

R20

I B.TECH II SEM

REGULAR & SUPPLEMENTARY EXAMINATIONS

JULY 2023

M. Tech II Sem
Res & sup
Dec - 2018

R16

I B.Tech II Semester Regular & Supplementary Examinations - JULY-2023

Sub Code: R20CC12MC2

CONSTITUTION OF INDIA

Time: 3 hours

(Common to CE, ME, EEE, ECE)

Max. Marks: 70

Note: Answer All **FIVE** Questions.

All Questions Carry Equal Marks (5 X 14 = 70M)

Q.No	Questions	KL	CO	M
1	Unit-I			
	a Analyse the Characteristics of Constitution of India.	K4	1	14M
	OR			
2	b Analyse the Fundamental Rights as per Constitution of India.	K4	1	14M
	Unit-II			
	a Explain the functions of Prime Minister of India.	K2	2	14M
3	OR			
	b Examine the powers of Lok Sabha.	K4	2	14M
	Unit-III			
4	a List out the functions of Chief Minister.	K4	3	14M
	OR			
	b Explain the functions of High Court.	K2	3	14M
5	Unit-IV			
	a Explain the functions of Municipal Corporations.	K2	4	14M
	OR			
5	b Explain the functions of Panchayats	K2	4	14M
	Unit-V			
	a Analyse the Electoral Reforms in Election Commission of India.	K4	5	14M
5	OR			
	b Analyse the powers and functions of Union Public Service Commission	K4	5	14M

KL: Blooms Taxonomy Knowledge Level CO: Course Outcome M: Marks

NARASARAOPETA ENGINEERING COLLEGE::NARASARAOPET
(AUTONOMOUS)

I B.Tech II Semester Regular Examinations: July -2023

(Branches: CSE, AI & IT)

ENVIRONMENTAL STUDIES

Sub Code: R20CC12MC1

Time: 3 hours

Max. Marks: 5x14=70M

Date: 08-07-2023

Note: Answer All FIVE Questions.

All Questions Carry Equal Marks

1. a) Explain multidisciplinary nature of environmental studies? Explain the structure and functions of an ecosystem? K2 CO1 14M

OR

b) What are ecological pyramids? Explain why some of these pyramids are upright while others are inverted in different ecosystems? K2 CO1 14M

2. a) Explain growing energy needs and how can overcome these with alternate energy resources? K2 CO2 14M

OR

b) Write notes on Environmental effecting of extracting and using mineral resources? K3 CO2 14M

3. a) Explain conservation techniques taken for biodiversity? Explain in detail threats to biodiversity with suitable examples? K2 CO3 14M

OR

b) Explain various values in biodiversity? K2 CO3 14 M

4. a) Briefly describe the sources, effects, and control of noise pollution? K2 CO4 14M

OR

b) List the major physiological effects of air pollution on plants, environment and human beings? K4 CO4 14M

5. a) Give brief note on EMP and EIS? K3 CO5 14M

OR

b) Discuss the concept of Ecotourism, its principles and merits. K2 CO5 14M

Subject Code: R20CC1201

I B.Tech. - II Semester Regular & Supple Examinations, July-2023
Differential Equations and Vector Calculus
(CE,EEE,ME,ECE,AI ML,DS & CY)

Time: 3 hours

Max. Marks: 70

Note: Answer All FIVE Questions. All Questions Carry Equal Marks (5 X 14 =70M)

1. A) I) Solve $(1+y^2)dx = (\tan^{-1}y - x)dy$.

II) Prove that the system of confocal conics $\frac{x^2}{a^2+\lambda} + \frac{y^2}{b^2+\lambda} = 1$, λ being a parameter, is self-orthogonal.

OR

B) I) Solve $x \frac{dy}{dx} + y = x^3 y^6$.

II) Solve $(2y dx + 3x dy) + 2xy(3y dx + 4x dy) = 0$.

2. A) I) Solve $\frac{d^4 y}{dx^4} - y = \cos x \cosh x$.

II) Solve $\frac{d^2 y}{dx^2} - 2 \frac{dy}{dx} + y = x e^x \log x$.

OR

B) I) Solve $x^2 \frac{d^2 y}{dx^2} - 3x \frac{dy}{dx} + 5y = x^2 \sin x$

II) Solve $(D^2 + 3D + 2)y = x e^x \sin x$

3. A) I) Find the partial differential equation of all planes which are at constant distance a from the origin.

II) Solve $x(z - 2y^2) \frac{\partial z}{\partial x} + y(z - y^2 - 2x^3) \frac{\partial z}{\partial y} = z(z - y^2 - 2x^3)$.

OR

B) I) Solve $(x + 2z) \frac{\partial z}{\partial x} + (4zx - y) \frac{\partial z}{\partial y} = 2x^2 + y$.

II) Form the partial differential equation by eliminating arbitrary functions from $z = f(x^2 - y) + g(x^2 + y)$.

4. A) I) Prove that $\vec{F} = r^2 \vec{r}$ is conservative and find the scalar potential ϕ such that $\vec{F} = \nabla \phi$, where $\vec{r} = x\vec{i} + y\vec{j} + z\vec{k}$.

II) If f and g are two scalar point functions, Prove that $\nabla \cdot (f \nabla g) = f \nabla^2 g - \nabla f \cdot \nabla g$

OR

B) I) Prove that $\nabla \times (\phi \vec{A}) = \nabla \phi \times \vec{A} + \phi (\nabla \times \vec{A})$, where ϕ is a scalar point function.

II) Find the directional derivative of $x^2 y^4 + z^2 y^4 + x^2 z^4$ at the point (2, 0, 3) in the direction of the outward normal to the sphere $x^2 + y^2 + z^2 = 14$ at the point (3, 2, 1).

5. A) I) Find the work done in moving a particle once round the ellipse $x^2+y^2=9, z=0$ under the force field $\vec{F}=(2x-y+z)\vec{i}+(x+y-z^2)\vec{j}+(3x-2y+z)\vec{k}$.

II) If $\vec{F}=(2x^2-3z)\vec{i}-2xy\vec{j}-4x\vec{k}$, then evaluate $\iiint_V (\nabla \times \vec{F}) dV$, where V is the closed region bounded by the planes $x=0, y=0, z=0$ and $2x+2y+z=4$.

OR

B) Verify the Gauss-Divergence theorem for $\vec{F}=4x\vec{i}-2y^2\vec{j}+z^2\vec{k}$ taken over the region bounded by cylinder $x^2+y^2=4, z=0, z=3$.

Subject Code: R20CC1202

I B.Tech. - II Semester Regular & Supple Examinations, July-2023
Numerical Methods and Statistics
(CSE,IT,AI)

Time: 3 hours

Max. Marks: 70

Note: Answer All FIVE Questions. All Questions Carry Equal Marks (5 X 14 =70M)

1. A) I) Find the positive root of the equation $\cos(x) - 5x + 1 = 0$ using Bisection method.
 II) Find the negative root of the equation $\sin(x) = 1 + x^3$ between -2 and -1 correct to 3 decimal places by Newton-Raphson method.

OR

- B) I) Compute the root of the equation $x^3 - 23x - 85 = 0$ with the aid of Regula falsi method correct to two decimal places.
 II) Find a positive root of the equation by iteration method $3x = \cos x + 1$

2. A) I) Show that for the polynomial $P_n(x) = a_0 + a_1x + a_2x^2 + \dots + a_nx^n$; the n^{th} order difference is constant and higher order differences are zero. Is the converse true?
 II) In an experiment, the current I in a wire for various imposed voltages V is as follows

V (Volts)	5	10	20	40
I (Ampres)	7.4	12.9	21.7	45.8

Use Newton's divided difference formula, to compute the approximate current in a wire for a voltage of 15 V.

OR

- B) I) The populations (in millions) of Punjab state up to two decimal points in the census years are given below. Estimate the populations for the years 1973.

Year	1971	1981	1991	2001	2011
Population (in millions)	13.55	16.79	20.28	24.36	27.70

- II) Derive the interpolating polynomial for the data points $(0, -1), (1, 1), (2, 9), (3, 29), (5, 129)$ using Lagrange's interpolation. Use this polynomial to compute the value of the function $y(4)$.

3. A) I) A car is running on a straight road and the velocity of the car at regular interval of 5 minutes is given below

Time (in minutes)	0	5	10	15	20	25	30
Velocity (in km/hr)	80	88	90	95	93	85	83

Apply Simpson's $1/3^{\text{rd}}$ rule and Simpson's $3/8^{\text{th}}$ rule to find the distance covered by the car in these 30 minutes.

II) Compute the values of $y(0.1)$ and $y(0.2)$ using Taylor series method of order four for the following initial value problem $\frac{dy}{dx} = x + y, y(0) = 2$. Use three decimal places arithmetic and compare the result with exact solutions.

OR

B) I) Find the approximate value of the integral $\int_0^{\pi} \sqrt{1 + \cos^2(x)} dx$ using Trapezoidal and Simpson's

$1/3^{\text{rd}}$ rule. Divide the interval into ten equal parts.

II) Use Runge-Kutta fourth order method with step size $h = 0.1$ for the initial value problem

$\frac{dy}{dx} = x - y^2, y(1) = 2$, to compute $y(1.2)$.

4. A) I) Suppose that when a signal having value μ is transmitted from location A the value received at location B is normally distributed with mean μ and variance 4. That is, if μ is sent, then the value received is $\mu + N$ where N , representing noise, is normal with mean 0 and variance 4. To reduce error, suppose the same value is sent 9 times. If the successive values received are 5, 8.5, 12, 15, 7, 9, 7.5, 6.5, 10.5, construct a 95 percent confidence interval for μ .

II) An airline is interested in determining the proportion of its customers who are flying for reasons of business. If they want to be 90 percent certain that their estimate will be correct to within 2 percent, how large a random sample should they select?

OR

B) I) Assuming that $\sigma = 20.0$, how large a random sample be taken to assert with probability 0.95 that the sample mean will not differ from the true mean by more than 3.0 points

II) Suppose the lifetimes of batteries are exponentially distributed with mean θ . If the average of a sample of 10 batteries is 36 hours with SD 5, determine a 95 percent two-sided confidence interval for θ .

5. A) I) In sample of 1000 people in Karnataka 540 are rice eaters and the rest are wheat eaters. Can we assume that both rice and wheat are equally popular in this state at 1% level of significance.

II) The mean response time of a species of pigs to a stimulus is 0.8 seconds. Twenty-eight pigs were given 2 oz of alcohol and then tested. If their average response time was 1.0 seconds with a standard deviation of 0.3 seconds, can we conclude that alcohol affects the mean response time? Use the 5 percent level of significance.

OR

B) I) The viscosity of two different brands of car oil is measured and the following data resulted

Brand 1	10.62	10.58	10.33	10.72	10.44	10.74	
Brand 2	10.50	10.52	10.58	10.62	10.55	10.51	10.53

Test the hypothesis that the mean viscosity of the two brands is equal, assuming the populations have normal distributions with equal variances.

Subject Code: R20CC1203

I B.Tech. - II Semester Regular & Supple Examinations, July-2023

Engineering Physics
(ME, CE)

Time: 3 hours

Max. Marks: 70

Note: Answer All FIVE Questions. All Questions Carry Equal Marks (5 X 14 =70M)

Q.No	Questions	Marks
Unit – I		
1	i) Explain the phenomenon of interference of light due to thin parallel film and find the conditions for maxima and minima.	[10M]
	ii) A parallel beam of light of wavelength 6000Å is incident on a glass plate of refractive index 1.5 such that the angle of refraction into the plate is 30°. Calculate the smallest thickness of the plate, which will make it appear dark by reflection.	[4M]
	OR	
	i) Discuss the construction and working of Nicol's prism.	[10M]
	ii) Find the thickness of quarter-wave plate when the wavelength of light is equal to 5893Å, $\mu_o=1.486$ and $\mu_e=1.554$.	[4M]
Unit – II		
2	i) With the help of suitable diagram explain the principle, construction and working of He-Ne laser.	[10M]
	ii) Write the differences between stimulated emission and spontaneous emission.	[4M]
	OR	
	i) Define acceptance angle and acceptance cone. Derive an expression for acceptance angle in terms of refractive indices of the core and the cladding	[12M]
	ii) Calculate the numerical aperture of a given optical fiber, if the refractive indices of core and cladding are 1.467 and 1.432 respectively	[2M]
Unit – III		
3	i) Define space lattice and unit cell.	[4M]
	ii) Compare the crystal structures SC, BCC and FCC with the coordination number and packing fraction.	[10M]
	OR	
	i) Derive an expression for the inter planar spacing between two adjacent planes of Miller indices (h,k,l) in a cubic lattice of edge length 'a' ?	[10M]
	ii) Draw the planes (101), (011)	[4M]
Unit – IV		
4	i) Write the difference between diamagnetic, paramagnetic and ferromagnetic substances.	[8M]
	ii) Distinguish between soft and hard magnetic materials.	[6M]
	OR	
	i) Mention the differences between Type-I and Type-II super conductors.	[6M]
	ii) Discuss the electron-phonon interaction and the formation of Cooper pairs in superconductors on the basis of the BCS theory.	[8M]
Unit – V		
5	i) Define absorption coefficient and explain the method of its measurement.	[7M]
	ii) Explain the factors that affect the acoustics of a building. Write its remedies.	[7M]

OR

	i) Describe Piezoelectric method for the production of ultrasonic waves.	[10M]
b	ii) Young's modulus of quartz crystal is $8.6 \times 10^{10} \text{ N/m}^2$ and density is 2650 Kg/m^3 . Determine the frequency of ultrasonic waves produced when a quartz plate of thickness 4 mm is used.	[4M]

Subject Code: R20CC1204

I B.Tech. - II Semester Regular & Supple Examinations, July-2023

Engineering Chemistry
(CSE,IT,AI,CY)

Time: 3 hours

Max. Marks: 70

Note: Answer All FIVE Questions.
All Questions Carry Equal Marks (5 X 14 =70M)

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1. A) I) Explain ion-exchange process for softening water.[7+7]
II) Discuss (i) Breakpoint chlorination (ii) Chemical oxygen demand
OR
B) I) Explain reverse osmosis method for desalination of brackish water. [7+7]
II) Explain hot lime soda process. Calculate the amount of lime and soda needed for softening water containing $\text{Ca}(\text{HCO}_3)_2 = 81 \text{ mg/L}$, $\text{Mg}(\text{HCO}_3)_2 = 73 \text{ mg/L}$, $\text{CaCl}_2 = 222 \text{ mg/L}$, $\text{MgSO}_4 = 95 \text{ mg/L}$.
2. A) I) Discuss injection moulding method for fabrication of plastics. [7+7]
II) Explain proximate analysis of coal sample.
OR
B) I) Differentiate addition and condensation plastics. Explain free radical addition polymerization.[7+7]
II) Explain the steps involved during refining of petroleum
3. A) I) Discuss sol-gel method for preparation of nanomaterials.[7+7]
II) Explain the types of composite materials and their applications.
OR
B) I) Explain applications of carbon nanotubes.[5+9]
II) Explain thermotropic liquid crystals and mention their applications.
4. A) I) Explain the working of primary battery taking dry cell as example. [7]
II) Discuss (i) Cladding (ii) Impressed current cathodic protection [3+4]
OR
B) I) Discuss (i) applications of secondary batteries in E-vehicles (ii) methanol-oxygen fuel cell [3+4]
II) Explain factors affecting rate of corrosion.[7]
5. A) I) Explain mechanism of thin film lubrication. [7]
II) Discuss (i) classification of refractories (ii) failure of cement concrete[3+4]
OR
B) I) Discuss properties of refractories. [7]
II) Explain (i) working of rotary kiln in manufacturing of cement (ii) cloud and fire point [4+3]

Subject Code: R20CC1205

I B.Tech. - II Semester Regular & Supple Examinations, July-2023

Applied Physics
(EEE,ECE,AIIML & DS)

Time: 3 hours

Max. Marks: 70

Note: Answer All FIVE Questions. All Questions Carry Equal Marks (5 X 14 =70M)

Q.No	Questions	Marks
Unit – I		
1	a i) With the help of a neat diagram, describe the experimental arrangement to produce Newton's rings by reflected light. Prove that the diameter of dark rings is proportional to the square root of the natural numbers.	[10M]
	ii) The diameter of 10 th dark ring in Newton's rings experiment is 0.5 cm. Find the radius of curvature of the lens when wavelength of light is 6000 Å?	[4M]
	OR	
	b i) Discuss the construction and working of Nicol's prism.	[10M]
	ii) Find the thickness of half-wave plate when the wavelength of light is equal to 5893Å, $\mu_o=1.485$ and $\mu_e=1.554$.	[4M]
Unit – II		
2	a i) With the help of suitable diagram explain the principle, construction and working of Ruby laser.	[10M]
	ii) Mention the characteristics of lasers.	[4M]
	OR	
	b i) What do you understand by the terms acceptance angle and acceptance cone? Derive an expression for acceptance angle in terms of refractive indices of the core and the cladding	[12M]
	ii) Calculate the numerical aperture of a given optical fiber, if the refractive indices of core and cladding are 1.497 and 1.452 respectively	[2M]
Unit – III		
3	a i) Define packing fraction and coordination number.	[4M]
	ii) Show that FCC is closely packed structure than SC and BCC.	[10M]
	OR	
	b i) Derive an expression for the inter planar spacing between two adjacent planes of Miller indices (h,k,l) in a cubic lattice of edge length 'a' ?	[10M]
	ii) Draw the planes (100), (111)	[4M]
Unit – IV		
4	a i) State and prove Gauss divergence theorem.	[8M]
	ii) Write the Maxwell's electromagnetic equations.	[6M]
	OR	
	b i) Write the difference between diamagnetic, paramagnetic and ferromagnetic substances.	[10M]
	ii) Mention the differences between Type-I and Type-II super conductors.	[4M]
Unit – V		
5	a i) Obtain Schrodinger time independent wave equation.	[10M]
	ii) Write the Physical significance of wave function.	[4M]

Subject Code: R20CC1206

I B.Tech. - II Semester Regular & Supple Examinations, July-2023

Problem Solving Using Python
(CSE,AI,IT,AI ML,DS & CY)

Time: 3 hours

Max. Marks: 70

Note: Answer All FIVE Questions.
All Questions Carry Equal Marks (5 X 14 =70M)

1. A) I) What are differences between user defined functions and build in functions in the python programming. Explain with suitable examples.

II) Write python program to print prime numbers between 1 to N (N>100).

OR

B) I) Define the math module? List and Explain functions of math module with example?

II) Write python code for the following operations (you can use built-in functions):

- To find location of a sub string in a given input string
- To print last 3 characters of a given input string
- To sort list of strings in descending order

2. A) I) Write the differences between iteration and recursion. Explain with suitable examples.

II) Write a Python program that prompts user to enter numbers. The process will repeat until user enters 0. Finally, the program prints sum of the numbers entered by the user.

OR

B) I) Write a recursive function to print Fibonacci series up to n terms. example: 0, 1, 1, 2, 3, 5, 8, 13 and so on...

II) Explain scroll bar, check box, basic key press events with an example.

3. A) I) Write a Python function that takes a number as a parameter and check the number is prime or not.

II) Write a python program to print all largest and smallest length string in a list. For example: **Input:** List = ['University', 'Student', 'Your', 'name'] **Output:** University, Your, name

OR

B) I) Python program to generate and print a dictionary that contains a number (which between 1 and n) in the form (x, x*x).

Sample Input n = 5 : Expected Output : {1: 1, 2: 4, 3: 9, 4: 16, 5: 25}

II) Explain different files operations in python with an example.

4. A) I) What is inheritance? Explain Multi-Level and Multipath Inheritance in Python

II) Write a python program to create students class (ID, NAME, MARKS). Create N (N>20) student objects. Sort student objects in descending order based on MARKS.

OR

B) I) Explain operator overloading can be handled in Python. Explain with an example.

II) Illustrate the Exception handling mechanism with an example program?

5. A) I) Write a Python program to check that a string contains only a certain set of characters (in this case a-z, A-Z, and 0-9).

II) Explain pattern match using the regular expression with example.

OR

B) I) Write a Python program to match a string that contains only upper and lowercase letters, numbers, and underscores

II) Explain URL validation using regular expression with an example.

Subject Code: R20CC1207

I B.Tech. - II Semester Regular & Supple Examinations, July-2023

Engineering Drawing

(CE,ME)

Time: 3 hours

Max. Marks: 70

Note: Answer All **FIVE** Questions.
All Questions Carry Equal Marks (5 X 14 =70M)

Unit-I

- 1.A) Draw a straight line CD of any length. Mark a point F, 50 mm from CD. Trace the path of a point P moving in such a way, that the ratio of its distance from the point F, to its distance from CD is 1. Plot at least eight points. And also draw normal and tangent at 40 mm from directrix on the curve. [14M]

OR

- B) Construct a conic when the distance of its focus from the directrix is equal to 50 mm and its eccentricity is $\frac{3}{4}$. Measure its major and minor axes. Draw a tangent at any point on the curve. What is the distance between the foci? [14M]

Unit-II

2. A) The top view of a 75mm long line AB measures 65mm, while its front view measures 50mm. Its one end A is in HP and 12mm in front of VP. Draw the projections of AB and determine its inclination with HP and VP. [14M]

OR

- B) A line AB, 90 mm long, is inclined at 30° to the H.P. Its end A is 12 mm above the H.P. and 20 mm in front of the V.P. Its front view measures 65 mm. Draw the top view of AB and determine its inclination with the V.P. [14M]

Unit-III

3. A) A plate having the shape of an isosceles triangle has base of 50 mm long and altitude 70 mm. It is so placed that in the front view, it is seen as an equilateral triangle of 50 mm sides and one side is inclined at 45° to x-y. Draw its projections. [14M]

OR

- B) Draw the projections of a regular pentagon of 40 mm side, having its surface inclined at 30° to the HP and a side parallel to the HP and inclined at an angle of 60° to the VP. [14M]

Unit-IV

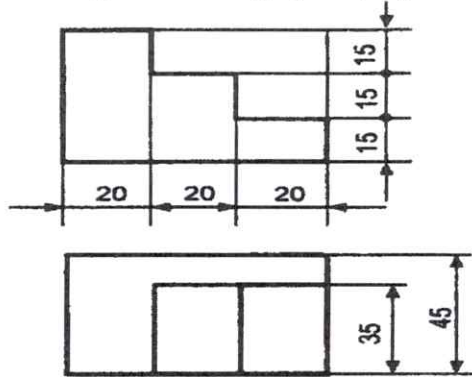
4. A) i) A hexagonal prism has one of its rectangular faces parallel to the H.P. Its axis is perpendicular to the V.P. and 35 mm above ground. Draw its projections when the nearer end is 20mm in front of the V.P. Side of base 25mm long; axis 50mm long. [7M]
- ii) A pentagonal prism with side of base 30mm and axis 60mm long is resting with an edge of its base on HP, such that the rectangular face containing that edge is inclined at 60° to HP. Draw the projections of the prism when its axis is parallel to V.P. [7M]

OR

- B) A cone of base diameter 60 mm and height 70 mm is resting on its base on HP. It is cut by a plane perpendicular to VP and inclined at 30° to HP. The plane bisects the axis of the cone. Draw the development of its lateral surface. [14M]

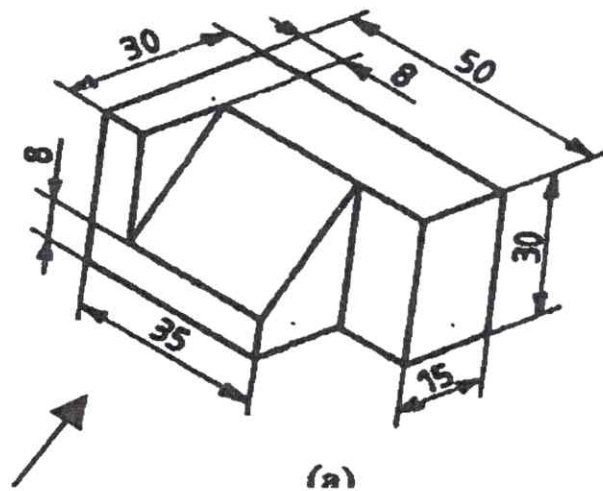
Unit-V

5. A) Draw isometric view for the given orthographic projections. [14M]



OR

- B) Draw the top view, front view and side view of the figure shown below. [14M]



Subject Code: R20CC1208

I B.Tech. - II Semester Regular & Supple Examinations, July-2023
Electronic Devices and Logic Design
(CSE,IT,AI)

Time: 3 hours

Max. Marks: 70

Note: Answer All FIVE Questions. All Questions Carry Equal Marks (5 X 14 =70M)

1. A) I) Explain the operation of silicon P-N junction diode and obtain the forward bias and reverse bias V-I characteristics [8]
 II) A reverse bias voltage of 90V is applied to germanium diode through a resistance R. The reverse saturation current of the diode is 50 μ A at an operating temperature of 25° c. Compute the diode current and voltage for i). R= 10 M Ω ii). R= 100 M Ω [6]

OR

 B) I) Explain the differences between [9]
 a).Static and Dynamic resistances of P-N diode
 b). Transition capacitance and Diffusion capacitance.
 c) Avalanche and Zener breakdown mechanisms
 II) List out the merits and demerits of bridge rectifier over center tapped type full wave rectifiers [5]
2. A) I) With the help of input and output characteristics explain the operation of a BJT in common emitter configuration [6]
 II) Differentiate between the operation of BJT and MOSFET [6]
 III) Describe the importance of biasing in amplifier. [2]

OR

 B) I) How Base Width Modulation effects the characteristics of Common Base Configuration [8]
 II) Explain the structure and operation of n-channel enhancement type MOSFET [6]
3. A) I) Reduce the Boolean function using k-map technique and implement using gates
 $f(w, x, y, z) = \sum m(0,1,4,8,9,10)$ which has the don't cares condition
 $d(w, x, y, z) = \sum m(2,11)$. [8]
 II) Why digital circuits are more frequently constructed with NAND or NOR gates than with AND & OR gates [2]
 III) State and Prove De Morgan's theorem of Boolean Algebra [4]

OR

 B) I) Prove the following $(A+B)((AC)'+C)(B'+AC)'=A'B$ [6]
 II) Convert the number $(17.125)_{16}$ to base 10, base 4, base 5 and base 2 [4]
 III) Determine the canonical product-of-sums and sum-of-products form of
 $F(x, y, z) = x(y+z)$ [4]
4. A) I) Give the comparison between combinational & sequential circuits [3]
 II) Realize 16×1 Mux using only 2×1 Mux [5]
 III) Realize a SR flip flop using NAND gates and explain its operation [6]

OR

 B) I) With the help of truth table explain positive edge triggered J-K flip flop [6]
 II) Explain Race around condition in flip flops and how to avoid it [4]
 III) Design a full adder circuit using only NOR gates [4]

5. A) I) Design a four state down counter using T flip flop [8]
II) Differentiate the operation of shift register and counter with example [6]
OR
B) I) Design a MOD-10 synchronous counter using JK flip flops [7]
II) Design a 3-bit binary up-down counter with any practical case study [7]

Subject Code: R20EE1209

I B.Tech. - II Semester Regular & Supple Examinations, July-2023
Electronic Devices and Circuits
(EEE)

Time: 3 hours

Max. Marks: 70

Note: Answer All FIVE Questions. All Questions Carry Equal Marks (5 X 14 =70M)

1. A) I) Explain the concept of Diffusion or Storage Capacitance C_D and derive its formulae.
II) Calculate the dynamic forward and reverse resistance of a PN junction diode when the applied voltage is 0.25 V at $T = 300$ K given $I_o = 2 \mu\text{A}$.

OR

B) I) The diode current is 0.6 mA when the applied voltage is 440 mV, and 16 mA when the applied voltage is 520 mV. Determine η . Assume $kT/q = 25$ mV
II) Explain and derive the Space charge capacitance or transition capacitance C_T
2. A) I) Design a full-wave rectifier with LC filter to provide 10 V_{dc} at 100 mA along with maximum ripple of 2%. The frequency of input voltage is 50 Hz. Determine the ripple factor of the LC filter. (Show the diagram).
II) Show the zener diode characteristics indicating all critical parameters.

OR

B) I) How Zener diode acts as voltage regulator. Explain
II) Explain the operation of bridge rectifier in detail
3. A) I) A transistor has $I_B = 100 \mu\text{A}$ and $I_C = 2 \mu\text{A}$. Find β of the transistor, α of the transistor, emitter current I_E , if I_B changes by + 25 μA and I_C changes by + 0.6 mA, find the new value of β .
II) Draw the circuit diagram of an NPN junction CE configuration and describe the static input and output characteristics. Also, define active, saturation and cut-off regions, and saturation resistance of a CE transistor.

OR

B) I) Explain the early effect and its consequences. Derive the relationship between α and β .
II) The reverse leakage current of the transistor when connected in CB configuration is 0.2 μA and it is 18 μA when the same transistor is connected in CE configuration. Calculate $\alpha_{d.c.}$ and $\beta_{d.c.}$ of the transistor.
4. A) I) If the various parameters of a CE amplifier which uses the self-bias method are $V_{CC} = 10$ V, $R_1 = 8$ k Ω , $R_2 = 6$ k Ω , $R_C = 2$ k Ω , $R_E = 4$ k Ω and $\beta = 100$, find the coordinates of the operating point and the stability factor, assuming the transistor to be silicon.
II) Distinguish between d.c and a.c load lines with suitable diagrams. And briefly explain the reason for keeping the operating point of a transistor as fixed.

OR

B) I) what is the need of biasing transistor? Determine the stability factor for a CB amplifier circuit.
II) What is thermal runaway? And Draw a voltage divider bias circuit and derive the expression for its stability factor.

5. A) I) Explain how the transconductance of a JFET varies with drain current and gate voltage. Write the relative merits of an N-channel and a P- channel FET.
II) Draw and explain biasing circuits for an enhancement type MOSFET.

OR

- B) I) How does the constructional features of a MOSFET differ from that of a JFET. And briefly explain the temperature effects in MOSFET.
II) Define the parameters transconductance g_m , drain resistance r_d and amplification factor μ of JFET establish the relation between them.

Subject Code: R20CC1210

I B.Tech. - II Semester Regular & Supple Examinations, July-2023

Data Structures

(EEE, ECE)

Time: 3 hours

Max. Marks: 70

Note: Answer All FIVE Questions. All Questions Carry Equal Marks (5 X 14 =70M)

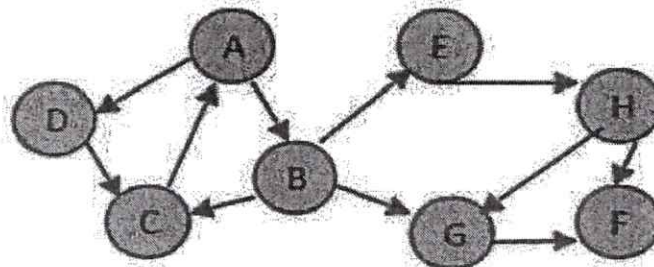
1. A) I) Write a recursive procedure to compute GCD of two numbers
II) Write a recursive procedure to compute the n^{th} Fibonacci number
OR
B) I) Explain Towers of Hanoi problem with example? Write a recursive algorithm?

2. A) I) Write an algorithm to implement Binary Search technique. Use the algorithm to search 32 in the following list of elements. Explain the process at each step. 12, 16, 17, 19, 20, 22, 24, 29, 30, 32, 37
OR
B) I) Sort the following numbers using heap sort 45, 34, 12, 46, 27, 56, 11, 87, 6, 33, 28
II) Write an algorithm for bubble sort and also analyze the time complexity

3. A) I) What is Stack? Explain the implementation of stacks using linked lists? Write the pseudo code for PUSH and POP operations on the Stack?
OR
B) I) Explain about Circular Queues implementation? Write the pseudo code for the operations on Circular Queues?

4. A) I) How to represent single linked list? Discuss.
II) Write an algorithm to delete a node in a linked list.
OR
B) I) Write a program for the implementation of double linked list
II) Compare and Contrast linked lists and arrays

5. A) I) Apply BFS & DFS for the following graph



OR

- B) I) Construct a Binary Search Tree (BST) with the following keys: 86, 12, 42, 69, 38, 57, 74, 6, 49, 71. Also delete 42 from the constructed BST.
II) Write a procedure to search an element in a Binary Search Tree

Subject Code: R20ME1211

I B.Tech. - II Semester Regular & Supple Examinations, July-2023
Material Science and Metallurgy
(ME)

Time: 3 hours

Max. Marks: 70

Note: Answer All **FIVE** Questions.
All Questions Carry Equal Marks (5 X 14 =70M)

1. A) I) Classify various solid solutions present and explain in detail. [7]
II) Explain in detail the different types of bonds present in solids using examples. [7]
OR
B) I) Discuss about various phases that are formed in equilibrium cooling of Fe-C solid solution.
II) What is lever rule ?. Explain in detail. [7+7]
2. A) I) List the properties and applications of Hadfield magnetic steels and medium carbon steels.
II) Discuss the process involved in preparing the malleable iron from white cast iron. [7+7]
OR
B) I) What is the necessity of alloying and explain the changes that occur in properties of steels.
II) Explain how the grains and grain boundaries are formed during solidification of plain carbon steel. [7+7]
3. A) I) What is heat treatment and summarize its purposes [7]
II) Explain the different types of annealing processes. [7]
OR
B) I) Explain surface hardening in detail?. [7]
II) Differentiate between carburising and nitriding. [7]
4. A) I) What are bronzes ?. How are they classified ?. Give application of any three of them.
II) What are the disadvantages of titanium alloys ?. [7]
OR
B) I) Write the classification of Cu alloys. Describe the importance of brass. [7]
II) What is meant by anodizing of aluminium ?. [7]
5. A) I) What is tempered glass ?. Explain. [7+7]
II) Name a few ceramic materials which are used in Industry and what are their characteristics.
OR
B) I) What is a composite material and how they are classified ?. [7]
II) Summarize applications and advantages of powder metallurgy [7]

Subject Code: R20CE1212

I B.Tech. - II Semester Regular & Supple Examinations, July-2023
Elements of Mechanical and Electrical Engineering
(CE)

Time: 3 hours

Max. Marks: 70

Note: Answer All FIVE Questions.
All Questions Carry Equal Marks (5 X 14 =70M)

1. A) I) What are the applications of steam power generation? [7M]
II) Explain the VCR systems? [7M]
OR
B) I) What are the components of a gas turbine? [7M]
II) Explain the gas turbine Basic cycle? [7M]
2. A) Briefly explain the different types of power transmissions? [14M]
OR
B) Explain the classifications and applications of gears? [14M]
3. A) Explain the following i) Arc welding ii) Resistance welding? [14M]
OR
B) I) What are the active and passive elements? [7M]
II) State and explain Kirchhoff's laws? [7M]
4. A) Briefly explain the constructional features and principle operation of DC Machines? [14M]
OR
B) I) Derive the EMF equation of a DC generator? [7M]
II) What are the types of DC generators? Explain? [7M]
5. A) I) Derive the EMF equation of a transformer? [7M]
II) Explain open circuit and short circuit tests of Transformer? [7M]
OR
B) I) Describe the construction details of Induction motors? [7M]
II) Explain the working principle of single phase Induction motor? [7M]

Subject Code: R20EE1213

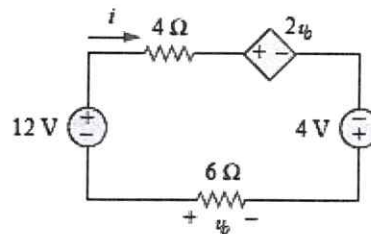
I B.Tech. - II Semester Regular & Supple Examinations, July-2023
Electrical Circuit Analysis-I
(EEE)

Time: 3 hours

Max. Marks: 70

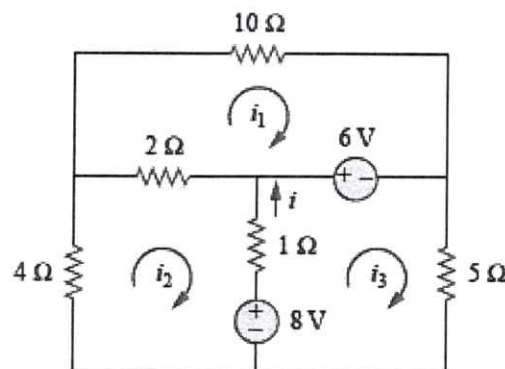
Note: Answer All FIVE Questions. All Questions Carry Equal Marks (5 X 14 = 70M)

1. A) I) Explain the volt-ampere relations of L and C parameters [7M]
 II) Determine V_o and i in the circuit shown in Fig. [7M]

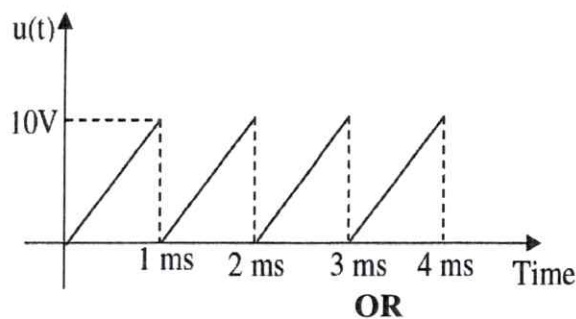


OR

- B) Apply mesh analysis to find i in Fig [14M]



2. A) I) Define the following terms [5M]
 (i) Instantaneous value (ii) peak value (iii) peak to peak value
 (iv) Time Period (v) Frequency [9M]
 II) Determine R.M.S and Average value of the waveform shown in Figure [9M]



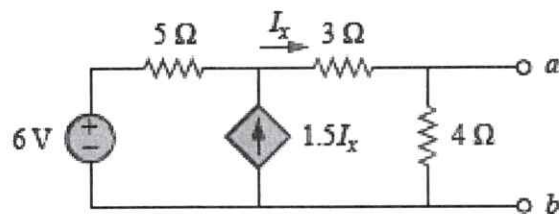
OR

- B) I) RLC circuit has a resistance of 25Ω and an inductance of 64 mH and a capacitance of $80 \mu\text{F}$ connected in series across 110 V , 50 Hz mains. Determine: (i) Impedance of the circuit. (ii) Current taken from the mains. [9M]
 II) Define the following terms [4M]
 (i) real power (ii) reactive power (iii) apparent power (iv) power factor

3. A) I) Draw the parallel resonant circuit and derive the expression for resonant frequency
 II) a series connected circuit has $R = 4 \Omega$ and $L = 25 \text{ mH}$. (i) Calculate the value of C that will produce a quality factor of 50. (ii) Find lower and upper half power frequencies and bandwidth. Take $V_m = 100 \text{ V}$ [7M+7M]

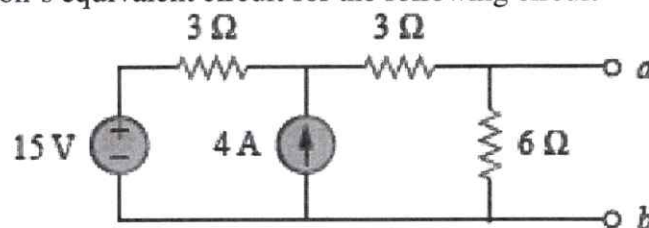
OR

- B) I) Explain the dot rule of coupled circuits [7M]
 II) Derive the equation for Equivalent inductance when two inductances are coupled in series aiding and mutual inductance exists between them [7M]
 4. A) I) Explain about superposition principle with example [7M+7M]
 II) Find the Thevenin equivalent circuit of the following circuit to the terminals a and b.

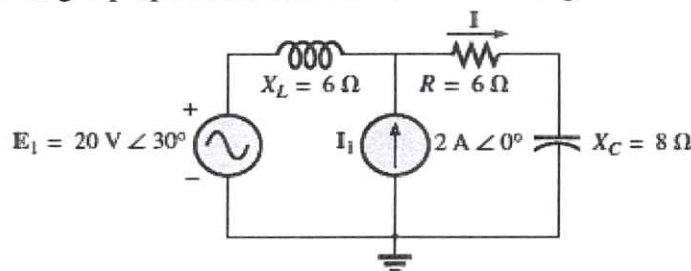


OR

- B) I) State and Explain Tellegen's theorem. [7M]
 II) Find the Norton's equivalent circuit for the following circuit [7M]

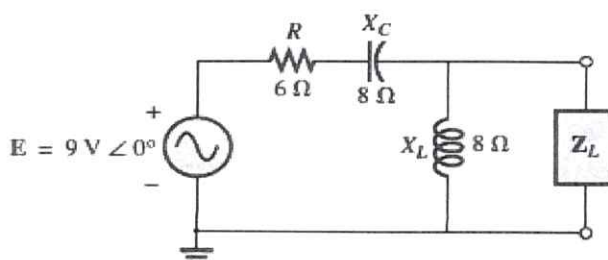


5. A) I) State and Explain Reciprocity theorem. [7M]
 II) Using superposition, find the current I through the 6 ohms resistor in Fig. [7M]



OR

- B) I) State and explain Millman's theorem [7M]
 II) Find the load impedance in Fig for maximum power to the load, and find the maximum power. [7M]



Subject Code: R20ME1214

I B.Tech. - II Semester Regular & Supple Examinations, July-2023

Elements of Electrical and Electronics Engineering

(ME)

Time: 3 hours

Max. Marks: 70

Note: Answer All FIVE Questions. All Questions Carry Equal Marks (5 X 14 =70M)

1. A) I) State Kirchhoff's laws and explain voltage division technique and current division technique
II) When three resistors are connected in parallel show the relation between the currents and obtain the equation for currents.

OR

- B) I) Derive the conversion from star to delta connection
II) A combination of two resistors, of 3 ohms and 6 ohms in parallel, is connected to a resistance of 4 ohms in series. The network is supplied current from a 6V battery. Determine i) current in each branch ii) the power dissipated in the circuit iii) power dissipated in each branch.

2. A) I) Derive an expression for torque developed in the armature of DC motor.
II) Draw the diagram of a 3 – point starter and explain the function of each component.

OR

- B) I) Explain the constructional details of a DC machine with a neat diagram
II) What are the different losses in a DC machine? Explain the procedure to calculate efficiency of DC machine by direct load test.

3. A) I) Explain the working principle of a Transformer with the help of neat sketch.
II) Develop an expression for the emf induced in a transformer winding. Show that the emf induced per turn in primary is equal to the emf per turn in secondary.

OR

- B) I) A 6 pole, 3- induction motor runs at 1140rpm on full load when supplied power from a 60Hz supply. Determine the slip at full load.
II) Explain construction and working of a Single phase induction motor?

4. A) I) Generalize the working of Zener diode as a voltage regulator.
II) Explain with a neat diagram the operation of a Full wave rectifier and also draw its output wave forms.

OR

- B) I) Draw and Explain the V-I characteristics of a P-N Junction diode
II) Explain the operation of a half wave rectifier and also draw its output wave forms.

5. A) I) Compare between PNP and NPN transistors.
II) Draw the input and output characteristics of a BJT in CE configuration.

OR

- B) I) Explain the operation of transistor as an amplifier.
II) Write a short note on Common Emitter configuration.

Subject Code: R20EC1215

I B.Tech. - II Semester Regular & Supple Examinations, July-2023

Network Analysis

(EC)

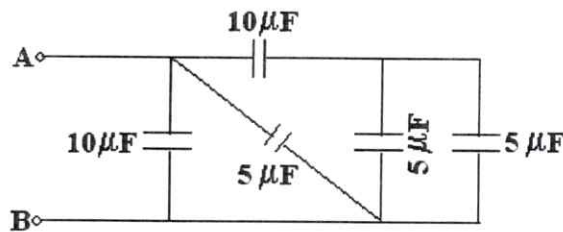
Time: 3 hours

Max. Marks: 70

Note: Answer All FIVE Questions. All Questions Carry Equal Marks (5 X 14 =70M)

1. A) I) Distinguish between passive and active elements with suitable examples. [7M]

II) Find the equivalent capacitance between the terminals A and B in the circuit shown in figure. [7M]

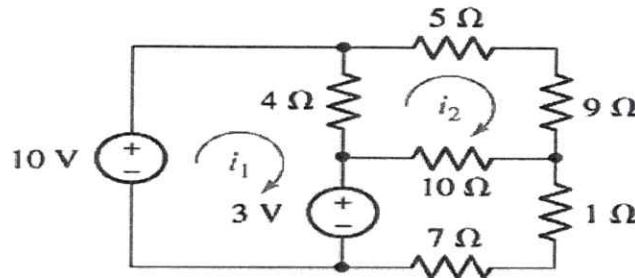


OR

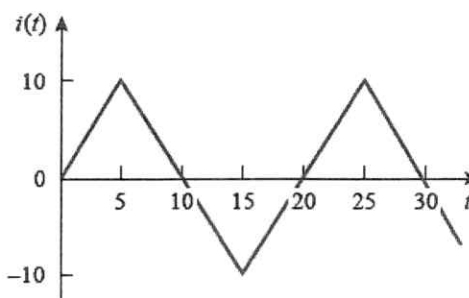
B) I) Explain the following terms: [7M]

- (a) Charge (b) Electric potential (c) Potential difference
(d) Electric current (e) Resistance (f) Power (g) Electrical energy.

II) Determine the currents i_1 and i_2 in the circuit shown below [7M]



2. A) Define average value, RMS value, form factor and peak factor and calculate the same for the following periodic waveform shown in figure [14M]



OR

B) I) Obtain an expression for coefficient of coupling [7M]

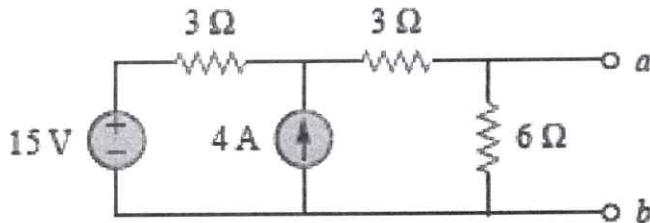
II) Two similar coils connected in series gave a total inductance of 600 mH and when one of the coil is reversed, the total inductance is 300 mH. Determine the mutual inductance between the coils and coefficient of coupling. [7M]

3. A) I) Derive an expression for the current, impedance, average power for a series RC circuit excited by a sinusoidally alternating voltage and also find the power factor of the circuit. Draw the phasor diagram.

- II) A series R-L series circuit having a resistance of 4ohms and 3 ohms inductive reactance is fed by 100V, 50Hz, 1- ϕ supply. Find current, power drawn by the circuit and power factor. [7M]

OR

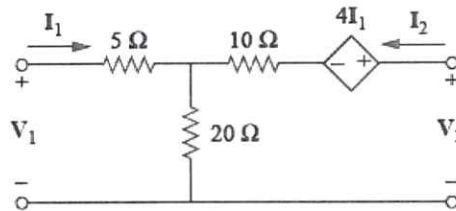
- B) I) Prove that the maximum power transfer to the load when the load resistance equals the Thevenin's resistance as seen from the load. [7M]
 II) Find the Norton's equivalent circuit for the following circuit. [7M]



4. A) I) What is resonance? Derive an expression for half power frequencies in series RLC circuit. [7M]
 II) An inductance coil of resistance of 6 ohms and inductance 1mH is connected in parallel with another branch consisting of a resistance of 4 ohms with a capacitance of 20 F. Find (i) The resonant frequency (ii) Current at a resonance. The applied voltage is 200V. [7M]

OR

- B) I) Derive Y parameters in terms of ABCD parameters [7M]
 II) Compute the z parameters of the circuit [7M]



5. A) I) Derive the expression for transient response of RL series circuit with DC excitation using differential equation approach. [7M]
 II) In a series RL circuit, with $R = 3$ & $L = 1H$, a D.C. Voltage of $E = 50V$ is applied at $t=0$. Find the transient response of current. [7M]

OR

- B) I) Derive the expression for transient response of RC series circuit with DC excitation using Laplace transformation and also explain the initial conditions in transient analysis approach [14M]

Subject Code: R20CE1216

I B.Tech. - II Semester Regular & Supple Examinations, July-2023
Elements of Building Science
(CE)

Time: 3 hours

Max. Marks: 70

Note: Answer All FIVE Questions. All Questions Carry Equal Marks (5 X 14 =70M)

1. A) I) How bricks are classified? What are the properties of first class bricks? (7M)
II) What do you understand about the dressing of stones and explain the methods of dressing of stones? (7M)
- OR**
- B) I) List the constituents of lime and explain their need? (7M)
II) Explain the need of various building materials. (7M)
2. A) I) What is seasoning of timber? Explain briefly about any two methods of seasoning (7M)
II) Explain the various characteristics of tiles. (7M)
- OR**
- B) I) What is the role of Aluminium as building material? Explain its properties. (7M)
II) Explain the difference in properties of plastic and reinforced plastic materials. (7M)
3. A) I) Explain English bond with neat sketch. (7M)
II) When do you prefer Mat foundation? What are its advantages? (7M)
- OR**
- B) I) Distinguish between distempering and painting. (7M)
II) Explain the necessity of Damp proofing in buildings. (7M)
4. A) I) Write down the advantages and disadvantages of natural and artificial ventilation. (7M)
II) Why buildings must require fire safety exit? And explain which building is fire resist construction? (7M)
- OR**
- B) I) Explain in detail the principles of building planning according to Indian standard. (7M)
II) What are the various types of building services? And explain any two in detail. (7M)
5. A) I) What is meant by building bye laws? Explain them in detail. (7M)
II) Explain in detail Floor area ratio and Floor space index with an example. (7M)
- OR**
- B) I) What are the open space requirements for various buildings like residential, commercial, hospital and educational buildings? (7M)
II) What are various IGBC rating systems? Explain any one in detail. (7M)

Subject Code: R20EC1217

I B.Tech. - II Semester Regular & Supple Examinations, July-2023
Problem Solving Using Python
(ECE)

Time: 3 hours

Max. Marks: 70

Note: Answer All FIVE Questions. All Questions Carry Equal Marks (5 X 14 =70M)

1. A) I) What is flowchart and algorithm? Write differences between flowchart and algorithm.
Give an example of flowchart and algorithm.
II) Convert the following binary numbers to Decimal, Octal and Hexadecimal numbers.
a) 1101 b) 1011 c) 010
OR
- B) I) Give flowchart and algorithm for calculating maximum and minimum of first N numbers.
II) Construct a flowchart for finding the simple interest.
2. A) I) What is data type? Define different type of data types with example. Why we use different data types in the Python programming language?
II) Write a Python program to convert a list of characters into a string.
Example: Input: ['s','t','u','d','e','n','t'], Output: student.
OR
- B) I) What are the different loop control statements available in Python? Explain with suitable examples.
II) Write a program to print all the numbers from 1 to 1000 that are not divisible by 2, 3, 5, 7, 11, 13, 17 and 19.
3. A) I) What are differences between user defined functions and build in functions in the python programming. Explain with suitable examples.
II) Define recursive function? Write a python program whether a string is a palindrome or not using recursive?
OR
- B) I) Draw the event handling mechanism to illustrate the concept?
II) Explain how to plot Bar plots by using Turtle with an example.
4. A) I) What is dictionary? Write a python program to create following dictionary (Language Inventors) and print all keys and values of the dictionary?

Language	Name
C	Dennis Ritchie
CPP	James Gosling
Python	Guido van Rossum

II) Given two input number A and B. Find the sum of number between A and B by using python function. For example: **input:** A=2, B=5 **output:**14 (2+3+4+5).

OR

B) I) What is a file? What are file operations? What are the advantages of file handling?

II) Write a program to create a list of numbers in the range 1 to 20. Then delete all the numbers from the list that are divisible by 2.

5. A) I) What is the difference between a class and an object? Explain with suitable examples.

II) Write a program that has a class Point with attributes as the x and y coordinates. Make two objects of class and find the midpoint of the both the points.

OR

B) I) Explain following terms: (a) inheritance (b) polymorphism

II) Explain how exceptions can be handled in Python with an example. What are the advantages of using it?

I B.Tech II Semester Regular & Supplement Examinations, July-2023

Sub Code: R20CC1218 TECHNICAL AND COMMUNICATIVE ENGLISH-II

(CS, DS & AIML)

Max. Marks: 70

Time: 3 hours

Note: Answer All FIVE Questions.

All Questions Carry Equal Marks (5 X 14 = 70M)

Q.N	Questions	KL	CO	Marks
1	<p>Unit-I</p> <p>i) What is your impression of the narrator, Nellie Bly?</p> <p>ii) Rearrange the words to form meaningful questions. a. like/how/you/this/do/place? b. come/do/every/day/how/to/college/you? c. India/from/how/different/is/China? d. interests/your/hobbies/what/and/are? e. did/you/to/come/Hyderabad/when? f. vacation/how/summer/spend/you/your/did?</p>	3	1	8M
	<p align="center">OR</p> <p>i) If you were given an opportunity, where would you like to travel and why?</p> <p>ii) Write a brief profile of your friend using the following prompts. Occupation, interests, Qualities you like, Accomplishments, his/her impact on you.</p>	3	1	8M
2	<p>Unit-II</p> <p>i) How was Mr. Ellis's method of teaching different from that of his predecessors?</p> <p>ii) Write a coherent paragraph of 150 words on "A day you will always remember".</p>	3	1	8M
	<p align="center">OR</p> <p>i) Why did the narrator consider Mary Smith the dearest office teacher?</p> <p>ii) Fill in the blanks using suitable prepositions (about, in, for, on, into, to, since, at) In order to write an article for a magazine, you must engage (1) _____ research. You have to look (2) _____ relevant information (3) _____ the topic. You must also take (4) _____ consideration current issues. You should show an awareness (5) _____ recent debates (6) _____ the area and not rely only (7) _____ secondary sources but make use (8) _____ primary data.</p>	3	2	6M
3	<p>Unit-III</p> <p>i) Briefly summarize the changes that occurred in the workplace environment across the twentieth century.</p> <p>ii) Read the given text which contains one error in each sentence. Spot the errors, make the necessary corrections, and write the corrected sentences. a. The whole team meet every afternoon. b. There is twelve people in our department. c. All the peoples in our department are hard working. d. Everyone comes in early and leaves late as we are understaffed in the moment. e. However, nobody ever complain about the amount of work. f. At the same time, nobody works hardly to please Rajeev, our manager, because he rarely smiles and hardly interacts with anyone in the office.</p>	3	4	6M
	<p align="center">OR</p> <p>i) How has technology revolutionized the ways in which people connect together for work today?</p> <p>ii) Fill the blanks with suitable verb forms: a. Meera _____ (practice) the violin every day. b. They always _____ (shop) at Sneha's favourite store. c. Sohail _____ (win) the silver medal in the sprint last year. d. She _____ just _____ (arrive). e. The freezing point of petrol _____ (be) a chilly -60 °C. f. He _____ (live) here all his life.</p>	3	1	8M + 6M
4	<p>Unit-IV</p> <p>i) What can you infer about Peter J. Bowler's views on the advancement of technology?</p> <p>ii) Create a pie chart on what activities you spend your time on during a week.</p>	3	4	6M
	<p align="center">OR</p> <p>i) Write a short paragraph on your prediction for humankind a hundred years from now.</p> <p>ii) Write the Antonyms for the following words. i) Fail ii) Uniformity iii) exclusively iv) Dividing v) Hinder vi) Vanish</p>	3	2	8M
5	<p>Unit-V</p> <p>i) Is awareness about cultural diversity essential? Why/why not?</p> <p>ii) Write an essay in about 250-300 words on the topic "Impact of digital media on print media".</p>	3	2	8M
	<p>Write an essay in about 250-300 words on the topic "Impact of digital media on print media".</p>	3	4	6M

Q.N	Questions	KL	CO	Marks
3	<p>Unit-I-III</p> <p>i) Briefly summarize the changes that occurred in the workplace environment across the twentieth century.</p> <p>ii) Read the given text which contains one error in each sentence. Spot the errors, make the necessary corrections, and write the corrected sentences. a. The whole team meet every afternoon. b. There is twelve people in our department. c. All the peoples in our department are hard working. d. Everyone comes in early and leaves late as we are understaffed in the moment. e. However, nobody ever complain about the amount of work. f. At the same time, nobody works hardly to please Rajeev, our manager, because he rarely smiles and hardly interacts with anyone in the office.</p>	3	4	6M
	<p align="center">OR</p> <p>i) How has technology revolutionized the ways in which people connect together for work today?</p> <p>ii) Fill the blanks with suitable verb forms: a. Meera _____ (practice) the violin every day. b. They always _____ (shop) at Sneha's favourite store. c. Sohail _____ (win) the silver medal in the sprint last year. d. She _____ just _____ (arrive). e. The freezing point of petrol _____ (be) a chilly -60 °C. f. He _____ (live) here all his life.</p>	3	1	8M + 6M
4	<p>Unit-IV</p> <p>i) What can you infer about Peter J. Bowler's views on the advancement of technology?</p> <p>ii) Create a pie chart on what activities you spend your time on during a week.</p>	3	4	6M
	<p align="center">OR</p> <p>i) Write a short paragraph on your prediction for humankind a hundred years from now.</p> <p>ii) Write the Antonyms for the following words. i) Fail ii) Uniformity iii) exclusively iv) Dividing v) Hinder vi) Vanish</p>	3	2	8M
5	<p>Unit-V</p> <p>i) Is awareness about cultural diversity essential? Why/why not?</p> <p>ii) Write an essay in about 250-300 words on the topic "Impact of digital media on print media".</p>	3	2	8M
	<p>Write an essay in about 250-300 words on the topic "Impact of digital media on print media".</p>	3	4	6M

OR

i) Does discrimination still exist in the society? Support your answer with relevant details from 'Leaves from the Mental Portfolio of a Eurasian'	3	2	8M
ii) The text given below has one error in each sentence. Spot the errors, correct the sentences and write the corrected text. An invention is an unique or novel device, method, composition or process. (1) The invention is a process within a overall engineering and product development process. (2) It may be an improvement upon a machine, a product, or a new process to creating an object or a result. (3) An invention that achieve a completely unique function or result may be a radical breakthrough. (4) Some inventions can being patented. (5) A patent legally protects the intellectual property rights of the inventor and recognises that a claimed invention will be actually an invention. (6) The rules and requirements for patenting an invention vary from country for country and the process of obtaining a patent is often expensive.	3	4	6M
