 Define AIDC.
- 2 Write the frequency ranges of spectrum bands used.
- 3 Write some RFID policy Issues.
- 4 Define Safeguards.
- 5 What are the security issues in RFID?
- 6 What are the recommendations following in the designing and modifying WID systems?
- 7 Define global transportation network.
- 8 Define return on investment.
- 9 Define Wi-Fi and ISM standards.
- 10 Write some of the technical challenges of RFID privacy.

PART-B (5 x 16 = 80)

- 11 a. Describe briefly about the elements of RFID system.
OR
b. Explain in details about the implantation of RFID with examples.
- 12 a. Elucidate RFID policy Issues.
OR
b. Describe briefly about the Privacy through Data Protection Law and Fair Information
- 13 a. Discuss in detail about the authentication of users across the supply chain (Federation).
OR
b. Give a detailed note on disclosure of use and read range in designing and modifying WID systems.
- 14 a. Explain in detail about RFID in health care with real time examples.
OR
b. Give a detail about privacy protections for RFID by industry and the government.
- 15 a. Give a detail about the Bluetooth's background.
OR
b. Give a detailed note on the technical challenges of RFID privacy.

VINAYAKA MISSIONS RESEARCH FOUNDATION
(Deemed to be University)
B.E.DEGREE EXAMINATIONS- APR/MAY - 2019
ELECTRONICS AND COMMUNICATION ENGINEERING
SEVENTH SEMESTER
ELECTIVE - WIRELESS SENSOR NETWORKS
(Candidates admitted under 2015 Regulations-CBCS)

Time : Three Hours

Maximum Marks:100 Marks

Answer **ALL** questions**Part-A (10 x 2 =20 Marks)**

- 1 Brief on the role of WSN in precision agriculture.
- 2 Differentiate MANET and WSN in terms of scalability
- 3 What are the five main components of a wireless sensor node?
- 4 Brief on energy scavenging through temperature gradients in WSNs
- 5 What are the factors that influence the design of physical layer?
- 6 Define node centric network.
- 7 Define Clustering.
- 8 What is Time difference of Arrival?
- 9 Mention some software's for programming WSNs.
- 10 How modules and configurations implemented in nesC?

PART-B (5 x 16 = 80)

- 11 a. Describe the application examples of WSNs
OR
b. Explain the following a) Field buses and wireless sensor networks b) Enabling technologies for Wireless Sensor Network.
- 12 a. Elaborate on the power supply of sensor nodes
OR
b. Elaborate on optimization goals and Figure of merit.
- 13 a. Explain contention based protocols & schedule based protocols.
OR
b. Elaborate on IEEE 802.15.4 MAC protocol.
- 14 a. Explain range based localization algorithms
OR
b. Elaborate on joint routing and information aggregation.
- 15 a. Explain node level simulators
OR
b. Elaborate on sensor node hardware.

VINAYAKA MISSIONS RESEARCH FOUNDATION
(Deemed to be University)
B.E.DEGREE EXAMINATIONS- APR/MAY - 2019
ELECTRONICS AND COMMUNICATION ENGINEERING
EIGHTH SEMESTER
ELECTIVE - MICRO ELECTRO MECHANICAL SYSTEMS
(Candidates admitted under 2015 Regulations-CBCS)

Time : Three Hours

Maximum Marks:100 Marks

Answer **ALL** questions
Part-A (10 x 2 =20 Marks)

- 1 Mention the components of MEMS.
- 2 Define dry etching.
- 3 What is mean by micro actuation?
- 4 Define coulomb's law.
- 5 Write any four physical properties of Su-8 photoresist.
- 6 What are all the processes involved in film development?
- 7 Write the application of MOEMS.
- 8 What is meant by microlens?
- 9 List out the micro needle parameters.
- 10 What are the three ways to achieve the Hybridization?

PART-B (5 x 16 = 80)

- 11 a. Discuss about Micro actuation using Electrostatic forces with neat diagram.
OR
b. Describe about Chemical sensors with diagram.
- 12 a. Write short Notes on:
a. Actuation using Thermal forces b. Actuation using Shape memory alloys
OR
b. Elucidate about Microgrippers with neat diagram.
- 13 a. Elaborate on surface micromachining process with neat diagram.
OR
b. With neat diagram explain about the Wet etching process.
- 14 a. Elaborate light detectors with neat diagram.
OR
b. With neat diagram explain the building blocks of GLV based projection.
- 15 a. Discuss about construction and working principle of micro pumps with neat diagram.
OR
b. Describe about the fabrication process and boundary condition of SAW sensors.

VINAYAKA MISSIONS RESEARCH FOUNDATION
(Deemed to be University)
B.E.DEGREE EXAMINATIONS- APR/MAY - 2019
ELECTRONICS AND COMMUNICATION ENGINEERING
EIGHTH SEMESTER
ELECTIVE -SATELLITE COMMUNICATION & BROADCASTING
(Candidates admitted under 2015 Regulations-CBCS)

Time : Three Hours

Maximum Marks:100 Marks

Answer **ALL** questions
Part-A (10 x 2 =20 Marks)

- 1 State Kepler's second law.
- 2 Give the advantage of geostationary orbit.
- 3 Delineate free space transmission.
- 4 Define noise factor.
- 5 Why thermal controls are necessary in a satellite and state it?
- 6 Define CATV system.
- 7 List the important feature of Intelsat SCPC system?
- 8 Define frame efficiency.
- 9 Define IDU.
- 10 List out the INSAT series.

PART-B (5 x 16 = 80)

- 11 a. Explicate about Geo-stationary orbit.

OR

b. Elaborate about inclined orbits.
- 12 a. Describe briefly the combined uplink and downlink C/N ratio.

OR

b. Derive the following: (i) Link power budget. (8) (ii) Carrier to noise ratio. (8)
- 13 a. Enumerate the function of CATV with neat diagram.

OR

b. Describe in detail about antenna gain.
- 14 a. Elaborate on Spectrum spreading and despreading and how this is used to minimize interference in a CDMA system. Determine the throughput efficiency of the system.

OR

b. Illustrate in detail about CDMA throughput.
- 15 a. Write detail notes on VSAT.

OR

b. Illustrate about satellite mobile services.

VINAYAKA MISSIONS RESEARCH FOUNDATION
(Deemed to be University)
B.E.DEGREE EXAMINATIONS- APR/MAY - 2019
ELECTRONICS AND COMMUNICATION ENGINEERING
EIGHTH SEMESTER
ELECTIVE-VIDEO PROCESSING

(Candidates admitted under 2015 Regulations-CBCS)

Time : Three Hours

Maximum Marks:100 Marks

Answer **ALL** questions

Part-A (10 x 2 =20 Marks)

- 1 Define Radiation intensity.
- 2 Define Component Video.
- 3 Define Forward Motion estimation.
- 4 Define Feature-based Motion estimation
- 5 Differentiate between probability mass function & probability density function
- 6 List the 3 popular VLC's.
- 7 Define Orthonormal.
- 8 DCT based coding method is effective method for _____.
- 9 List the 2 Coding algorithms using Implicit Shape Coding.
- 10 List the significant steps in Wavelet Transform based coding for Images.

PART-B (5 x 16 = 80)

- 11 a. Explain the mechanism of Raster scan with suitable diagrams. Also, discuss about its characterization

OR

- b. Elucidate on Multiplexing of Luminance, Chrominance and Audiosignals in NTSC system

- 12 a. Elaborate on Pixel-based Motion Estimation

OR

- b. Narrate on Mesh-based Motion representation with suitable diagrams

- 13 a. Discuss on Entropy and Mutual information for Continuous sources

OR

- b. Discuss about characterization of Stationary sources.

- 14 a. Discuss significance of 1-D DCT with its Basis Vectors & Energy distribution.

OR

- b. Discuss about Encoder and Decoder of Lossy Predictive Coding systems.

- 15 a. Elaborate on Joint Shape & Texture Coding

OR

- b. Elaborate on Wavelet-based Video Codec

VINAYAKA MISSIONS RESEARCH FOUNDATION
(Deemed to be University)
B.E.DEGREE EXAMINATIONS- APR/MAY - 2019
MECHATRONICS
EIGHTH SEMESTER
ELECTIVE - AVIONICS

(Candidates admitted under 2015 Regulations-CBCS)

Time : Three Hours

Maximum Marks:100 Marks

Answer **ALL** questions

Part-A (10 x 2 =20 Marks)

- 1 Define the usage of avionics in space systems.
- 2 Write the importance of avionics system in civil and military aircrafts?
- 3 What is microprocessor?
- 4 List few applications of microprocessor-based system.
- 5 Give few avionics architecture.
- 6 Compare MIL and ARINC standard in terms of RT.
- 7 Mention the advantage of HMD over MUD?
- 8 What is flight management system?
- 9 What is GPS?
- 10 Explain the document support for Certification.

PART-B (5 x 16 = 80)

- 11 a. Describe the various 'illities' in Avionics systems.
OR
b. What are the steps involved in Avionics Hardware design? Explain.
- 12 a. Explain about the instruction formats and addressing modes of 8085 microprocessor.
OR
b. Describe in detail about logical instructions and branching instructions of 8085 microprocessor.
- 13 a. Explain MIL STD 1553 B data bus in detail clearly the bus architecture, protocol, word and message formats and coupling methods.
OR
b. List the evolution of avionics architecture starting from first generation to fourth generation.
- 14 a. What is DVI? What are special features of DVI?
OR
b. Write the limitation of HDD over HUD.
- 15 a. What is FBL and explain its salient features with block diagram in comparison with FBW.
OR
b. Explain in detail about Radar Electronic war fare and its salient features and its usage.

VINAYAKA MISSIONS RESEARCH FOUNDATION
(Deemed to be University)
B.E.DEGREE EXAMINATIONS- APR/MAY - 2019
MECHATRONICS
EIGHTH SEMESTER
ELECTIVE-VLSI DESIGN

(Candidates admitted under 2015 Regulations-CBCS)

Time : Three Hours

Maximum Marks:100 Marks

Answer **ALL** questions

Part-A (10 x 2 =20 Marks)

- 1 Define Body effect.
- 2 What is LOCOS?
- 3 What is total load capacitance?
- 4 What is transistor scaling?
- 5 Which MOS can pass logic 1 and logic 0 strongly?
- 6 Define synchronizers.
- 7 What is comparator?
- 8 Define EEPROM.
- 9 What do you mean by functionality test?
- 10 What is boundary scan?

PART-B (5 x 16 = 80)

- 11 a. Derive the equation for ideal I-V characteristics.

OR

b. Explain in detail the C-V characteristics of MOS transistor
- 12 a. What is the problem encountered by VLSI circuits in driving large capacitive Loads?

OR

b. Explain about :
 - a. Pass Transistor Logic, with examples.
 - b. Derive the expressions for Rise-Time and fall time for CMOS inverter.
- 13 a. Describe briefly about Signal Integrity Issues in Dynamic Design.

OR

b. Write a detailed description on Radiation-Hardened Flip-Flops.
- 14 a. Implement ALU functions with Adder.

OR

b. Describe the function of Content addressable memory.
- 15 a. Explain scan-based test techniques.

OR

b. Give a detailed note on i). BIST ii). Boundary scan Testing.

VINAYAKA MISSIONS RESEARCH FOUNDATION
(Deemed to be University)
B.E.DEGREE EXAMINATIONS- APR/MAY - 2019
ELECTRONICS AND COMMUNICATION ENGINEERING
EIGHTH SEMESTER
Elective - NANOTECHNOLOGY

(Candidates admitted under 2015 Regulations-CBCS)

Time : Three Hours

Maximum Marks:100 Marks

Answer **ALL** questions

Part-A (10 x 2 =20 Marks)

- 1 What is an electromagnetic spectrum?
- 2 List out the applications of nanotechnology in different field.
- 3 Difference between colloidal vs polymeric route.
- 4 Give Moore's I law & II law?
- 5 What is the diameter of a bucky ball? How many pentagons and hexagons are there in a bucky ball?
- 6 List any two applications of bucky balls and carbon nanotubes.
- 7 Define lithography.
- 8 Define Scaling Rules.
- 9 Define Tunnel diode
- 10 What is Molecules And Phases?

PART-B (5 x 16 = 80)

- 11 a. Give explanation with neat diagram of a Scanning Electron Microscope.
OR
b. Discuss about Applications of Nanomaterials
- 12 a. Discuss briefly about quantum computing
OR
b. Explain in detail about performance estimation for the human brain.
- 13 a. What is hierarchy in self-assembled nanostructures?
OR
b. Explain how the Buckminsterfullerene was synthesized by Kroto et al.
- 14 a. Explain the Advanced Mosfet concepts
OR
b. Explain the Scanning Probe Methods
- 15 a. Describe in detail about the Micro electro mechanical Systems
OR
b. Explicate briefly about physical limits to computations

VINAYAKA MISSIONS RESEARCH FOUNDATION
(Deemed to be University)
B.E.DEGREE EXAMINATIONS- APR/MAY - 2019
ELECTRONICS AND COMMUNICATION ENGINEERING
EIGHTH SEMESTER
ELECTIVE -WIRELESS SENSOR NETWORKS
(Candidates admitted under 2015 Regulations-CBCS)

Time : Three Hours

Maximum Marks:100 Marks

Answer **ALL** questions
Part-A (10 x 2 =20 Marks)

- 1 What is Wireless sensor network?
- 2 Brief on the application of WSNs in medicine and health care.
- 3 List the transceiver operational states.
- 4 Illustrate an event based programming model used in WSNs
- 5 What are beacons?
- 6 Define network lifetime.
- 7 Define computer Clocks?
- 8 What is role of reference broadcast system?
- 9 Mention the some components on MICA motes.
- 10 What is GALS?

PART-B (5 x 16 = 80)

- 11 a. Describe the application examples of WSNs

OR

b. Describe the Function approximation and edge detection along with Tracking application in wireless sensor networks
- 12 a. Elaborate on the power supply of sensor nodes

OR

b. Explain in detail about sensor network scenarios.
- 13 a. Explain contention based protocols & schedule based protocols

OR

b. Elaborate on attribute based routing
- 14 a. Explain range based localization algorithms

OR

b. Elaborate on joint routing and information aggregation
- 15 a. Explain node level simulators

OR

b. Elaborate on the emerging applications of WSNs

VINAYAKA MISSIONS RESEARCH FOUNDATION
(Deemed to be University)
B.E.DEGREE EXAMINATIONS- APR/MAY - 2019
ELECTRONICS AND COMMUNICATION ENGINEERING
EIGHTH SEMESTER
Elective -ADVANCED MICROCONTROLLER

(Candidates admitted under 2015 Regulations-CBCS)

Time : Three Hours

Maximum Marks:100 Marks

Answer **ALL** questions

Part-A (10 x 2 =20 Marks)

- 1 Difference between global descriptor and local descriptor
- 2 Define procedures
- 3 Define Libraries.
- 4 What is Separate Assembly Objects?
- 5 How is 32 bit memory system connected to the Pentium?
- 6 How many pin connections are found on the Pentium II Cartridge?
- 7 What is the function of PWM control?
- 8 Define HIS interrupts.
- 9 Define Local space?
- 10 What are the two compare instructions in ARM.?

PART-B (5 x 16 = 80)

- 11 a. With neat diagram, explain the Data Addressing modes and their types.

OR

- b. Explain the Stack memory addressing modes.

- 12 a. Write the short notes:

- i) Conversion from Binary to ASCII
- ii) Conversion from ASCII to Binary
- iii) Displaying and Reading Hexadecimal

OR

- b. Explain Interrupt Hooks. Give any one example.

- 13 a. Explain internal structure of the Pentium pro?

OR

- b. Explain special Pentium pro features.

- 14 a. Explain Interrupt priority programming.

OR

- b. Explain High speed outputs

- 15 a. Explain Pipeline hazards?

OR

- b. Elaborate Sequence control
