

Hall Ticket No. -

Code: R123926

Stanley College of Engineering & Technology for Women (A)

B.E (EEE) II Semester (Main) Examinations-September-2023

Engineering Mechanics

Time: 03 Hours

Max. Marks-60

- Note: i. First Question is Compulsory. Answer any Four out of remaining Six questions.
ii. Answer to each question must be written at one place only and in the same order as they occur in the Question paper.
iii. Missing data, if any, may be suitably assumed.

PART A

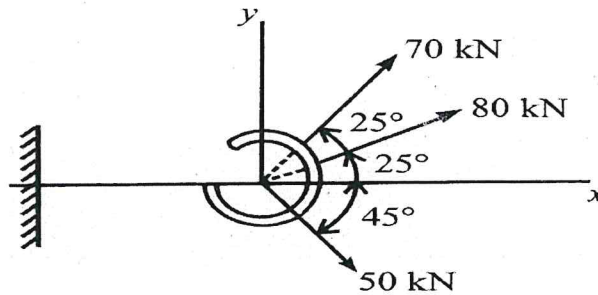
6X2=12M

1. a) Define (i) Line of action of force (ii) Resultant of force. 2M CO1 BTL1
- b) Mention the characteristics of friction. 2M CO2 BTL2
- c) State and explain pappu's theorem. 2M CO3 BTL3
- d) Define different Newton's law of motion. 2M CO4 BTL1
- e) Define the terms (i) Impulse momentum (ii) Coefficient of restitution. 2M CO5 BTL1
- f) State and explain varignon's theorem. 2M CO1 BTL2

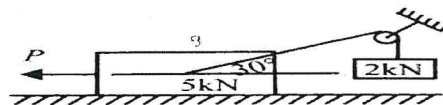
PART B

4x12=48M

2. Determine the resultant of the force acting on a hook as shown in figure 12M CO1 BTL4
given below.

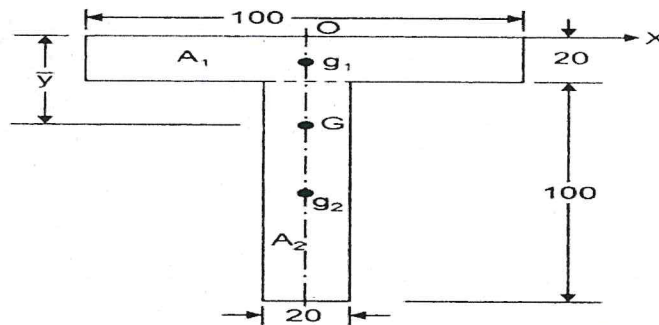


3. A block weighing 5kN is attached to a chord, which passes over a frictionless pulley, and supports a weight of 2kN. The coefficient of friction between the block and the floor is 0.35. Determine the value of force P if (i) The motion is impending to the right (ii) The motion is impending to the left. 12M CO2 BTL3



4. Locate the centroid of a given T – Section.

12M CO3 BTL3



5. a) Explain the terms (i) Kinetics (ii) Kinematics.

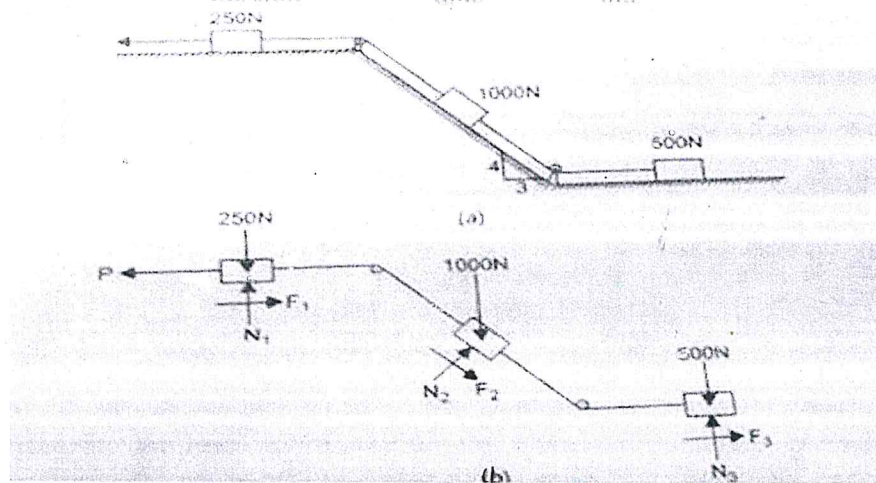
2M CO4 BTL2

b) A vertical lift of total mass 500Kg acquires an upward velocity of 2m/sec over a distance of 3m of motion with constant acceleration, starting from rest. Calculate the tension in the cable supporting the lift. If the lift while stopping moves with a constant deceleration and comes to rest in 2sec, calculate the force transmitted by a man of mass 75kg on the floor of the lift during the interval.

10M CO4 BTL2

6. Determine the constant force P that will give the system of the bodies shown in figure below a velocity of 3 m/s after moving 4.5 m from rest. Coefficient of friction between block and plane is 0.3. pulleys are smooth

12M CO5 BTL2



7. a) State and prove parallelogram law of forces.

6M CO1 BTL2

b) Discuss the following terms with suitable examples and diagrams.

6M

(i) Static friction (ii) Angle of repose (iii) Limiting force of friction.



Hall Ticket No. -

Code: R123924

Stanley College of Engineering & Technology for Women (A)

B.E (CSE/IT/CME/AI&DS) II Semester (Main) Examinations-September-2023

Data Structures with C

Time: 03 Hours

Max. Marks-60

- Note:** i. First Question is Compulsory. Answer any Four out of remaining Six questions.
ii. Answer to each question must be written at one place only and in the same order as they occur in the Question paper.
iii. Missing data, if any, may be suitably assumed.

Part-A

6X2=12M

1. a. List any four applications of data structures. [2M CO1 BTL1]
- b. Write a recursive algorithm for finding factorial of a number [2M CO2 BTL2]
- c. The size of the stack is 7. The operations performed are push(35), push(40), push(45), pop(), push(50), pop(), push(55), pop(), pop(). Evaluate the final elements present in the stack. [2M CO7 BTL5]
- d. What are the conditions for a balanced binary search tree? [2M CO9 BTL2]
- e. Define Hash function. [2M CO9 BTL1]
- f. Differentiate a tree and a graph. [2M CO12 BTL2]

Part-B

4X12=48M

2. a. Illustrate asymptotic notations with examples. [6M CO1 BTL3]
- b. Write the steps for Binary search algorithm and compare the time complexity with linear search. [6M CO5,12 BTL2]
3. a. Evaluate the following infix expression using Stack: $2 * (5 * (3 + 6)) / 5 - 2$ [6M CO7 BTL5]
- b. Explain the implementation of queues using arrays. [6M CO8 BTL2]
4. a. What are the applications of linked list data structure? [6M CO8 BTL2]
- b. Compare circular linked list and doubly linked list. [6M CO7,8,12 BTL2]
5. a. What are the variants of Binary trees? Explain. [6M CO9 BTL2]
- b. Compare BFS and DFS with an example. [6M CO9 BTL2]
6. a. Explain all the operations of m-way search trees. [8M CO10 BTL2]
- b. What is linear probing? Explain. [4M CO9 BTL2]
7. a. Sort the following numbers using quick sort: 32,19,20,45,65,12,50,18 [6M CO4 BTL4]
- b. Explain the rotations of AVL tree. [6M CO10 BTL2]



Hall Ticket No. -

Code: R123928

Stanley College of Engineering & Technology for Women (A)

B.E (ECE/EEE) II Semester (Main) Examinations-September-2023

Engineering Physics

Time: 03 Hours

Max. Marks-60

- Note:** i. First Question is Compulsory. Answer any Four out of remaining Six questions.
ii. Answer to each question must be written at one place only and in the same order as they occur in the Question paper.
iii. Missing data, if any, may be suitably assumed.

Part-A

6X2=12M

1. a. In a Newton's rings experiment, the diameter of the 15th ring was found to be 0.59 cm and that of the 5th ring is 0.336 cm. If the radius of curvature of the lens is 100 cm, find the wavelength of the light. [2M CO1 BTL4]
- b. List out the characteristics of Lasers. [2M CO2 BTL1]
- c. Define 'space lattice' and 'unit cell'. [2M CO3 BTL1]
- d. Give the physical significance of wave function ψ . [2M CO4 BTL2]
- e. State Ampere's law. [2M CO5 BTL1]
- f. Distinguish between Fresnel and Fraunhofer diffraction. [2M CO1 BTL3]

Part-B

4X12=48M

2. a) What is interference of light? Explain in detail Young's double slit experiment and obtain the maxima and minima conditions. [6M CO1 BTL2]
- b) What is diffraction grating? Explain the experiment to determine the wavelength of a monochromatic light using diffraction grating. [6M CO1 BTL2]
3. a) Describe the construction and working of He-Ne laser with the help of neat diagram by giving energy level transitions. [7M CO2 BTL3]
- b) Describe fibre drawing process by Double crucible method [5M CO2 BTL2]
4. a) Define Miller indices. Deduce the expression for inter planer spacing for a cubic crystal system. [6M CO3 BTL4]
- b) Derive an expression for concentration of Schottky defects in ionic crystal [6M CO3 BTL3]
5. a) Obtain an expression for energy of a particle in a 1-D box with the help of Schrodinger equation. [8M CO4 BTL4]
- b) State and prove Gauss law in electrostatics. [4M CO4 BTL2]
6. a) Define Magnetic induction. State and explain Biot Savart's law. [6M CO5 BTL3]
- b) Derive an equation for Electromagnetic plane wave in a free space. [6M CO5 BTL4]
7. a) Describe the powder diffraction method to calculate the lattice constant of a given crystal. [7M CO3 BTL3]
- b) What is optical fibre? Discuss types of optical fibres based on refractive index profile. [5M CO2 BTL2]



Hall Ticket No. -

Code: R123921

Stanley College of Engineering & Technology for Women (A)

B.E (Common to all) II Semester (Main) Examinations-September-2023

Mathematics-II

Time: 03Hours

Max. Marks-60

- Note:** i. First Question is Compulsory. Answer any four out of remaining six questions.
ii. Answer to each question must be written at one place only and in the same order as they occur in the Question Paper.
iii. Missing data, if any, may be suitably assumed.

Part-A

6X2=12M

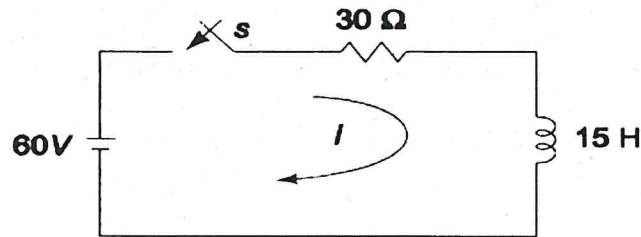
1. a. Solve $(y^2 - 2xy) dx + (2xy - x^2) dy = 0$ [2M CO1BTL2]
- b. Solve $(D^3 - 3D + 2) y = 0$ [2M CO2 BTL3]
- c. Evaluate $\int_0^1 x^5(1-x)^3 dx$ [2M CO3 BTL4]
- d. Define Rank of Matrix with example. [2M CO4BTL1]
- e. Find $L \{ t^2 \sin 2t \}$ [2M CO5 BTL3]
- f. Find the value of k such that the rank of $\begin{bmatrix} 1 & 2 & 3 \\ 2 & k & 7 \\ 3 & 6 & 10 \end{bmatrix}$ is 2. [2M CO4 BTL2]

Part-B

4X12=48M

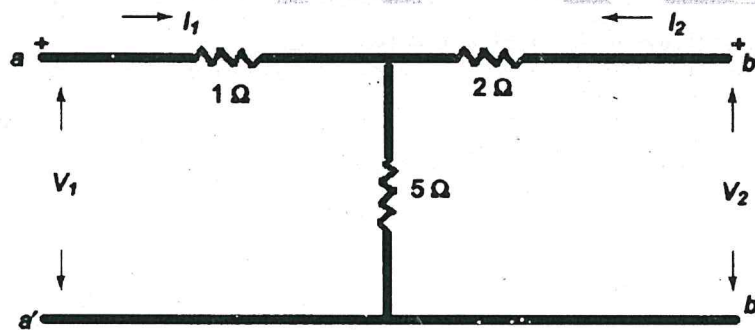
2. a) Solve $\frac{dy}{dx} - \frac{2y}{x+1} = (x+1)^3$ [6M CO1 BTL3]
- b) Prove that the system of parabolas $y^2 = 4a(x+a)$ is self-orthogonal. [6M CO1 BTL4]
3. a) Solve $(D^2 + 3D + 2) y = 2 \cos(2x+3) + 2e^x + x^2$ [6M CO2 BTL4]
- b) Solve the differential equation $(D^2 + 4) y = \sec 2x$ by the method of variation of parameters [6M CO2 BTL3]
4. a) State and Prove relation between Beta and Gamma functions [8M CO3 BTL4]
- b) Evaluate $\int_0^\infty x^2 e^{-x^2} dx$ [4M CO3 BTL3]
5. a) Determine whether the following equations have a non-trivial solution, if so solve them: $4x + 2y + z + 3w = 0$, $6x + 3y + 4z + 7w = 0$, $2x + y + w = 0$ [6M CO4 BTL3]
- b) Verify Cayley-Hamilton theorem for $A = \begin{pmatrix} 1 & 2 & -1 \\ 2 & 1 & -2 \\ 2 & -2 & 1 \end{pmatrix}$ [6M CO4 BTL4]
6. a) Evaluate $L \left\{ \frac{\cos 2t - \cos 3t}{t} \right\}$ [4M CO5 BTL3]
- b) Evaluate $L^{-1} \left\{ \frac{s^2}{(s^2+4)(s^2+25)} \right\}$ using convolution theorem. [8M CO5 BTL4]
7. a) Solve $P = \sin(y - xp)$. Also find its Singular solution. [4M CO2 BTL2]
- b) Find the nature of the quadratic form $2x^2 + 2y^2 + 2z^2 + 2yz$ [8M CO4 BTL3]

3. a) A series RL circuit with $R = 30 \text{ ohm}$ and $L = 15 \text{ H}$ has a constant voltage $V = 60 \text{ V}$ applied at $t = 0$ as shown in Fig. below. Determine the current i , voltage across resistor and the voltage across the inductor. [6M CO2 BTL3]



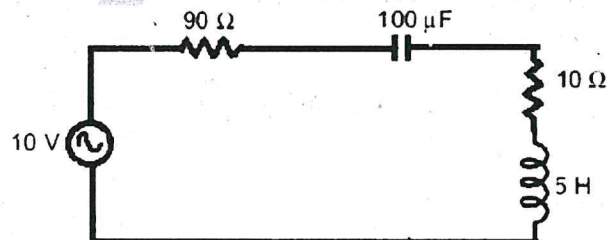
- b) A sinusoidal voltage $v = 50 \sin \omega t$ is applied to a series RL circuit. The current in the circuit is given by $i = 25 \sin (\omega t - 53^\circ)$. Determine (a) apparent power (b) power factor and (c) average power. [6M CO2 BTL3]

4. a) Find the transmission or general circuit parameters for the circuit shown. [6M CO3 BTL3]



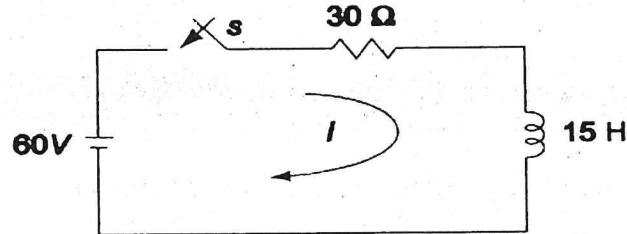
- b) What are the Necessary Conditions for Driving Point Function and transfer functions? [6M CO3 BTL1]

5. a) For the circuit shown below, determine the value of Q at resonance and bandwidth of the circuit. [6M CO4 BTL3]



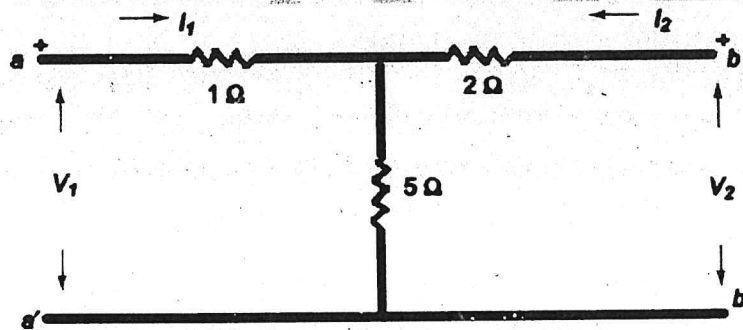
- b) Compare series and parallel resonance. [6M CO4 BTL4]

3. a) A series RL circuit with $R = 30 \text{ ohm}$ and $L = 15 \text{ H}$ has a constant voltage $V = 60 \text{ V}$ applied at $t = 0$ as shown in Fig. below. Determine the current i , voltage across resistor and the voltage across the inductor. [6M CO2 BTL3]



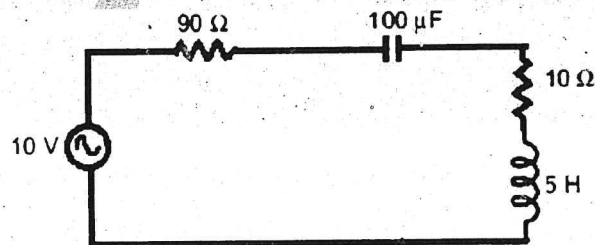
- b) A sinusoidal voltage $v = 50 \sin \omega t$ is applied to a series RL circuit. The current in the circuit is given by $i = 25 \sin (\omega t - 53^\circ)$. Determine (a) apparent power (b) power factor and (c) average power. [6M CO2 BTL3]

4. a) Find the transmission or general circuit parameters for the circuit shown. [6M CO3 BTL3]



- b) What are the Necessary Conditions for Driving Point Function and transfer functions? [6M CO3 BTL1]

5. a) For the circuit shown below, determine the value of Q at resonance and bandwidth of the circuit. [6M CO4 BTL3]



- b) Compare series and parallel resonance. [6M CO4 BTL4]

6. a) Explain constant K low pass filter.

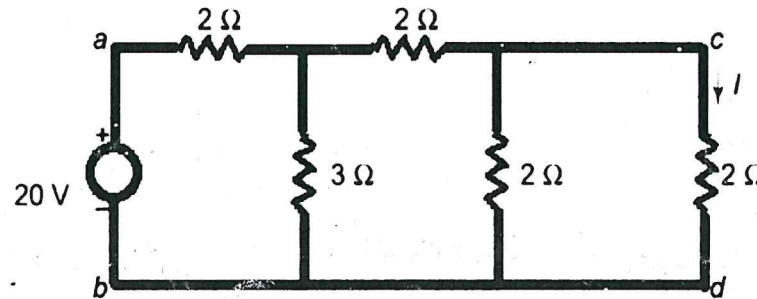
[8M CO5 BTL2]

b) Design a low pass filter (both pi and T-sections) having a cut-off frequency of 2 KHz to operate with a terminated load resistance of 500 ohm.

[4M CO5 BTL6]

7. a) Verify the reciprocity theorem for the network shown.

[8M CO1 BTL3]



b) The port currents of a two-port network are given by

$$I_1 = 2.5V_1 - V_2$$

$$I_2 = -V_1 + 5V_2$$

Find the equivalent p-network.

[4M CO3 BTL3]

Hall Ticket No. -

Code: R123931

Stanley College of Engineering & Technology for Women (A)

B.E (ECE/EEE/IT) II Semester (Main) Examinations-September-2023

Essence of Indian Traditional Knowledge

Time: 03 Hours

Max. Marks-60

- Note:** i. First Question is Compulsory. Answer any Four out of remaining Six questions.
ii. Answer to each question must be written at one place only and in the same order as they occur in the Question paper.
iii. Missing data, if any, may be suitably assumed.

Part-A

6X2=12M

1. a. "Culture is diverse" Explain. [2M CO1BTL1]
- b. Who is the author of "Pruthviraj Raso" and what is its specialty? [2M CO2 BTL1]
- c. Write about Ramakrishna mission. [2M CO3 BTL2]
- d. Explain how Kalighat painting got the name. [2M CO4 BTL2]
- e. Name any four women scholars of Vedic era. [2M CO5 BTL1]
- f. What is the meaning of the Sanskrit word "Ithihasa". [2M CO2 BTL1]

Part-B

4X12=48M

2. a) What is unique about Indian Culture? [6M CO1 BTL2]
- b) What is the impact of culture on Human life? [6M CO1 BTL2]
3. a) Explain the five characteristics of Puranas. [6M CO2 BTL1]
- b) Write about the Telugu language and literature. [6M CO2 BTL2]
4. a) What were the religious beliefs of Pre-Vedic and Vedic people? [6M CO3 BTL2]
- b) Assess the contribution of Arya-Samaj. [6M CO3 BTL2]
5. a) Write a short note on Medieval Indian Painting. [6M CO4 BTL1]
- b) Write a short note in Indian classical music. [6M CO4 BTL1]
6. a) Describe the salient features of the NEP 2019. [6M CO5 BTL1]
- b) Discuss the development of Science and Technology in Modern India. [6M CO5 BTL2]
7. a) What is unique about the Indian Architecture? [6M CO4 BTL2]
- b) Write a short note on Ancient Indian Culture. [6M CO1 BTL1]

Hall Ticket No. -

Code: R123930

Stanley College of Engineering & Technology for Women (A)

B.E.(CSE/CME/AI&DS) II Semester (Main) Examinations-September-2023

Environmental Science

Time: 03 Hours

Max. Marks-60

- Note:** i. First Question is Compulsory. Answer any Four out of the remaining Six questions.
ii. Answer to each question must be written in one place only and in the same order as they occur in the Question paper.
iii. Missing data, if any, may be suitably assumed.

Part-A

6X2=12M

1. a. Define environment and environmental studies. [2M CO1 BTL1]
- b. Explain food web with example. [2M CO2 BTL2]
- c. Define Genetic Level Diversity. [2M CO3 BTL1]
- d. List the measures to control noise pollution. [2M CO4 BTL1]
- e. Explain global warming. [2M CO5 BTL2]
- f. What is watershed management? [2M CO5 BTL2]

Part-B

4X12=48M

2. a) Summarize the impact of modern agriculture on the environment. [6M CO1 BTL2]
- b) Describe the multidisciplinary nature of environmental studies. [6M CO1 BTL1]
3. a) Define Ecosystem, write the classification of ecosystem. [6M CO2 BTL1]
- b) Sketch and explain energy flow in an ecosystem. [6M CO2 BTL2]
4. a) Illustrate Bio-geographical classification of India. [6M CO3 BTL3]
- b) Explain endangered and endemic species? List the endangered and endemic species of India. [6M CO3 BTL3]
5. a) Discuss causes, effects, and control measures of Water pollution. [6M CO4 BTL2]
- b) Explain salient features of the Water Act, 1974. [6M CO4 BTL4]
6. a) Summarize the different types of disasters. Discuss their ill effects on environment, infrastructure and development. [6M CO5 BTL5]
- b) Classify the Disaster management cycle. [6M CO5 BTL4]
7. a) Illustrate the causes, effects, and control measures of Ozone layer depletion. [6M CO5 BTL4]
- b) Discuss various renewable and non-renewable energy resources and write a note on Conservation of resources. [6M CO1 BTL2]



Hall Ticket No. :

Code: R123927

Stanley College of Engineering & Technology for Women (A)

B.E (CSE/CME/AI&DS) II Semester (Main) Examinations-September-2023

Basics Electrical & Electronic Circuits

Time: 03Hours

Max. Marks-60

- Note: i. First Question is Compulsory. Answer any Four out of remaining six questions.
ii. Answer to each question must be written at one place only and in the same order as they occur in the Question paper.
iii. Missing data, if any, may be suitably assumed.

Part-A

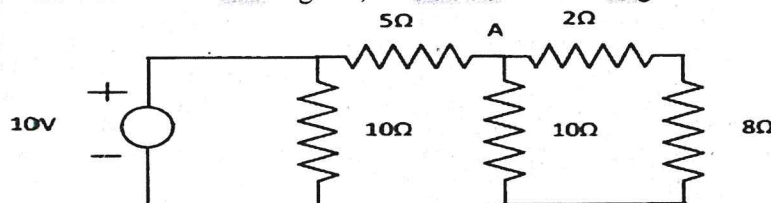
6X2=12M

1. a. State Kirchoff's Current law. CO1 L1 2M
- b. Define RMS value. CO2 L1 2M
- c. List some applications of zener diode. CO3 L1 2M
- d. Draw the V-I characteristics of JFET. CO4 L1 2M
- e. What are the properties of feedback amplifier? CO5 L1 2M
- f. Define real power and reactive power. CO2 L1 2M

Part-B

4X12=48M

2. a. In the circuit shown in figure, find the current through $8\ \Omega$ branch. CO1 L3 6M



- b. State Thevenin theorem and explain with an example. CO1 L2 6M
3. a. Derive the expressions for R.M.S and average value of a sinusoidal alternating quantity. CO2 L2 6M
 - b. Derive the relation between line and phase quantities for star connected balanced systems. CO2 L2 6M
4. a. Draw the circuit diagram for half-wave rectifier and explain its working CO3 L2 6M
 - b. Sketch and explain in detail about the V - I characteristic of the p - n junction diode. CO3 L3 6M

Code: R123927

5. a. Explain in detail about Common base circuit configuration with a neat diagram. CO4 L2 6M
- b. With the help of neat sketches and characteristic curves explain the construction & operation of a JFET and mark the regions of operation on the characteristics. CO4 L2 6M
6. a. Derive the expression for output resistance of a voltage amplifier circuit. CO5 L3 6M
- b. Draw the circuit diagram of differentiator by using OP-AMP and explain its operation. CO5 L3 6M
7. a. With the help of neat circuit diagram, explain the operation of Bridge rectifier. CO5 L2 6M
- b. Sketch and explain in detail about the CRO block diagram. CO3 L3 6M

*

Hall Ticket No. -

Code: R123922

Stanley College of Engineering & Technology for Women (A)

B.E (CSE/CME/AI&DS) II Semester (Main) Examinations-September-2023

Chemistry

Time: 03 Hours

Max. Marks-60

- Note:** i. First Question is Compulsory. Answer any Four out of remaining Six questions.
ii. Answer to each question must be written at one place only and in the same order as they occur in the Question paper.
iii. Missing data, if any, may be suitably assumed.

Part-A

6X2=12M

1. a. State Reverse Osmosis. [2M CO1 BTL1]
- b. Write about the thermal conversion of solar energy. [2M CO2 BTL1]
- c. How is Galvanic Corrosion explained? [2M CO1 BTL2]
- d. How is Degree of polymerization defined? [2M CO3 BTL2]
- e. Differentiate LCV and HCV. [2M CO4 BTL4]
- f. Give any four applications of Bio-diesel. [2M CO5 BTL1]

Part-B

4X12=48M

2. a) What is meant by de-ionized water? Explain the preparation of de-ionized water by Ion Exchange method. [7M CO1 BTL2]
- b) Explain any five factors effecting the rate of corrosion. [5M CO1 BTL2]
3. a) Write about Galvanic cells with suitable example. [5M CO2 BTL3]
- b) How is Lead-Acid storage battery constructed? Explain its functioning with cell reactions. [7M CO2 BTL2]
4. a) Explain Molecular orbital energy level diagram of O₂. [4M CO3 BTL2]
- b) Explain the preparation, properties and applications of Silicone rubber and Kevlar. [8M CO3 BTL2]
5. a) Describe Proximate analysis of coal and its significance. [7M CO4 BTL2]
- b) Calculate the Gross and Net calorific values of a coal having the following composition:
Carbon = 85%, Hydrogen = 10%, Sulphur = 3%, Oxygen=2.1% Rest in ash.
(Latent heat of steam is 587 cal/gram). [5M CO4 BTL3]
6. a) What are the sources of bio-diesel? Explain the concept of transesterification. [7M CO5 BTL2]
- b) How are the composite materials classified? Explain. [5M CO5 BTL2]
7. a) Briefly explain about LPG and CNG with their composition and uses. [4M CO4 BTL2]
- b) Write the mechanism of conduction in polyacetylene. Mention any 4 applications of conducting polymers. [8M CO3 BTL3]



Hall Ticket No. -

Code: R123929

Stanley College of Engineering & Technology for Women (A)

B.E (IT) II Semester (Main) Examinations-September-2023

Applied Physics

Time: 03 Hours

Max. Marks-60

- Note:** i. First Question is Compulsory. Answer any Four out of remaining Six questions.
ii. Answer to each question must be written at one place only and in the same order as they occur in the Question paper.
iii. Missing data, if any, may be suitably assumed.

Part-A

6X2=12M

1. a. List any four applications of Laser [2M CO1 L1]
- b. What are polar and nonpolar dielectric materials? [2M CO2 L1]
- c. Explain Meissner effect. [2M CO3 L2]
- d. Classify intrinsic and extrinsic semiconductors [2M CO4 L4]
- e. Distinguish between bulk materials and films. [2M CO5 L2]
- f. Calculate the numerical aperture (NA) and acceptance angle of an optical fiber having 1.48 and 1.46 as refractive index of core and cladding respectively. [2M CO1 L3]

Part-B

4X12=48M

2. a) Explain the construction and working of Ruby laser. [7M CO1 L2]
- b) Explain double crucible method to fabricate optical fibers. [5M CO1 L2]
3. a) Discuss the effect of frequency on various polarization processes. [6M CO2 L4]
- b) Explain Weiss molecular field theory of ferromagnetism. [6M CO2 L2]
4. a) Develop an expression for wave function and energy associated with a particle in 1D box. [7M CO3 L3]
- b) Classify types of superconductors. [5M CO3 L4]
5. a) Explain the salient features of Kronig-Penney model with graph. [6M CO4 L4]
- b) Explain the formation of P-N junction diode and Discuss V-I characteristics of diode [6M CO4 L2]
6. a) Explain sol-gel method to prepare nano materials. [6M CO5 L2]
- b) Illustrate the electron beam evaporation method to prepare thin films [6M CO5 L4]
7. a) Develop an expression for electronic polarizability in di-electric materials. [8M CO2 L3]
- b) Define Hall Effect and write its applications. [4M CO4 L2]

Hall Ticket No. -

Code: R123932

Stanley College of Engineering & Technology for Women (A)

B.E (ECE/EEE/IT) II Semester (Main) Examinations-September-2023

Indian Constitution

Time: 03 Hours

Max. Marks-60

- Note:** i. First Question is Compulsory. Answer any Four out of remaining Six questions.
ii. Answer to each question must be written at one place only and in the same order as they occur in the Question paper.
iii. Missing data, if any, may be suitably assumed.

Part-A

6X2=12M

1. a. Write about Preamble. [2M CO1 BTL2]
- b. Explain about qualifications of President. [2M CO2 BTL3]
- c. Explain about Right to Equality of Indian Constitution. [2M CO3 BTL1]
- d. Write a brief note on Central-State relations. [2M CO4 BTL3]
- e. What is the Composition of NCW? [2M CO5 BTL2]
- f. Why do we need Voting Right in Democracy? [2M CO1 BTL3]

Part-B

4X12=48M

2. a) What are the Features of Govt of India Act 1909? [6M CO1 BTL1]
- b) What was the composition of Constituent Assembly? [6M CO1 BTL2]
3. a) Explain about President of India. [8M CO2 BTL3]
- b) Explain about Governor of India. [4M CO2 BTL2]
4. a) Explain about Fundamental Rights. [8M CO3 BTL2]
- b) Explain the difference between Fundamental Rights and Duties. [4M CO3 BTL3]
5. a) Explain about Relations between Union and State. [5M CO4 BTL2]
- b) Explain the Composition and Objectives of NITI Aayog. [7M CO4 BTL3]
6. a) Explain the Powers and Functions of Election Commission of India. [8M CO5 BTL3]
- b) Explain about Powers of National Commission for Women. [4M CO5 BTL1]
7. a) Write an essay on the Salient Features of Indian Constitution. [8M CO1 BTL3]
- b) Explain about 74th Constitutional Amendment Act. [4M CO2 BTL2]

Stanley College of Engineering & Technology for Women (A)

B.E.(ECE,EEE,IT) II Semester (Main) Examinations-September-2023

English

Time: 03 Hours

Max. Marks-60

- Note:** i. First Question is Compulsory. Answer any Four out of remaining Six questions.
 ii. Answer to each question must be written at one place only and in the same order as they occur in the Question paper.
 iii. Missing data, if any, may be suitably assumed.

Part -A

6X2=12M

1. **Do as directed.** 2M L1 CO1
- a. i) I am _____ university student. (an/a/the/no article)
 ii) The teacher congratulated Ravi _____ his success. (Write a suitable preposition.)
 iii) _____ in the workplace is harmful to its growth. [Root word : Loyal] (Write the apt word by using suffix-prefix)
 iv) Leela is the brightest student among all. (Change from superlative to positive degree of comparison)
- b. i) The boy is not meritorious. _____ he is very hard working. 2M L3 CO2
 (Use suitable transition word)
 ii) _____ he is very famous, Azim Premji's modesty is exemplary.
 (Use an apt connective.)
 iii) Identify the root words in the given blended expression **Infotainment**.
 iv) Prof. Hary _____ from Australia yesterday. (Choose the suitable verb form.) has returned/ returned/ has been returning/ return back)
- c. **Direct speech ⇔ Indirect speech** 2M L3 CO3
 i) The teacher said to the student, "Do not waste time before your exam."
 ii) I told my supervisor that I would be finishing the task the next day.
- d. **Active voice ⇔ Passive voice** 2M L3 CO4
 i) Beena is humming a beautiful tune.
 ii) The brinjal will be finely sliced by the chef.
- e. **Correct the given sentences.** 2M L3 CO5
 i) Neither she nor her friends is interested in sports.
 ii) Each of the girls have precipitated in the game.
 iii) Salesman/Saleswoman (Find an inclusive term.)
 iv) The little boy is **handicapped**. (Write a suitable euphemism.)
- f. i) Make **prudent** use of your time. (Choose a suitable synonym.) 2M L1 CO3
 I. Judicious II. Mandatory III. Trivial IV. Imbecile
 ii) Mr. Alex is a **pretentious** art critic. (Choose a suitable antonym.)
 I. Flatulant II. Hollow III. Genuine IV. Overambitious
 iii) The red rose tucked in your open hair _____ your saree.
 (Compliments/Complements)
 iv) Government by the people is known as _____. (Write the one-word substitute.)

Part-B

4X12=48M

- | | | | | | |
|----|-----|--|------------|-----------|-----|
| 2. | i) | William Hazlitt feels that being in a school /hostel will teach his son about how to get along with others and prepare him for the ups and downs of life. Do you agree to the opinion? Analyse with textual references. | 6x2M | L4 | CO1 |
| | ii) | Explain any four essentials to draft an effective paragraph. | | L2 | |
| 3. | i) | “If you can meet with Triumph and Disaster
And treat those two impostors just the same;”
Who is the author of the poem? What is the meaning of the word ‘imposter?’ Analyse the significance behind labelling ‘triumph’ and ‘disaster’, ‘two imposters.’ | 1+1+4
M | L1,
L4 | CO2 |
| | ii) | Outline the differences between expository and descriptive writing style?
Read the following paragraph and determine whether it is an expository or a descriptive paragraph. Give reasons to your answer.
The terrestrial planets are made of rock and metal and are closest to the sun. These include the midsize planets Mercury, Venus, Earth, and Mars. They rotate slowly and don’t have many moons. Farther from the sun are the planets called gas giants, Jupiter, Saturn, Uranus, and Neptune. They are called gas giants because they are formed from gases such as hydrogen and helium. | 3+3 M | L2,
L3 | |
| 4. | i) | Explain a few strategies to craft a persuasive paragraph. | 6 M | L2 | CO3 |
| | ii) | What does the term “Dream” refer to in Martin Luther King’s speech? Examine if this famous speech holds its relevance in today’s time too. Justify your answer with relevant examples. | 3 +3 M | L4 | |
| 5. | i) | “I took the one less travelled by, // And that has made all the difference.” Who says this? Extend your views on the significance of these two lines. | 6X2M | L1,
L2 | CO4 |
| | ii) | Compose an argumentative essay on “Has the internet made our society better?” | | L6 | |
| 6. | i) | Discuss any four characteristics of a successful blog. | 4+ 8 M | L2 | CO5 |
| | ii) | Justify how writing on Instagram or Twitter is different from academic writing. Has writing on social media platforms impacted academic writing? Illustrate with examples. | | L5 | |
| 7. | i) | As an effective communicator, why should you learn the uses of Inclusive language and Euphemism? Cite 3 examples for each. | 6x2M | L2 | CO5 |
| | ii) | Develop a coherent paragraph by using the given hints:
Giving pledge – Philanthropic cause – launched by Bill Gates– many are unprivileged – need support – the wealthiest people can share – make the world a better place – social responsibility | | L6 | CO1 |

Stanley College of Engineering & Technology for Women (A)

B.E (CSE/CME/EEE/ECE/IT/AI&DS) I Semester (Backlog) Examinations-Sept.-Oct. -2023

Mathematics - I**Time: 03 Hours****Max. Marks: 60**

- Note:** i. First Question is Compulsory. Answer any Four out of remaining Six questions.
 ii. Answer to each question must be written at one place only and in the same order as they occur in the Question paper.
 iii. Missing data, if any, may be suitably assumed.

Part-A**6X2=12M**

1. a. State Rolle 's Theorem. (2M/BTL2/CO1)
- b. Find the radius of curvature at any point on the curve $xy = c^2$ (2M CO2 BTL2)
- c. If $u = \tan^{-1}\left(\frac{x^3+y^3}{x+y}\right)$ then prove that $x \frac{\partial u}{\partial x} + y \frac{\partial u}{\partial y} = \sin 2u$ (2M CO3 BTL2)
- d. Find the directional derivative of $f(x,y) = x^2 + y^2$ at (1,1) in the direction of $3i + 4j$ (2M/BTL4/CO3)
- e. If $\vec{f} = (x + 3y) i + (y - 2z) j + (x + pz) k$ is solenoidal .Find P (2M/BTL5/CO6)
- f. Calculate the second approximation by using false position method for $xe^x - 2 = 0$ (2M/BTL5/CO6)

Part-B**4X12=48M**

2. a) Determine the nature of the series $\sum(\sqrt{n^3+1} - \sqrt{n^3})$ (6M/BTL1/CO4)
- b) Determine the nature of the series $\sum_{n=1}^{\infty} (-1)^n \frac{n}{n+1}$. (6M/BTL1/CO4)
3. a) State and prove Cauchy's mean value theorem. (6M/BTL2/CO4)
- b) Find the radius of curvature of the curve $x^3 + y^3 = 2$ at P(1,1) (6M/BTL2/CO3)
4. Find the maximum and minimum distances of the point (3,4,12) from the sphere $x^2 + y^2 + z^2 = 4$. (12M/BTL2/CO5)

5. Verify Green's theorem for $\int_C [(xy + y^2)dx + x^2 dy]$ where C is bounded by $y = x$ and $y = x^2$. (12M/BTL4/CO3)

6. a) Solve the following system of equations by Gauss – Siedel iteration Method
 $10x + 2y + z = 9, x + 10y - z = -22, -2x + 3y + 10z = 22$ (6M CO5 BTL5)

b) Apply Newton – Raphson Method to find the approximate root of the equation $x^3 - 3x - 5 = 0$ (6M CO5 BTL3)

7. a) Verify Lagranges mean values theorem for $f(x) = x^3 - 3x - 1$ in $(-11/7, 13/7)$ (6M CO2 BTL3)

b) Obtain Maclaurin's series expansion for $f(x) = e^x$ (6M CO2 BTL3)

*

Hall Ticket No. -

Code: S1231001

Stanley College of Engineering & Technology for Women (A)

B.E (CSE/CME/AIDS) I Semester (Backlog) Examinations-Sept.-Oct. -2023

Indian Constitution

Time: 03 Hours

Max. Marks-60

- Note:** i. First Question is Compulsory. Answer any Four out of remaining Six questions.
ii. Answer to each question must be written at one place only and in the same order as they occur in the Question paper.
iii. Missing data, if any, may be suitably assumed.

Part-A

6X2=12M

1. a. Explain about Judicial Review. [2M CO1 BTL3]
- b. Explain about President. [2M CO2 BTL3]
- c. Explain about Sardhar Swarn Singh Committee. [2M CO3 BTL1]
- d. Explain the structure of Indian Governments. [2M CO4 BTL2]
- e. Explain the need of Women Commission in India. [2M CO5 BTL3]
- f. Write about Preamble. [2M CO1 BTL2]

Part-B

4X12=48M

2. a) What are the Features Govt of India Act 1935? [6M CO1 BTL2]
- b) What are the Functions of Constituent Assembly? [6M CO1 BTL2]
3. a) Explain about Prime Minister. [7M CO2 BTL3]
- b) Briefly explain about the Powers and Functions of Chief Minister. [5M CO2 BTL2]
4. a) Explain about Directive Principles of State Policy(DPSP). [6M CO3 BTL2]
- b) List out all the Fundamental Duties. [6M CO3 BTL1]
5. a) Explain about Functions of Finance commission of India. [8M CO4 BTL3]
- b) Explain about Functions of Inter State Council. [4M CO4 BTL2]
6. a) Write about Election Commission of India. [6M CO5 BTL2]
- b) What are the Powers and Functions of NHRC? [6M CO5 BTL1]
7. a) Write about Evolution of Indian Constitution historical background. [5M CO1 BTL1]
- b) Explain about 73rd Constitutional Amendment Act. [7M CO2 BTL2]

Hall Ticket No. -

Code: S1231005

Stanley College of Engineering & Technology for Women (A)

B.E (CSE/CME/AI&DS) I Semester (Backlog) Examinations-Sept.-Oct.-2023

Essence of Indian Traditional Knowledge

Time: 03 Hours

Max. Marks-60

- Note:** i. First Question is Compulsory. Answer any Four out of remaining Six questions.
ii. Answer to each question must be written at one place only and in the same order as they occur in the Question paper.
iii. Missing data, if any, may be suitably assumed.

Part-A

6X2=12M

1. a. "Culture is cumulative" Explain. [2M CO1 BTL2]
- b. What constitutes Vedic literature? [2M CO2 BTL1]
- c. What were the religious beliefs of Pre-Vedic people? [2M CO3 BTL1]
- d. Name the three types of paintings mentioned in ancient Hindu and Buddhist texts. [2M CO4 BTL1]
- e. Distinguish between Science and Art. [2M CO5 BTL2]
- f. Name any two literary works of Kalidasa. [2M CO2 BTL1]

Part-B

4X12=48M

2. a) Briefly explain Indian Culture. [6M CO1BTL2]
- b) How is Culture important in Human life? [6M CO1 BTL2]
3. a) Explain the importance of vernacular languages in spreading the Bhakti movement. [6M CO2 BTL2]
- b) Name all Vedangas and explain their importance. [6M CO2 BTL1]
4. a) Why do Raja Ram Mohan Roy deserve a special mention among the social reformers in India? [6M CO3 BTL2]
- b) What is Aligarh movement? [6M CO3 BTL1]
5. a) Write a short note on Modern Indian Painting. [4M CO4 BTL2]
- b) What are the divisions of Indian classical Music? [8M CO4 BTL1]
6. a) Discuss the contribution of Sushruta and Charaka in the field of Medicine. [6M CO5 BTL2]
- b) Explain how is the present Scholastic education system in India? [6M CO5 BTL2]
7. a) What is the importance of Upanishads and name Dashopanishads? [6M CO2 BTL1]
- b) Assess the contribution of Vikram Sarabhai in the development of Indian space technology. [6M CO5 BTL2]

Hall Ticket No. -

Code: S1231006

Stanley College of Engineering & Technology for Women (A)

B.E (EEE/ECE/IT) I Semester (Backlog) Examinations-Sept.-Oct.-2023

Environmental Science

Time: 03 Hours

Max. Marks-60

- Note:** i. First Question is Compulsory. Answer any Four out of remaining Six questions.
ii. Answer to each question must be written at one place only and in the same order as they occur in the Question paper.
iii. Missing data, if any, may be suitably assumed.

Part-A

6X2=12M

1. a. Give the difference between Renewable and Non-renewable resources. [2M CO1 BTL4]
- b. Why the pyramid of energy is always upright? [2M CO2 BTL1]
- c. Analyze the aesthetic value of biodiversity. [2M CO3 BTL5]
- d. Enlist the effects of acid rain. [2M CO4 BTL4]
- e. Define watershed management. [2M CO5 BTL2]
- f. Give the different sources of energy. [2M CO1 BTL1]

Part-B

4X12=48M

2. a) State the reasons of over exploitation of forests. [6M CO1 BTL2]
- b) What is the role of an individual in conservation of natural resources? [6M CO1 BTL2]
3. a) What is an ecosystem? Explain its structure & components. [6M CO2 BTL2]
- b) Healthy ecosystems are the base of wide range of (ecosystem) services. Justify. [6M CO2 BTL5]
4. a) Explain the importance of biodiversity and its conservation. [6M CO3 BTL2]
- b) Describe the causes of biodiversity losses (Threats). [6M CO3 BTL4]
5. a) Discuss about degradation of soil and its conservation. [6M CO4 BTL4]
- b) Give out line of municipal solid waste management. [6M CO4 BTL2]
6. a) What is climate change and global warming and their effect on ozone layer depletion? [6M CO5 BTL3]
- b) Explain the stages of disaster management. [6M CO5 BTL4]
7. a) What do you understand by Ecological Pyramids? Explain types of Ecological Pyramids. [6M CO2 BTL1]
- b) Explain the salient features of Air Act. [6M CO4 BTL3]



Hall Ticket No. -

Code: S1231010

Stanley College of Engineering & Technology for Women (A)

B.E (CSE/CME/AI&DS/IT/EEE/ECE) I Semester (Backlog) Examinations-Sept.-Oct. -2023

Programming for Problem Solving

Time: 03 Hours

Max. Marks-60

- Note:**
- First Question is Compulsory. Answer any Four out of remaining Six questions.
 - Answer to each question must be written at one place only and in the same order as they occur in the Question paper.
 - Missing data, if any, may be suitably assumed.

Part-A

6X2=12M

- What are C tokens? 2M CO1 L1
 - What are conditional control structures? 2M CO2 L1
 - Discuss the declaration and initialization of one-dimensional arrays. 2M CO3 L2
 - Differentiate structures and unions in C. 2M CO4 L2
 - Define Files in C. 2M CO5 L1
 - Define Compiler and Interpreter. 2M CO1 L1

Part-B

4X12=48M

- Discuss the different types of operators and expressions in C. 6M CO1 L2
 - Describe the various data types available in C and provide examples of each. 6M CO1 L2
- Compare and contrast the different loop control statements in C. 6M CO2 L2
 - Describe the switch statement in C and provide an example of its usage. 6M CO2 L3
- Discuss the need for user-defined functions and explain the process of function declaration. 6M CO3 L3
 - Write a C program to find the sum of elements in a one-dimensional array. 6M CO3 L3
- Explain the concept of pointers and how to access the 1-D array elements using pointers. 6M CO4 L2
 - Write a C program that defines a structure representing a student with name, roll number and marks and display the student information. 6M CO4 L3
- Describe the concept of files in programming. Explain the different file operations. 6M CO5 L3
 - Explain the working principle of the bubble sort algorithm. 6M CO5 L3
- Write short notes on the following:
 - Algorithm and Flowchart 6M CO1 L2
 - Parameter Passing Mechanisms 6M CO3 L2

Hall Ticket No. -

Code: S1231009

Stanley College of Engineering & Technology for Women (A)

B.E (IT) I Semester (Backlog) Examinations-Sept.-Oct. -2023

Chemistry

Time: 03 Hours

Max. Marks: 60

- Note:** i. First Question is Compulsory. Answer any Four out of remaining Six questions.
ii. Answer to each question must be written at one place only and in the same order as they occur in the Question paper.
iii. Missing data, if any, may be suitably assumed.

Part-A

6X2=12M

- a. List any two differences between anodic and cathodic coatings. [2M CO1 BTL1]
b. Calculate EMF of the cell, Zn / ZnSO₄ (0.1 M) // CuSO₄(0.1M) / Cu(s), at 25⁰C. (Given E⁰ Zn²⁺/Zn = - 0.76 V & E⁰ Cu²⁺/Cu = + 0.34V) [2M CO2 BTL3]
c. What is linear combination of atomic orbital (LCAO)? [2M CO3 BTL1]
d. Define (i) Octane Number (ii) Cetane Number. [2M CO4.BTL1]
e. What are conducting polymers? Give an example. [2M CO5 BTL1]
f. Write a brief note on quantum dots. [2M CO4 BTL1]

Part-B

4X12=48M

- a) Describe softening of water by Ion-exchange method. [7M CO1 BTL 2]
b) Explain any five factors that affect rate of corrosion. [5M CO1 BTL 2]
- a) Illustrate determination of pH of a solution using Quinhydrone electrode. [6M CO 2 BTL3]
b) Explain the working of lead -acid battery during discharge. [6M CO 2 BTL2]
- a) Discuss the preparation, applications of (i) Buna-S (ii) Kevlar. [6M CO3 BTL2]
b) Describe energy level diagram of N₂ with labelling. [6M CO3 BTL2]
- a) Describe the fractional distillation petroleum with a neat diagram. [6M CO4 BTL3]
b) Explain proximate analysis of coal. [6M CO4 BTL3]
- a) Explain any 4 principles of Green Chemistry with examples. [8M CO5 BTL2]
b) Write the constituents of composite material. [4M CO5 BTL2]
- a) How do you make use of sacrificial anodic protection to control corrosion of buried pipeline (Metallic)? Explain. [7M CO2 BTL3]
b) Calculate the Gross and Net Calorific Value of Coal sample having compositions C=80%, H=7%, O=3%, S=3.5%, N=2.1%, Ash=4.4%. [5M CO4 BTL3]



Hall Ticket No. -

Code: S1231008

Stanley College of Engineering & Technology for Women (A)

B.E (ECE & EEE) I Semester (Backlog) Examinations-Sept.-Oct.-2023

Engineering Chemistry

Time: 03 Hours

Max. Marks: 60

- Note:** i. First Question is Compulsory. Answer any Four out of remaining Six questions.
ii. Answer to each question must be written at one place only and in the same Order as they occur in the Question paper.
iii. Missing data, if any, may be suitably assumed.

Part-A

6X2=12M

1. a. Define Hardness of water and write it's Units. [2M CO1 BTL1,2]
- b. Differentiate Galvanic and Electrolytic Cells. [2M CO2 BTL1,3]
- c. Write any two postulates of LCAO theory. [2M CO3 BTL4]
- d. Define HCV and LCV. [2M CO4 BTL1,4]
- e. Write any Two Examples for Clean technology. [2M CO5 BTL1,4]
- f. Write any four Applications of Conducting Polymers. [2M CO3 BTL1,3]

Part-B

4X12=48M

2. a) Explain the process of determination of Hardness of water by using EDTA method. [6M CO1 BTL1,5]
- b) 60 ml of standard hardness containing 1 mg of pure CaCO_3 per ml consumed 22 ml of EDTA. 40 ml of water sample consumed 20 ml of EDTA solution using EBT indicator. 40 ml of water sample after boiling, filtering consumed 15 ml of EDTA. Calculate the temporary and permanent hardness of water sample. [6M CO1 BTL1,5]
3. a) Derive the Efficiency of Carnot Cycle. [6M CO2 BTL2, 4]
- b) Write the cell reaction and calculate the emf of the following cell at 25°C :
 $\text{Zn}_{(s)} | \text{Zn}^{2+} (0.001\text{M}) || \text{Ag}^+ (0.0001\text{M}) | \text{Ag}_{(s)}$ Given $E^\circ_{\text{Zn}^{2+}/\text{Zn}} = -0.76 \text{ V}$ and $E^\circ_{\text{Ag}^+/\text{Ag}} = 0.80 \text{ V}$. [6M CO2 BTL2, 4]
4. a) Write the preparation and any four properties of Bakelite. [6M CO3 BTL1, 5]
- b) Explain the mechanism in conduction in Polyacetylene. [6M CO3 BTL1, 5]
5. a) Describe about Proximate analysis of Coal with significances. [6M CO4 BTL 2, 4]
- b) Write the preparation and Applications of Bio diesel. [6M CO4 BTL2, 4]
6. a) Explain the Charging and Discharging processes of Lead Acid battery. [6M CO5 BTL1, 5]
- b) Describe any Six Principles of Green Chemistry. [6M CO5 BTL1, 4]
7. a) What is Hot dipping? Explain the process of Galvanisation. [6M CO1 BTL3, 5]
- b) Derive Nernst Equation and write any Two Applications. [6M CO2 BTL1, 2]



Hall Ticket No. -

Code: S1231002

Stanley College of Engineering & Technology for Women (A)

B.E (EEE/ECE) I Semester (Backlog) Examinations-Sept.-Oct.-2023

Fundamentals of Electrical Engineering

Time: 03 Hours

Max. Marks-60

- Note:**
- First Question is Compulsory. Answer any Four out of remaining Six questions.
 - Answer to each question must be written at one place only and in the same order as they occur in the Question paper.
 - Missing data, if any, may be suitably assumed.

PART-A

Note: Answer all questions (Compulsory)

6 X 2=12M

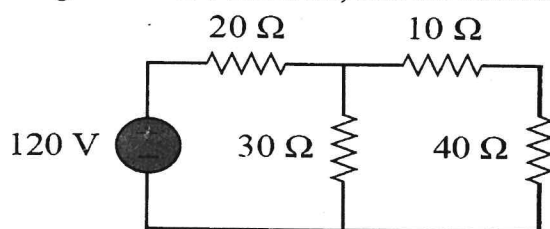
- State the Kirchoff's Current Law. 2M L1 CO1
- Define Real Power and Reactive Power. 2M L1 CO2
- List various losses in a transformer. 2M L1 CO3
- List the types of DC generators. 2M L1 CO4
- List the components of L.T. Switchgear. 2M L2 CO5
- Differentiate MCB and MCCB. 2M L1 CO5

PART-B

Note: Answer all questions

4 X 12= 48M

- Illustrate Thevenin's Theorem with an example. 6M L2 CO1
 - Explain about voltage and current sources. 6M L2 CO1
- Analyze the behaviour of a series RLC circuit when connected across a single phase ac supply. 12M L4 CO2
- Derive an EMF equation of 1- ϕ static transformer. 6M L6 CO3
 - Explain briefly about Auto transformer. 6M L2 CO3
- Explain about the Capacitor Start and Capacitor Run Induction motor. 6M L2 CO4
 - What is Earthing? Discuss various methods of Earthing. 6M L2 CO5
- Explain briefly about the components of L.T. Switchgear. 6M L2 CO5
 - Explain about various types of wires and cables. 6M L2 CO5
- Explain briefly about Ideal transformer. 6M L5 CO2
 - Using Thevenin's Theorem, find the current in 40Ω Resistor. 6M L1 CO1





Hall Ticket No. -

Code: S1231007

Stanley College of Engineering & Technology for Women (A)

B.E (CSE, CME, AI&DS) I Semester (Backlog) Examinations-Sept.-Oct.-2023

Applied Physics

Time: 03 Hours

Max. Marks: 60

- Note:** i. First Question is Compulsory. Answer any Four out of remaining Six questions.
ii. Answer to each question must be written at one place only and in the same order as they occur in the Question paper.
iii. Missing data, if any, may be suitably assumed.

Part-A

6X2=12M

1. a. Distinguish between Spontaneous and Stimulated emissions. [2M CO1 BTL4]
- b. Define the terms 'Retentivity' and 'Coercive field' in a hysteresis curve of a ferromagnetic material. [2M CO2 BTL1]
- c. What is de-Broglie's hypothesis? [2M CO3 BTL2]
- d. Write any four assumptions of free electron theory. [2M CO4 BTL1]
- e. Explain how the surface to volume ratio of the materials, effect the properties at nanoscale. [2M CO5 BTL4]
- f. A p- type semiconductor's Hall coefficient (R_H) is $3.66 \times 10^{-4} \text{ m}^3/\text{C}$. Calculate the carrier concentration of holes. [2M CO4 BTL3]

Part-B

4X12=48M

2. a) Explain the construction and working of Ruby laser by using energy level diagram [7M CO1BTL2]
- b) Discuss fibre drawing process by Double crucible method. [5M CO1BTL2]
3. a) Define dielectric constant. Describe the experimental determination of dielectric constant of a given material by using capacitance bridge method. [7M CO2 BTL3]
- b) Explain Weiss molecular field theory of ferromagnetism. [5M CO2 BTL2]
4. a) Distinguish between Type – I and Type –II superconductors. Mention any four applications of superconductors. [7M CO3 BTL4]
- b) Derive time independent Schrodinger equation. [5M CO3 BTL3]
5. a) Explain the Kronig – Penny model of solids and show that it leads to energy band structure of solids. [6M CO4 BTL4]
- b) What are intrinsic semiconductors? Derive an expression for concentration of electrons in conduction band of an intrinsic semiconductor [6M CO4 BTL4]
6. a) Explain the construction and working of a solar cell. [6M CO5 BTL2]
- b) With a neat sketch, explain Ball milling process for synthesis of nanoparticles. List advantages and disadvantages [6M CO5 BTL4]
7. a) Define electronic polarisation and derive an expression for electronic polarizability. [7M CO2 BTL3]
- b) What is optical fibre. Discuss types of optical fibres based on refractive index profile. [5M CO1 BTL2]

Hall Ticket No.:

Code: S1231003

Stanley College of Engineering & Technology for Women (A)

B.E (IT) I Semester (Backlog) Examinations-Sept.-Oct.-2023

Basics Electrical & Electronic Circuits

Time: 03Hours

Max. Marks-60

- Note:** i. First Question is Compulsory. Answer any Four out of remaining six questions.
ii. Answer to each question must be written at one place only and in the same order as they occur in the Question paper.
iii. Missing data, if any, may be suitably assumed.

Part-A

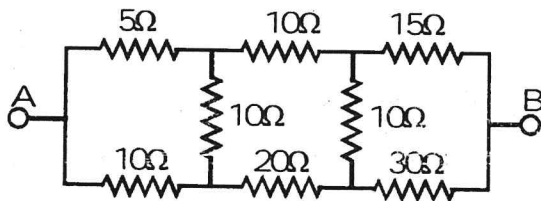
6X2=12M

1. a. Define Power factor. CO1 L1 2M
- b. Define peak factor. CO2 L4 2M
- c. State the advantages of a full wave rectifier. CO3 L1 2M
- d. Define pinch off in a FET. CO4 L1 2M
- e. What are the properties of feedback amplifier? CO5 L1 2M
- f. Define 'Barkhausean' criteria for an oscillator. CO5 L1 2M

Part-B

4X12=48M

2. a. State and prove Norton's theorem. CO1 L2 8M
- b. Find the effective resistance between points A and B CO1 L3 4M



3. a. An alternating voltage is given by $V=230\sin 314t$. Calculate
i) frequency, ii) maximum value, iii) average value, iv) RMS value. CO2 L2 6M
- b. Derive the relation between line and phase quantities for delta connected balanced systems CO2 L2 6M
4. a. Sketch and explain in detail about the V – I characteristic of the p – n junction diode. CO3 L2 6M
- b. Explain how a FET is used as a voltage controlled device, and voltage variable resistor. CO3 L3 6M

5. a. Define α , β and γ of a transistor. Show how they are related to each other CO4 L2 6M
- b. Explain how a FET is used as a voltage variable resistor. CO4 L2 6M
- 6 a. Draw the circuit diagram of integrator by using IC 741 and explain its operation CO5 L2 6M
- b. Explain the summer amplifier using IC 741 and explain its operation CO5 L2 6M
- 7 a. Explain the working principle of RC phase shift oscillator. CO5 L2 6M
- b. Draw the h-parameter equivalent circuit for a typical common base amplifier and derive expressions for A_i and A_v CO4 L3 6M
