



Subject Code: R16CC1201

I B.Tech II Semester Supple Examinations, May-2023

INTERACTIVE ENGLISH

(Common to CE, EEE, ME, ECE & CSE)

Time: 3 hours

Max Marks: 60

Question Paper Consists of **Part-A** and **Part-B**.

Answering the question in **Part-A** is Compulsory & Four Questions should be answered from Part-B

All questions carry equal marks of 12.

PART-A

1. (a) What things did Abdul Kalam learn from his parents?
- (b) Why is Hyderabad special to Satya Nadella?
- (c) What are the features of a good paragraph?
- (d) Describe Sachin's style of batting.
- (e) What motivated Sam to focus on Indian Telecommunication System?
- (f) How did Nooyi begin her career in India?

[2+2+2+2+2+2]

PART-B

4 X 12 = 48

2. (a) Narrate the life experiences of APJ Abdul Kalam.
- (b) What are the various elements involved in the process of effective communication?
Explain taking your class room as an example. [7 + 5 = 12]
3. (a) Trace the career path of Nedella that led him to Microsoft.
- (b) Justify the importance of listening in effective communication and list out the tips for effective listening. [7 + 5 = 12]
4. (a) What business ideologies did transform Azim Premji a successful man in industry? Illustrate.
- (b) You have been asked by a firm which manufacturers detergent powder to make a study of the consumer reaction to their product and suggest measures to improve the image and the sales of their product. Prepare a report of the study. [7 + 5 = 12]
5. (a) Discuss how an eleven-year-old enthusiast became a "Little Master/Master Blaster".
- (b) Convert the following into indirect speech.
 - i. 'Keep quiet', said the mother to the child.
 - ii. The teacher questioned, "Who was the first man to land on the moon?"
 - iii. He said, 'Let us wait for ten minutes'.
- (c) Convert the following into passive voice.
 - i. A stone hit him on the head.
 - ii. The president did not pardon the criminal. [7+3+2 = 12]

6. (a) How does knowledge bring revolution in society according to Sam Pitroda. Explain.

(b) Correct the following sentences where ever necessary.

i. Newton has discovered the law of gravitation.

ii. I prefer country life than urban existence.

iii. The Chief Guest spoke very fluently in English.

iv. One of my friends have gone to the Andamans.

v. Riding upon his horse, the tiger jumped at him.

[7 + 5 = 12]

7. (a) Indra Nooyi, a powerful woman entrepreneur from India – Justify.

(b) Write one word substitutes for the following words.

i. The plants and vegetation of a region

ii. A book or paper written by hand

iii. A thing kept in memory of an event

iv. One who offers one's services

v. A list of things to be discussed in a meeting

[7 + 5 = 12]

Subject Code: R16CC1202

I B.Tech II Semester Supple Examinations, May-2023

INTEGRAL TRANSFORMS AND VECTOR CALCULUS

(Common to CE, EEE, ME, ECE & CSE)

Time: 3 hours

Max Marks: 60

Question Paper Consists of **Part-A** and **Part-B**.

Answering the question in **Part-A** is Compulsory & Four Questions should be answered from **Part-B**

All questions carry equal marks of 12.

PART-A

1. (a) Find the Laplace transform of $2t^3 + \cos 4t + e^{-2t}$.
- (b) Find the Z-transform of $an^2 + bn + c$.
- (c) Find the Fourier series for $f(x) = x$ in $(-\pi, \pi)$.
- (d) Write Dirichlet's conditions for Fourier Transforms.
- (e) Find $\nabla \phi$ where $\phi = 3x^2y - y^2z^2$.
- (f) State Stoke's theorem.

[2+2+2+2+2+2]

PART-B

4 X 12 = 48

2. (a) Find the Laplace transform of $t e^{-3t} \sin 3t$.
- (b) Find $L^{-1} \left[\frac{s}{(s^2 - 9)^2} \right]$ using Convolution theorem.
3. (a) Find $Z \left\{ \frac{1}{(n+2)(n+1)} \right\}$
- (b) Using Z-transform, solve $y_{n+2} - 7y_{n+1} + 12y_n = 0$ given that $y_0 = 1$ and $y_1 = 2$.
4. (a) Find the half-range cosine series for the function $f(x) = x, 0 < x < \pi$.
- (b) Find the Fourier series to represent $f(x) = x^2 - 2$ when $-2 \leq x \leq 2$.
5. (a) Find the Fourier transform of $f(x)$ defined by $f(x) = \begin{cases} 1, & |x| < a \\ 0, & |x| > a \end{cases}$ and hence evaluate $\int_0^{\infty} \frac{\sin p}{p} dp$
- (b) Find the finite Fourier Sine transform of $f(x) = x^3$ in $(0, \pi)$.
6. (a) Find the Directional Derivative of $f = 4xz^3 - 3x^2y^2$ at $(2, -1, 2)$ in the direction of the line $2\vec{i} - 3\vec{j} + 6\vec{k}$.
- (b) Show that $\vec{F} = (x^2 - yz)\vec{i} + (y^2 - xz)\vec{j} + (z^2 - xy)\vec{k}$ is Irrotational and find its Scalar potential function.
7. (a) Evaluate line Integral for the vector $\vec{F} = (x^2 + xy)\vec{i} + (x^2 + y^2)\vec{j}$ over a square bounded by the lines $x = \pm 1, y = \pm 1$.
- (b) Use Divergence Theorem to evaluate $\iint (ax^2 + by^2 + cz^2) \cdot \hat{n} ds$ and S is a surface of the sphere $x^2 + y^2 + z^2 = 1$.



Subject Code: R16CC1203

I B.Tech II Semester Supple Examinations, May-2023

**ENGINEERING PHYSICS
(Common to CE, EEE & ME)**

Time: 3 hours

Max Marks: 60

Question Paper Consists of **Part-A** and **Part-B**.

Answering the question in **Part-A** is Compulsory & Four Questions should be answered from **Part-B**

All questions carry equal marks of 12.

PART-A

- (a) Differentiate quarter-wave and half-wave plate.
(b) Derive the relation between fractional index change and numerical aperture.
(c) Mention the relation between interplanar spacing and miller indices.
(d) Mention the application of ultrasonic waves in medicine.
(e) list out the success and drawbacks of free electron theory of metals.
(f) Classify the solids based on the band theory. Discuss the importance of different bands.

PART-B

4 X 12 = 48

- (a) Discuss the construction and working of Newton's ring experiment. Derive the expression for radius of curvature of planoconvex lens using this experiment. (8M)
(b) What is diffraction grating? Derive the condition of diffraction in the grating. (4M)
- (a) Explain the different processes when light interacts with matter. Derive the relation between Einstein coefficients for spontaneous and stimulated emission (8M)
(b) Explain about total internal reflection in optical fibres. In the optical fiber below, the core has a refractive index equal to 1.5 and a cladding of refractive index of 1.4. then calculate the critical angle at the core-cladding interface and determine its numerical aperture. (4M)
- (a) Explain the different types of Bravais lattices based on the unit cell parameters such as axial lengths and interfacial angles (8M)
(b) Derive the relation between lattice parameter, interplanar distance and miller indices. (4M)
- (a) Differentiate piezoelectric and inverse piezoelectric effect. Discuss the construction and working of piezoelectric oscillator. Mention its limitations. (8M)
(b) Explain about absorption coefficient. Find the reverberation time for a hall of dimensions 40 feet x 30 feet x 20 feet having average absorption coefficient of 0.15. (4M)
- (a) Define drift velocity. Derive the electrical conductivity of semiconductors using Drude Model. (6M)
(b) Derive Schrodinger time independent wave equation for a free particle. a) Find the energy plot the probability density function in the ground state, first and second excited states of an electron confined to a one-dimensional box of length $L = 0.1 \text{ nm}$. (6M)
- (a) State and explain the Hall effect. Derive the relation between Hall voltage and Hall coefficient using a neat experimental setup. (8M)
(b) Describe the inferences and outcomes of Kronig-Penney model and how it was utilised to the foundations of band theory of solids. (4M)



Subject Code: R16CC1204

I B.Tech II Semester Supple Examinations, May-2023

ENGINEERING CHEMISTRY

(Common to ECE & CSE)

Time: 3 hours

Max Marks: 60

Question Paper Consists of **Part-A** and **Part-B**.

Answering the question in **Part-A** is Compulsory & Four Questions should be answered from Part-B

All questions carry equal marks of 12.

PART-A

1. (a) Explain caustic embrittlement in boiler.
- (b) What are biodegradable polymers? Give two examples.
- (c) Mention applications of liquid crystals.
- (d) Rusting of iron is quicker in saline water than in ordinary water-Give reason.
- (e) State the characteristics of a good fuel.
- (f) State Stark Einstein Law.

[2+2+2+2+2+2]

PART-B

4 X 12 = 48

2. (a) What are boiler scales? How can scale formation be prevented by (i) calgon conditioning and (ii) phosphate conditioning? [4M]
- (b) 50 mL of a sample of water consumed 15 mL 0.01 M EDTA before boiling and 5 mL of the same EDTA after boiling. Calculate the degree of total hardness, permanent hardness and temporary hardness. [5M]
- (c) State the differences between hot lime-soda process and cold lime-soda process for softening of hard water. [3M]
3. (a) Explain the mechanism of free radical chain polymerization with a suitable example. [6M]
- (b) Mention the differences between thermoplastics and thermosetting plastics. [4M]
- (c) Define Extrinsic conducting polymer with a suitable example. [2M]
4. (a) What are nanomaterials? Discuss the classification of nanomaterials on the basis of dimensionality with appropriate examples. [5M]
- (b) Distinguish between thermotropic and lyotropic liquid crystals with examples. [3M]
- (c) Write a short note on the green synthesis of adipic acid. Mention two applications of green chemistry. [4M]
5. (a) Explain the working principle of Dry cell with a suitable diagram and chemical reactions. What are the disadvantages of dry cell? [5M]
- (b) Distinguish between chemical corrosion and electrochemical corrosion. [4M]
- (c) Standard electrode potential (E°) of Cu^{2+}/Cu and Ag^+/Ag electrodes are +0.34 V and +0.80 V, respectively. Which one among the following statements is correct and why?
 - (i) 1M AgNO_3 solution can be stored in a copper vessel
 - (ii) 1 M CuSO_4 solution can be stored in a silver vessel [3M]

6. (a) 0.834 g of a fuel containing 8% hydrogen on complete combustion increased the temperature of water in a calorimeter from 14.36 °C to 18.10 °C. The mass of water in calorimeter was found to be 1365 g and water equivalent of calorimeter is 135 g. If latent heat of steam is 587 cal/g, calculate the gross and net calorific value of the fuel.

[5M]

(b) Distinguish between octane number and cetane number of a fuel. [4M]

(c) Write a short note on LPG. [3M]

7. (a) State Lambert-Beer's Law. [2M]

(b) Explain different photophysical processes in electronically excited molecules with the help of Jablonski diagram. [6M]

(c) Give two examples of photochemical reaction and mention the applications of photochemistry. [4M]

*****All The Best*****



Subject Code: R16CC1205

I B.Tech II Semester Supple Examinations, May-2023

ENVIRONMENTAL STUDIES

(Common to CE, EEE & ME)

Time: 3 hours

Max Marks: 60

Question Paper Consists of **Part-A** and **Part-B**.

Answering the question in **Part-A** is Compulsory & Four Questions should be answered from Part-B

All questions carry equal marks of 12.

PART-A

1. (a) Define food chain and food web.
- (b) What is nuclear energy?
- (c) Write brief notes on genetic diversity.
- (d) What are the natural and man-made pollutants? Give examples.
- (e) What is meant by Wasteland reclamation?
- (f) Mention the types of environmental audit.

[2+2+2+2+2+2]

PART-B

4 X 12 = 48

2. (a) What are ecological pyramids? Explain pyramid of numbers and pyramid of energy.
- (b) Discuss the salient features of grassland ecosystem. [6+6]
3. (a) Discuss the effects of over utilization of ground water.
- (b) Discuss about desertification and man induced landslides. [6+6]
4. (a) Discuss the importance of biodiversity.
- (b) Write notes on hotspots of biodiversity. [6+6]
5. (a) Discuss how soil pollution can be controlled.
- (b) Explain the adverse effects of noise pollution. [6+6]
6. (a) Explain about global warming and holocaust.
- (b) Discuss the AIR (prevention and control of pollution) Act, 1981 [6+6]
7. (a) Discuss on ecotourism.
- (b) Explain how to prepare an environmental impact statement. [6+6]

Subject Code: R16CC1206

I B.Tech II Semester Supple Examinations, May-2023

ENGINEERING MECHANICS

(Common to CE & ME)

Time: 3 hours

Max Marks: 60

Question Paper Consists of **Part-A** and **Part-B**.

Answering the question in **Part-A** is Compulsory & Four Questions should be answered from Part-B

All questions carry equal marks of 12.

PART-A

1. (a) State Lami's theorem.
- (b) Explain (i) coefficient of friction; (ii) cone of friction.
- (c) Differentiate centroid and centre of gravity.
- (d) What is the significance of Moment of Inertia?
- (e) What is the relation between Mass Moment of Inertia and Area Moment of Inertia?
- (f) State work-energy theorem for a system of particles.

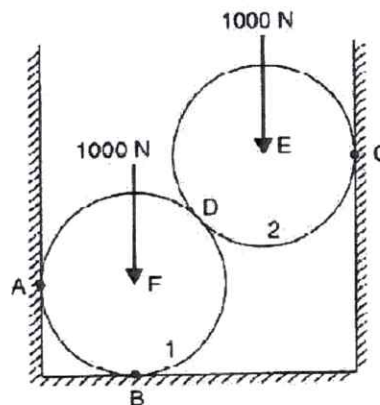
[2+2+2+2+2+2]

PART-B

4 X 12 = 48

2. (a) Two spheres, each of weight 1000N and radius 25cm rest in a horizontal channel of width 90cm as shown in the Figure 3(a). Find the reactions on the points of contact A, B and C.

[6M]



- (b) State and prove Varignon's theorem.

[6M]

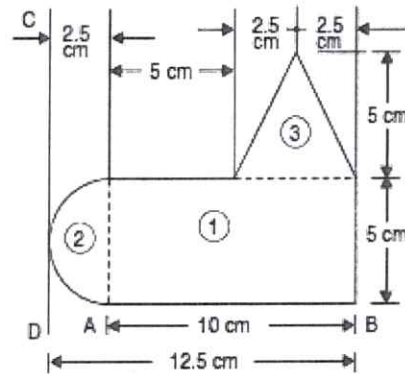
3. (a) State the laws of static and dynamic friction.

[4M]

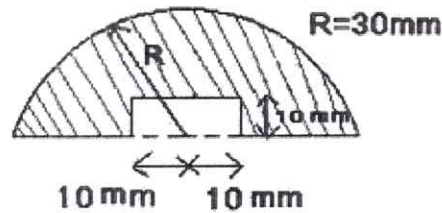
- (b) A uniform ladder of weight 800N and of length 7 m rests on a horizontal ground and leans against a smooth vertical wall. The angle made by the ladder with the horizontal is 60° . When a man of weight 600N stands on the ladder at a distance 4m from the top of the ladder, the ladder is at the point of sliding. Determine the coefficient of friction between the ladder and the floor.

[8M]

4. Uniform lamina shown Figure. consists of rectangle, a semi-circle and a triangle. Find the center of gravity. [12M]



5. (a) State and prove parallel axis theorem. [4M]
 (b) Find the moment of inertia about the horizontal centroidal axis of shaded portion as shown in the Figure.



[8M]

6. Derive Mass Moment of Inertia for solid cylinder about geometrical axis from basic principles. [12M]
7. (a) Two weights 400 N and 100 N are connected by a string and move along a horizontal plane under the action of force $P = 200$ N applied horizontally to the weight of 400N. The coefficient of friction between the weights and the plane is 0.25. Determine the acceleration of the weights and the tension in the string. [6M]
 (b) Derive the impulse-Momentum equation of a body in motion. [6M]



Subject Code: R16CC1207

I B.Tech II Semester Supple Examinations, May-2023

ENGINEERING DRAWING

(Common to CE & ME)

Time: 3 hours

Max Marks: 60

Question Paper Consists of **Part-A** and **Part-B**.

Answering the question in **Part-A** is Compulsory & Four Questions should be answered from Part-B

All questions carry equal marks of 12.

PART-A

1. (a) In a drawing, 2mm represents 8m. What is its RF?
- (b) A point B is 20mm above HP and 30mm Behind VP. Draw its projections.
- (c) A line AB of 50 long is parallel to both HP and VP. The line is 40mm above HP and 30mm in front of VP. Draw the projection of the line.
- (d) A square plane ABCD of side 30 mm, is parallel to HP and 30mm away from it. Draw the Projections of the plane.
- (e) Draw the projections of a cone of base 30mm diameter and axis 50mm long, when it is resting on HP of its base.
- (f) Draw the isometric projection of a circle of base 30mm diameter.

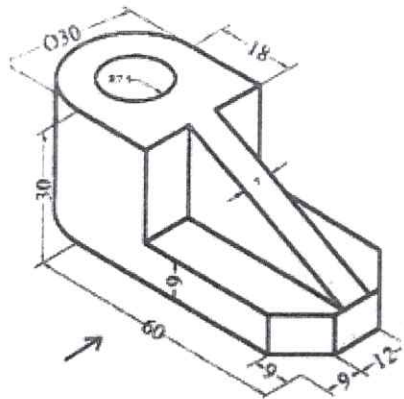
[2+2+2+2+2+2]

PART-B

4 X 12 = 48

2. (a) Draw a pentagon given the length of side 30 mm, using general method?
 - (b) Construct a scale of 1:8 to show decimetres and centimetres and to read up to 1m. Show a length of 7.6dm on it.
3. (a) A point A is on HP and 40mm in front of VP. Another point B is on VP and below HP. The line joining their front views makes an angle of 45° with xy, while the line joining their top views makes an angle of 30° . Find the distance of the point B from HP.
 - (b) A line PQ of length 40mm is parallel to the VP and inclined at an angle of 30° to the HP. The end P is 15mm above the HP and 20mm in front of the VP. Draw its projections.
4. (a) The top view of a 75mm long line AB, measures 65 while the length of its front view is 50mm. Its one end A is in the HP and 12mm in front of VP. Draw the projections of the line AB and determine its inclinations with HP and VP.
5. (a) A semi-circular plate of 80mm diameter has its straight edge on VP and inclined at 30° to HP, while its surface of the plate is inclined at 45° to VP. Draw the projections of the plane.
6. (a) A Hexagonal prism of side of base 30mm and axis 75mm long, is resting on its base on HP such that a rectangular face is parallel to VP. It is cut by a section plane, perpendicular to VP and inclined at 30° to HP. The section plane is passing through the top end of an extreme lateral edge of the prism. Draw the development of the lateral surface of the cut prism.

7. (a) Convert Isometric projection to orthographic Projection





Subject Code: R16EC1210

I B.Tech II Semester Supple Examinations, May-2023
PROGRAMMING WITH C
(ECE)

Time: 3 hours

Max Marks: 60

Question Paper Consists of **Part-A** and **Part-B**.
Answering the question in **Part-A** is Compulsory & Four Questions should be answered from Part-B
All questions carry equal marks of 12.

PART-A

1. (a) What is bitwise operation? How many bitwise operations possible with examples?
(b) Difference between switch and else-if ladder constructs.
(c) What is built-in function? Write about any 3 built-in functions with examples?
(d) What is the difference between malloc () and calloc ()?
(e) Explain about **typedef** data type.
(f) Write a short note on random files. [2+2+2+2+2+2]

PART-B

4 X 12 = 48

2. (a) Explain the different operators in C language.
(b) What are the steps involved in program development process? Explain.
3. (a) Differentiate iterative statements with an example.
(b) What is an array? Write a c program for matrix addition with sufficient conditions.
4. (a) What is recursion? Explain recursion with an example program.
(b) Explain about different types of user defined functions with examples.
5. (a) What is pointer? Discuss about pointers and functions with examples.
(b) Differentiate dynamic memory and static memory with examples.
6. (a) What are user defined data types? How to access structure elements?
(b) Write a program to display employee details using pointers to structure.
7. (a) What is file? Write a program to illustrate text file operations.
(b) Write a program to copy binary contents of one file to another file.

Subject Code: R16EC1211

I B.Tech II Semester Supple Examinations, May-2023
NETWORK ANALYSIS
(ECE)

Time: 3 hours

Max Marks: 60

Question Paper Consists of **Part-A** and **Part-B**.

Answering the question in **Part-A** is Compulsory & Four Questions should be answered from Part-B

All questions carry equal marks of 12.

PART-A

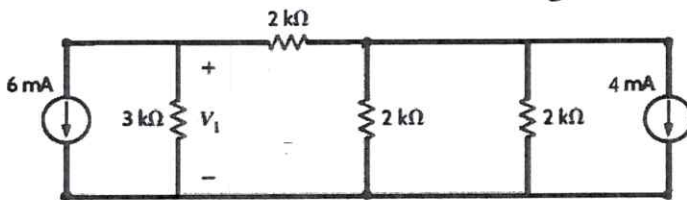
1. (a) State KCL & KVL.
- (b) Define Time period & Frequency.
- (c) Write expressions for real power, reactive power and apparent power.
- (d) State Thevenins theorem.
- (e) Write the condition for symmetry and reciprocity in terms of ABCD parameters.
- (f) What is time constant? Give the formula of time constant for R-L and R-C circuits.

[2+2+2+2+2+2]

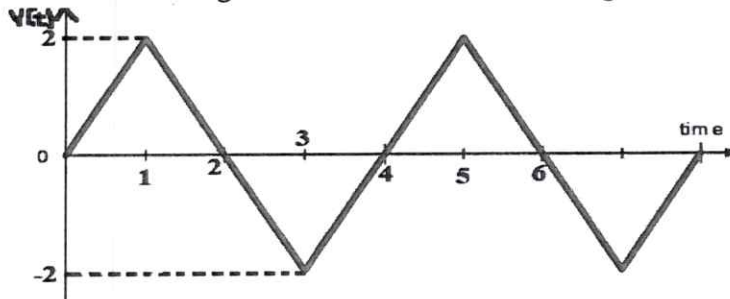
PART-B

4 X 12 = 48

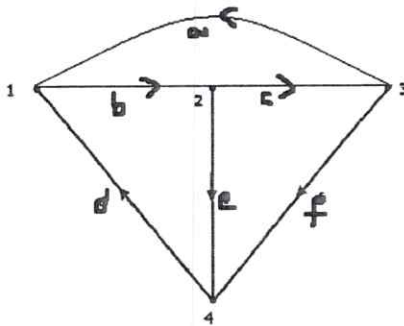
2. (a) Explain Different types of energy sources. (4M)
- (b) Find voltage V_1 using loop analysis. (8M)



2. (a) Determine average value & RMS value of the given waveform (6M)



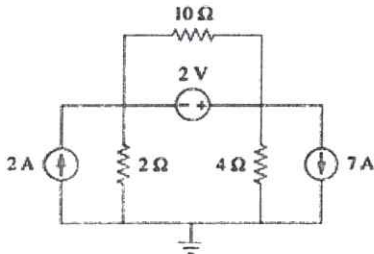
- (b) Form basic cut-set, basic tie-set matrices for the given network. (6M)



4. (a) An alternating current $i = 1.414 \sin(2\pi \cdot 50 \cdot t)$ A is passed through a series circuit consisting of a resistance of 10Ω and an inductance of 0.3183H . Find (8M)
- Impedance of the circuit
 - Total voltage
 - Real power consumed in the circuit
 - Reactive power
 - Power factor

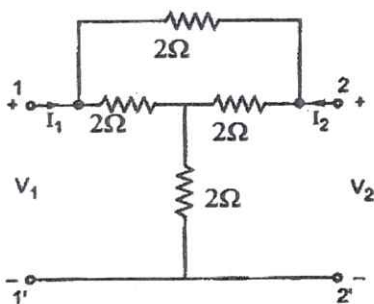
(b) Define Q factor, Band width and selectivity. Prove the relation between them. (4M)

5. (a) Evaluate the current through 2Ω using super position theorem. (7M)



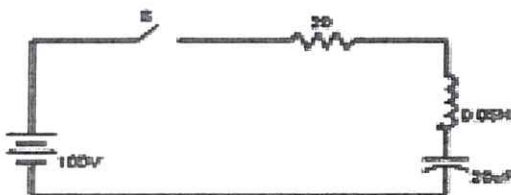
(b) State & explain Maximum power transfer theorem. (5M)

6. (a) Evaluate Z parameters for the given network. (7M)



(b) Derive expression for net inductance when two coupled coils are connected in series. (5M)

7. (a) A circuit consisting of $R = 20\Omega$, $L = 0.05\text{H}$, $C = 20\mu\text{F}$ in series with a DC voltage source of 100V . The switch is closed at $t = 0$. Find the expression for the current for $t > 0$. (8M)



(b) Explain the significance of initial conditions. (4M)

Subject Code: R16CS1213

I B.Tech II Semester Supple Examinations, May-2023

MATHEMATICAL METHODS

(CSE)

Time: 3 hours

Max Marks: 60

Question Paper Consists of **Part-A** and **Part-B**.

Answering the question in **Part-A** is Compulsory & Four Questions should be answered from Part-B

All questions carry equal marks of 12.

PART-A

1. (a) Explain LU Decomposition method.
- (b) Find the nature of the Quadratic form $x^2 + 4xy + 6xz - y^3 + 2yz + 4z^2$.
- (c) Show that $\int_0^1 \int_0^1 \frac{dx dy}{\sqrt{(1-x^2)(1-y^2)}} = \frac{\pi^2}{4}$.
- (d) Define Transcendental equation and what is the order of convergence of Newton-Raphson's method.
- (e) Find the value of $(1+\Delta)(1-\nabla)$.
- (f) Explain Single step methods and multi-step methods with examples.

[2+2+2+2+2+2]

PART-B

4 X 12 = 48

2. (a) If $a + b + c \neq 0$, show that the system of equations $-2x + y + z = a$, $x - 2y + z = b$, $x + y - 2z = c$ has no solution. If $a + b + c = 0$, show that it has infinitely many solutions.
- (b) Using LU-decomposition method, Solve $x + y - 2z = 3$, $2x - y + z = 0$, $3x + y - z = 8$.

3. (a) Find the Eigen values and the corresponding Eigen vectors of the Matrix $A =$

$$\begin{bmatrix} 1 & 2 & -1 \\ 0 & 2 & 2 \\ 0 & 0 & -2 \end{bmatrix}$$

- (b) If $A = \begin{bmatrix} 1 & 1 & 1 \\ 0 & 2 & 1 \\ -4 & 4 & 3 \end{bmatrix}$ then verify Cayley-Hamilton theorem, find inverse of A and

then find A^8, A^4 .

4. (a) Evaluate $\int_0^a \int_0^x \int_0^{x+y} e^{x+y+z} dx dy dz$

- (b) By using the change of order of integration evaluate $\int_0^\infty \int_x^\infty \frac{e^{-y}}{y} dy dx$

5. (a) Derive a formula to find the cube root of N using Newton-Raphson method and hence find the cube root of 15.

(b) Find a positive root of the equation by iteration method $3x = \cos x + 1$.

6. (a) From the following table values of x and $y = e^x$ interpolate values of y when $x = 1.91$

x	1.7	1.8	1.9	2.0	2.1	2.2
y	5.4739	6.0496	6.6859	7.3891	8.1662	9.0250

(b) Find the interpolating polynomial $f(x)$ from the table and then calculate $f(3)$.

x	0	1	4	5
f(x)	4	3	24	39

7. (a) Solve the differential equation $\frac{dy}{dx} = x^2 + y$; $y(0) = 1$, by modified Euler's method & compute $y(0.02)$ and $y(0.04)$

(b) Using Runge-Kutta 4th order method, find $y(0.2)$ for equation $\frac{dy}{dx} = \frac{y-x}{y+x}$, $y(0) = 1$, by taking $h = 0.2$.



Subject Code: R16CS1215

I B.Tech II Semester Supple Examinations, May-2023

ELECTRONIC DEVICES AND LOGIC DESIGN

(CSE)

Time: 3 hours

Max Marks: 60

Question Paper Consists of **Part-A** and **Part-B**.

Answering the question in **Part-A** is Compulsory & Four Questions should be answered from Part-B

All questions carry equal marks of 12.

PART-A

1. (a) List various applications of Diodes
- (b) Draw the characteristics of JFET
- (c) What is the need of transistor Biasing
- (d) What are the universal gates and explain their importance
- (e) Define encoder with an example
- (f) Explain the operation of control buffer register

[2+2+2+2+2+2]

PART-B

4 X 12 = 48

2. How Zener diode acts as a regulator explain in detail with the help of characteristic curves
3. Draw and explain the characteristics of CB transistor along with its advantages
4. Explain working principle of RC Phase shift Oscillator with neat diagram
5. (a) Minimize the following function using K-Map.
$$F(A, B, C, D) = \sum m(1, 2, 4, 5, 7, 8, 9, 12, 13, 14)$$

(b) State and prove De-Morgan's law
6. (a) Write short notes on Latches and flip-flops
(b) Discuss the specialty of Master-Slave JK Flip-Flop
7. (a) With neat diagram explain the working of Ring Counter
(b) With neat diagrams explain the working of universal shift register
