

I B. Tech I Semester Regular Examinations, January-2024**COMMUNICATIVE ENGLISH**

(Common to EEE, CSE, Chemical E, FT, PT, Ph. Engg)

Time: 3 hours

Max. Marks: 70

- Note: 1. Question paper consists of two parts (Part-A and Part-B)
2. All the questions in Part-A is Compulsory
3. Answer ONE Question from Each Unit in Part B*

PART -A (20 Marks)

1. a) What did Jim do to give a gift to his wife? [2M]
- b) What type of water bodies are mentioned in the poem 'The Brook'? [2M]
- c) How Elon Musk get inspired in Business and Technology? [2M]
- d) Why did Harvey think elementary Education needed to be rethought? [2M]
- e) Write the difference between Skimming and Scanning. [2M]
- f) How does Intrapersonal communication help us to overcome challenges? [2M]
- g) What is sequencing? How sentences are arranged in it? [2M]
- h) Where do you use Simple present tense? Give examples. [2M]
- i) What are Homophones? Give examples. [2M]
- j) Define Brainstorming. [2M]

PART - B (50 MARKS)**UNIT-I**

2. a) Bring out the relationship between Della and the Queen of Sheba. [5M]
- b) Define **Prefix**. Write examples for inter, non, pre, semi, and tri prefixes. [5M]

(OR)

3. a) Show how the twist in the tale makes the story of Jim and Della a moral lesson. [5M]
- b) Write about Punctuation. Explain about Colon, Semicolon, Apostrophe, Comma, and Capital letters. [5M]

UNIT-II

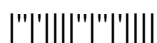
4. a) For Men may come, Men may go
But I go on forever- Explain. [5M]
- b) Write a paragraph on the Influence of **Social media on Youth**. [5M]

(OR)

5. a) Describe the landscape in the poem 'The Brook'. [5M]
 - b) Frame sentences for the given **Homonyms**. [5M]
- 1) Play, Play 2) Scale, Scale 3) Tear, Tear 4) Right, Right 5) Light, Light

UNIT-III

6. a) What is Space X and what has been its impact on space exploration? [5M]
 - b) **Summarize** the following passage. [5M]
- Smith's car broke down. He stopped by the roadside and screamed at people to stop and help him. But no one stopped for him. He continued howling and howling for hours. People kept driving by. After getting tired, he picked up a sheet and wrapped it around himself. Then, he started spinning on his spot. He grew dizzy. He kept spinning and spinning until he fell asleep.



(OR)

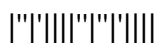
7. a) Explain the achievements of Elon Musk. [5M]
b) **Fill in the blanks with the correct verb forms.** [5M]
1. Suma ----- (watch) a film when her brother called her.
2. Raju has been----- (wear) this expensive bracelet for quite some time now.
3. Rahul ----- (graduate) from law school.
4. The Sun---- (set) in the east.
5. ----- (teach) morals and ethics at the right age.

UNIT-IV

8. a) What happens when Eric and Betie start playing with the peace toys? How do they transform the toys? [5M]
b) Draw Pie Chart and Explain how it conveys information. [5M]
(OR)
9. a) How does NPC object to traditional children's toys like soldiers and guns? [5M]
b) Write a letter to your friend on regulating violent video games and suggest your ideas to control. [5M]

UNIT-V

10. a) What are the advantages of strong Intra-personal communication skills? [5M]
b) Write an essay on the topic **Benefits of Free Education.** [5M]
(OR)
11. a) How do you manage stress with the help of Intra-personal communication? [5M]
b) **Correct the following sentences** [5M]
1. This is the most unique dress.
2. The dog lost his bone.
3. She is beautiful then her.
4. Smith and me went to the mall.
5. There are less dresses.



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1. a) What were the prized possessions of James Dillingham Youngs? [2M]
- b) Why does the poet use the word bicker in the poem ‘The Brook’? [2M]
- c) Give a brief account of two of Musk’s early business ventures. [2M]
- d) What expectations did the children have from their uncle’s toys? [2M]
- e) How does intra-personal communication relate to self-awareness? [2M]
- f) Define Skimming. Give examples. [2M]
- g) Where do you use Capital letters? Give examples. [2M]
- h) What are the three steps involved in Note making? [2M]
- i) Name the parts of a formal letter. [2M]
- j) Frame two sentences for the patterns i) Subject- Verb ii) Subject- Verb- Adverb [2M]

PART – B (50 MARKS)**UNIT-I**

2. a) Examine the significance and appropriation of the title of the story ‘The Gift of the Magi.’ [5M]
 - b) Illustrate the main theme of scanning to look for specific pieces of information. [5M]
- (OR)**
3. a) How do Jim’s and Della’s actions symbolize the strength of their love for each other? [5M]
 - b) Write **Synonyms** for the following [5M]

i) Ecstatic ii) Coot iii) Enhance iv) Primitive v) Crucial

UNIT-II

4. a) The Brook offers a visual treat of sight and sound. Explain. [5M]
 - b) Write a **paragraph** on a Smartphone. [5M]
- (OR)**
5. a) How did the poet draw parallelism between the journey of the Brook and the life of Man? [5M]
 - b) **Fill in the Blanks with Homophones** [5M]

i) The wind ---- very hard. (blue, blew)

ii) Ruby saw--- dogs playing. (two, to)

iii) ---- like to play Soccerat the park.(I, Eye)

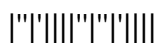
iv) Bella asked her brother ---- the glue was (where wear)

v) The teacher asked to--- the name on the board.(write, right)

UNIT-III

6. a) How has Musk proved to be a visionary leader of cutting–edge technology? Discuss with relevant examples. [5M]
- b) Write two compound words for each [5M]

i) Noun ii) Adjective iii) Preposition iv) Numerals v) Pronoun

(OR)

7. a) What are the key decisions Elon Musk made to get where he is today? [5M]
 b) **Fill in the blanks with Collocations**(great time, rough time, in time, spare time, precious time) [5M]
 i) Tourists will have a ---- in the Andaman Islands.
 ii) We went to the cinema-----
 iii) Leela has been through some-----
 iv) Binu spends all his --- helping others.
 v) I spend my--- watching nature.

UNIT-IV

8. a) Explain the influence of external factors on children's behavior and attitude related to the story 'The Toys of Peace.' [5M]
 b) Draw Pictograph and Explain how it conveys information. [5M]

(OR)

9. a) How does Harvey's reaction to the boys' imaginative play with the peace toys reflect the failure of the experiment? [5M]
 b) Write a Resume of your own with a covering letter applying for the post of Project Manager in WIPRO Company. [5M]

UNIT-V

10. a) What are the steps to be taken to enhance Intrapersonal communication skills? [5M]
 b) Write an essay on **Face Book should be banned.** [5M]

(OR)

11. a) Mindfulness practices like meditation can enhance Intrapersonal communication – Elucidate. [5M]
 b) **Reading Comprehension** [5M]

Reading is a fundamental skill that plays a vital role in our lives. It's not just about deciphering words on a page but about the doors it opens, the knowledge it imparts, and the world it allows us to explore. Reading is an essential tool for learning, expanding our horizons, and fostering imagination. When we read, we acquire knowledge. Whether it's reading textbooks, news papers, or online articles. We gain information that helps us understand the world. Books are a treasure trove of knowledge. They contain the wisdom of generations, the discoveries of great minds, and the stories of diverse cultures. Reading books can educate us on history, science, literature, and countless other subjects. It's like having a mentor, guiding us through the complexities of life.

Reading skills develop critical thinking, analytical skills, and the ability to communicate well. A person who reads regularly has a broader vocabulary, better writing skills, and can express his thoughts and ideas.

E-books and audio books have made reading more accessible and convenient. There is something timeless and intimate about holding a physical book, flipping its pages, and smelling the scent of paper and ink.

Reading is a cornerstone of education, personal growth, and cultural enrichment. It empowers us with knowledge, broadens our perspectives, ignites our imagination, and equips us with essential skills. Reading is a journey that enriches our lives and shapes us into more informed, empathetic, and creative individuals.

Answer the following questions

- i) What are some of the benefits of reading mentioned in the passage?
 ii) How does reading broaden our horizons and foster empathy?
 iii) What role does reading play in developing critical thinking and communication skills?
 iv) What are the advantages of reading physical books compared to digital formats?
 v) How does Reading make a full man?



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PART -A (20 Marks)

1. a) Why was Della sobbing and sniffing? [2M]
- b) What are the different things carried by the Brook? [2M]
- c) What are Musk's early business ventures? [2M]
- d) What expectations did the children have from their uncle's toys? [2M]
- e) Frame sentences with different compound words. [2M]
- f) Write the importance of Punctuation. [2M]
- g) How sentences are arranged in sequencing? [2M]
- h) What are the steps to be followed in summarizing? [2M]
- i) Where do you use present continuous tense? [2M]
- j) Write the difference between Resume and Curriculum Vitae. [2M]

PART - B (50 MARKS)**UNIT-I**

2. a) Why did Jim say their presents were too nice to use just at present? [5M]
- b) **Fill in the blanks with articles.** [5M]
 - i) Where are ---- Canary Islands?
 - ii) Children like ---- sweets.
 - iii) How far is --- Sun away from --- earth?
 - iv) --- Duck is --- bird.

(OR)

3. a) What moral lessons are stressed in 'The Gift of Magi'? [5M]
- b) **Write Antonyms for the following** [5M]
 - i) Cheap ii) Capable iii) vertical iv) exterior v) decent

UNIT-II

4. a) Discuss the effectiveness of the first-person narration used by Lord Tennyson in the poem **The Brook**. [5M]
- b) Write a paragraph about your Garden. Use descriptive phrases to make the reader feel as if they are walking through your garden. [5M]

(OR)

5. a) Present the debating situation among three friends about the effect of social media in education. [5M]
- b) Frame five Wh questions. [5M]

UNIT-III

6. a) Explain how Elon Musk measured the success. What are the ongoing effects of the outcome meant for him? [5M]
- b) **Fill in the blanks with the correct verb forms.** [5M]
 - i) Sita never----(tell) lies she really ---- (hate) them.
 - ii) Suman ---- (live) in Mumbai for 10 years.
 - iii) My sister is a writer. She----- (write) novels.



(OR)

7. a) How have Tesla and the Hyper loop radically revolutionized transportation? [5M]
b) **Mark the correct collocation.** [5M]
- | | |
|-------------------------|--------------------|
| i) Honest apology | Sincere apology |
| ii) Gossip writer | Gossip columnist |
| iii) Press an icon | Click on an icon |
| iv) Have sympathy for | Pay sympathy to |
| v) Speak fluent English | Speak easy English |

UNIT-IV

8. a) Describe the significance of Harvey's failed experiment with the peace toys. [5M]
b) Draw Bar Diagram and Explain how it conveys information. [5M]

(OR)

9. a) Explain how education plays a vital role in shaping children's perspectives regarding toys. [5M]
b) Write a letter to the Health officer of your city expressing concern about the unhygienic conditions in public places. [5M]

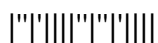
UNIT-V

10. a) How does intrapersonal communication help to build strong Interpersonal relationships? [5M]
b) Write an essay on Time and Tide wait for none. [5M]

(OR)

11. a) How intrapersonal communication is practiced in India, North America, and Australia? [5M]
b) **Edit the following passage.** [5M]

Our earth have been blessed with a large variety of resource like water, forests or minerals. But only humanbeings can discovers, develop or convert this resources into wealth. Thus the Greater resorce of an earth is the human being. Any country who want to progresss must take care of it's natural As well as Human resources.



I B. Tech I Semester Regular Examinations, Jauary-2024**COMMUNICATIVE ENGLISH**

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Time: 3 hours

Max. Marks: 70

*Note: 1. Question paper consists of two parts (Part-A and Part-B)**2. All the questions in Part-A is Compulsory**3. Answer ONE Question from Each Unit in Part-B***PART –A (20 Marks)**

1. a) What did Della do with her hair and why? [2M]
- b) What is the speed of the Brook as it moves from the hills and bridges? [2M]
- c) Give Examples of Subject -Verb agreement. [2M]
- d) What sort of Peace toys Harvey brings for Eric and Bertie. What do these toys represent? [2M]
- e) How does a cultivating Intrapersonal communication skill contribute to leadership development? [2M]
- f) Give Examples of the usage of Root Words. [2M]
- g) Write the difference between the Content word and the Function word. [2M]
- h) How information is represented graphically? Give examples. [2M]
- i) What is jargon? Give examples of scientific jargon. [2M]
- j) What are the four types of Essays? [2M]

PART – B (50 MARKS)**UNIT-I**

2. a) What was Jim's reaction when he returned home? [5M]
- b) **Punctuate the following passage.** [5M]
Jargon refers to terminology that is specific to an industry trade academic discipline profession or group of words or phrases that require specialized knowledge to be understood fall under category of jargon fields that use jargon include military music economics law computing and so on

(OR)

3. a) Attempt a justification of the story 'The Gift of the Magi' as an example of comic irony. [5M]
- b) **Provide the suffix for the following.** [5M]
i) Overlook ii) Child iii) Method iv) Fool v) Tire

UNIT-II

4. a) 'I make the netted sunbeam dance'. What image does the poet want to create in the mind of the reader? [5M]
- b) **Fill in the blanks with Homonyms.** [5M]
i) Lord Williams hardly ever left his (manor, manner)
ii) I keep walking (strait, straight) until you reach Peter's road.
iii) That lion has a beautiful (main, mane)
iv) Don't iron your clothes on the table: Use an ironing (board, bored)
v) All the leaders claimed that they wanted(piece, peace)

(OR)

5. a) What does the poet want to convey through the poem 'The Brook'. [5M]
- b) **Jumbled sentences. Arrange them in order.** [5M]
i) Roughage helps the body to get rid of undigested food.
ii) They improve appetite and increase the body's ability to fight diseases.
iii) Fresh fruits and vegetables are the sources of vitamins and minerals.
iv) Vitamins keep our body fit.
v) Minerals help in the growth of the body.

UNIT-III

6. a) What are Elon Musk's contributions to the field of Science and Technology? [5M]
 b) **Paraphrase the following passage.** [5M]
 John could not find the butter in his fridge. He went to buy some from the store. On coming back, he saw his cat sitting on the floor, smacking its lips. There was some yellow stuff smeared all around its face. Thus, John solved the mystery of the missing butter.

(OR)

7. a) Explain Musk's X. Com and PayPal. [5M]
 b) **Reading Comprehension.** [5M]
 The story talks about a bird who works hard and is punctual in its daily routine. There was once a bird who woke up early every morning to catch worms. Other birds would see her and laugh, saying that she was wasting her time. But the bird didn't care. She knew that if she kept working hard, she would eventually be rewarded. Sure enough one day, the bird caught a worm so big. It could barely fit in her mouth. The other birds were shocked and jealous, but the bird just smiled. She knew that her early mornings had paid off.

Answer the following questions.

- i) What are the characteristics of the bird in the story?
 ii) Why did the bird think that she would get rewarded?
 iii) How did the other birds react to her?
 iv) How did the bird get rewarded?
 v) What did you learn by reading this story?

UNIT-IV

8. a) Discuss the balance between promoting peace and acknowledging children's innate instincts. [5M]
 b) **Change the following sentences.** [5M]
 i) What a beautiful weather! Leela said. (Change into indirect speech)
 ii) Bunny said that it was time to leave for the meeting (Change into direct speech)
 iii) Shreya says, "The conference is in August." (Change into indirect speech)
 iv) Give him some bread. (Change into passive voice)
 v) Novels will be written by Nishika. (Change into active voice)

(OR)

9. a) How does the boy's transformation of the peace toys into violent scenarios reflect their exposure to real-world conflicts? [5M]
 b) Write a letter to the Chief Minister expressing concern about the rising unemployment rate in your state. [5M]

UNIT-V

10. a) What impact does Intrapersonal communication have on your personal growth? [5M]
 b) Write an essay on **Pollution due to Urbanization.** [5M]

(OR)

11. a) What are the benefits of developing strong intrapersonal communication skills? [5M]
 b) **Correct the following sentences.** [5M]
 i) If I will visit London, I will meet you.
 ii) She is married with an Engineer.
 iii) Every students is intelligent in the class.
 iv) Its Sunday morning.
 v) Parents work for there children.

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1. a) What is the significance of the intensity distribution in the interference pattern produced by the superposition of waves? [2M]
- b) Define diffraction grating. [2M]
- c) How are X-rays diffracted? [2M]
- d) What is a unit cell in crystallography? [2M]
- e) Write down the important applications of dielectric materials. [2M]
- f) What is Bohr magneton? Write down its significance. [2M]
- g) How can you say that matter waves are not electromagnetic waves? [2M]
- h) Explain Fermi Dirac distribution function. [2M]
- i) What does forbidden energy gap represents? [2M]
- j) How mobility of the charge carrier can be measured from Hall coefficient? Explain. [2M]

PART – B (50 MARKS)**UNIT-I**

2. a) Explain how Newton's rings are formed in reflected light. Derive expressions for diameters of dark and bright rings. [7M]
- b) A parallel beam of light of wavelength 6000Å is incident on a thin glass plate of refractive index 1.5 such that the angle of refraction into the plate is 50°. Find the least thickness of the glass plate which will appear dark by reflection. [3M]

(OR)

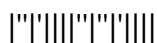
3. a) Explain resolving power and dispersive power of grating. [6M]
- b) How do you distinguish between a quarter wave and half wave plate? Explain. [4M]

UNIT-II

4. a) Classify various lattice types in the cubic crystal system and specify the effective number of lattice points per unit cell in each type. [6M]
- b) Define packing fraction and coordination number. Obtain the expression for packing fraction of SC crystal. [4M]

(OR)

5. a) State and explain Bragg's law. Calculate the maximum order of diffraction if X-rays of wavelength 0.819Å is incident on a crystal of lattice spacing 0.282 nm. [5M]
- b) Describe the Laue method for determination of crystal structure. [5M]



UNIT-III

6. a) What is an Ionic polarization? Obtain an expression for Ionic polarizability. [5M]
b) Obtain Clausius-Mossotti equation. [5M]

(OR)

7. a) Explain the B-H curve of Ferromagnetic material based on domain theory. [6M]
b) Distinguish between Hard and Soft magnetic materials. [4M]

UNIT-IV

8. a) Obtain an expression for Schrodinger's time independent wave equation. [6M]
b) State and explain Heisenberg's uncertainty Principle. [4M]

(OR)

9. a) Explain Fermi-Dirac distribution function. Explain how it varies with temperature with the help of plots. [6M]
b) What are the postulates of quantum free electron theory? Explain. [4M]

UNIT-V

10. Obtain the expression for carrier concentration in an intrinsic semiconductor. [10M]

(OR)

11. What is the band theory of solids? Classify conductors, insulators and semiconductors on the basis of band theory of solids. [10M]



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PART –A (20 Marks)

1. a) What is the significance of coherence in interference of light? [2M]
- b) How polarized light can be identified? [2M]
- c) Name seven crystal systems. [2M]
- d) What is the significance of Miller indices? [2M]
- e) What are the magnetic domains? [2M]
- f) Define electric polarization of a dielectric material. [2M]
- g) What is wave particle duality? [2M]
- h) Write down the important postulations of quantum free electron theory. [2M]
- i) What are semiconducting materials? Give examples. [2M]
- j) Define Hall coefficient. [2M]

PART – B (50 MARKS)**UNIT-I**

2. a) Explain the conditions for the minima and maxima in the single-slit Fraunhofer diffraction pattern. [6M]
- b) Define dispersive power of a grating and obtain an expression for it. [4M]

(OR)

3. a) Describe any two methods of producing plane polarised light. [6M]
- b) Distinguish between polarized light and unpolarized light. [4M]

UNIT-II

4. a) Determine the atomic radius and packing factor for BCC and FCC lattices. [6M]
- b) Draw (110) and (111) planes in the SC crystal. What do you infer from these diagrams? [4M]

(OR)

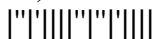
5. a) Deduce Laue's equation of diffraction of X-rays and obtain Bragg's diffraction condition from them. [6M]
- b) Compare powder X-ray diffraction and single-crystal X-ray diffraction. [4M]

UNIT-III

6. a) Explain electronic polarization and show that electronic polarizability is directly proportional to the volume of the atom. [6M]
- b) What is dielectric loss? Obtain an expression for Tangent loss. [4M]

(OR)

7. a) Discuss temperature dependence of susceptibility of Para and Ferro magnetic materials. [6M]
- b) How magnetic moment arises in magnetic materials? Explain. [4M]



UNIT-IV

8. a) Solve the Schrodinger wave equation for a particle in a one-dimensional box. [6M]
b) Explain the properties of matter waves. [4M]

(OR)

9. a) Obtain an expression for the electrical conductivity of a metal based on quantum free electron theory. [6M]
b) Explain the drawbacks of classical free electron theory. [4M]

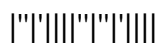
UNIT-V

10. Define electrical conductivity. Obtain the expression of electrical conductivity for intrinsic and extrinsic semiconductors. [10M]

(OR)

11. a) Obtain the expression for carrier concentration N- type semiconductor. [7M]
b) Write any three applications of Hall effect. [3M]

2 of 2



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1. a) What is the necessary condition for Fraunhofer diffraction? [2M]
- b) Define plane of polarization and plane of vibration. [2M]
- c) What are crystallographic axes? [2M]
- d) Write down the limiting condition for Bragg's law of X-diffraction. [2M]
- e) What is dielectric loss? [2M]
- f) Relate relative permeability (μ_r) with magnetic susceptibility (χ_M). [2M]
- g) What are matter waves? Express their wavelength in terms of particle energy. [2M]
- h) What are the demerits of classical free electron theory? [2M]
- i) What are the extrinsic semiconductors? [2M]
- j) What does forbidden energy gap signifies? [2M]

PART - B (50 MARKS)**UNIT-I**

2. a) Describe how interference of light waves leads to the formation of bright and dark rings in Newton's Rings. [6M]
- b) Describe how Newton's Rings can be used to measure the refractive index of a material. [4M]

(OR)

- 3 a) What is double refraction? Explain the construction and working principle of a Nicol prism with a neat ray diagram. [7M]
- b) Find the thickness of the half wave plate, when the wavelength of light is equal to 5890Å. Given refractive indices of ordinary ray and extraordinary ray are 1.55 and 1.54, respectively. [3M]

UNIT-II

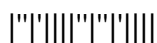
4. a) Describe the seven crystal systems with diagrams. [7M]
- b) Draw the planes (101), (111) and (110) in SC crystal with neat diagrams. [3M]

(OR)

5. a) Describe the powder method and determination of crystal structure with suitable diagrams. [7M]
- b) In first-order reflection from the plane of NaCl is obtained at an angle of 20° with the incident beam. If inter-atomic spacing is 2.5 \AA , then calculate the wavelength of X-rays used. [3M]

UNIT-III

6. a) Derive an expression for internal field for a dielectric material with cubic structure? [6M]
- b) Explain the frequency dependence of polarization. [4M]



(OR)

7. a) Elucidate the atomic origin of permanent magnetism in magnetic materials. [6M]
b) What are the Ferro magnetic materials? Write down their properties. [4M]

UNIT-IV

8. a) Discuss the dual nature of matter waves with suitable examples. [6M]
b) Explain the properties of wave function. [4M]

(OR)

9. Explain the meaning of density of states. Derive an expression for the number of allowed states per unit volume of a solid. [10M]

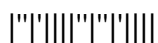
UNIT-V

10. Explain the concept of drift and diffusion currents in a semiconductor and how are they related to each other? [10M]

(OR)

11. a) What is Hall effect? Obtain the expression for Hall coefficient. [6M]
b) Explain the applications of Hall effect. [4M]

2 of 2



I B. Tech I Semester Regular Examinations, January-2024**ENGINEERING PHYSICS**

(Common to CE, ME, ECE, IT, AME, Mining, Robotics, Agri E, ECE-Allied, CSE-Allied)

Time: 3 hours

Max. Marks: 70

*Note: 1. Question paper consists of two parts (Part-A and Part-B)**2. All the questions in Part-A is Compulsory**3. Answer ONE Question from Each Unit in Part-B***PART -A (20 Marks)**

1. a) State the principle of superposition of light waves. [2M]
- b) When light waves bend around the obstacles? Explain. [2M]
- c) Define crystal planes. [2M]
- d) What are the important facts of Laue experiment for X-ray diffraction? [2M]
- e) Differentiate dielectric constant and dielectric susceptibility. [2M]
- f) Define residual magnetism and coercive force. [2M]
- g) What is the de Broglie hypothesis? Explain. [2M]
- h) What does Fermi Energy represent? Explain its significance. [2M]
- i) Draw the energy band diagram of an intrinsic semiconductor. [2M]
- j) How drift current is different from diffusion current? Explain. [2M]

PART - B (50 MARKS)**UNIT-I**

2. a) Derive the equation for the condition of constructive and destructive interference in a thin film with non-normal incidence. [6M]
- b) Provide examples of natural occurrences where colors in thin films are observed. [4M]

(OR)

- 3 a) Derive the expression for the intensity pattern in the Fraunhofer diffraction due to a double slit. [6M]
- b) Distinguish between the Fraunhofer and Fresnel diffraction. [4M]

UNIT-II

4. a) Deduce an expression for the inter-planar distance in terms of Miller indices for a cubic structure. [6M]
- b) Define the unit cell and describe the lattice parameters. [4M]

(OR)

5. a) Describe Bragg's spectrometer and explain how it is used to study the structure of crystals. [7M]
- b) X-rays of wavelength 0.3 \AA are incident on a crystal with a lattice spacing 0.5 \AA . Find the angles at which second and third order Bragg's diffraction maxima are observed. [3M]

UNIT-III

6. a) Obtain relationship between the three electric vectors in a dielectric material. [6M]
- b) What are polar and non polar dielectric materials? Explain. [4M]

(OR)

7. a) Explain the atomic origin of Ferromagnetism? Differentiate between diamagnetic and paramagnetic materials. [6M]
b) Distinguish between soft and hard magnetic materials. [4M]

UNIT-IV

8. a) Obtain an expression for Schrodinger's time dependent wave equation. [6M]
b) Explain the physical significance of wave function. [4M]

(OR)

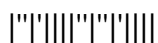
9. Discuss the merits and demerits of classical free electron theory. Explain the salient features of free electron theory. [10M]

UNIT-V

10. Discuss the energy band formation in pure semiconductor using energy band diagrams. Explain the formation of conduction and valance bands. [10M]

(OR)

11. a) Obtain the expression for carrier concentration in n-type semiconductor. [5M]
b) What are drift and diffusion currents and derive their expressions. [5M]



I B. Tech I Semester Supplementary Examinations, Jan/Feb-2024**COMMUNICATIVE ENGLISH**

(Common to all Branches)

Time: 3 hours

Max. Marks: 70

*Answer any five Questions one Question from Each Unit**All Questions Carry Equal Marks***UNIT – I**

1. a) What could be the reason for the drawer remaining locked for close to 25 years? [7M]
 b) **Punctuate the passage.** [7M]

In 1973 Indira Gandhi wrote these letters aroused a feeling of concern for people and interest in the world they taught one to treat nature as a book I spent absorbing hours studying stones and plants the lives of insects and at nights the stars

(OR)

2. a) “We see the working of caste laws in the story Deliverance”- Justify the statement. [7M]
 b) **Rearrange the jumbled sentences and make it an effective paragraph.** [7M]
1. Keep vitamins fit body our.
 2. Appetite they and improve body’s increase ability fight to diseases.
 3. Help minerals growth the body of in the.
 4. Vegetables fresh fruits sources and are vitamins of minerals and.
 5. Roughage body helps undigested get rid of to the food.

UNIT – II

3. a) What was the purpose of Nehru’s letter to his daughter? [7M]
 b) **Fill in the blanks with Prepositions.** [7M]

Farming in the Deccan is hard work, --- the soil is not very rich, and hardly anything will grow without irrigation. Everyone grows vegetables and a little rice. The sugarcane is a good crop because the local sugar factory, a few miles away, will give a good price for it. Every farmer will take some---his crops --- the village sugar maker--- make hard brown sugar. The sweet sap is crushed out --- the canes and boiled ---- hours --- a huge iron pot until it is like coffee.

(OR)

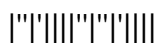
4. a) What is the main issue and theme addressed in Bosom friend? [7M]
 b) Write a **letter** to the editor of Times of India to advertise your Advertisement on the front page of the newspaper. [7M]

UNIT – III

5. a) What are Prof. Hawking’s greatest contributions to the field of science? [7M]
 b) Several pages are missing from many important books in the library, Complain to the librarian. **Develop a dialogue.** [7M]

(OR)

6. a) Explain various issues involved with women according to Shakespeare’s Sister by Virginia Woolf. [7M]
 b) Write an **e-mail** to the Bus Depot Manager about the loss of your Wallet containing credit cards and some money. [7M]



UNIT – IV

7. a) Maathai tells her fellow African women that the solutions to their problems lie within themselves- Justify. [7M]
b) Write a **Resume** of your own applying for the post of Business Analyst in Cap Gemini company. [7M]

(OR)

8. a) Describe how discrimination is portrayed in the poem ‘Telephone Conversation’. [7M]
b) **Rewrite as directed.** [7M]
1) Rose is more beautiful than Jasmine. (Change it into positive)
2) Tendulkar is one of the best batsmen in the world. (Change it into comparative)
3) China is larger than India. (Change it into Superlative degree)
4) The Hero said, How pretty she is! (Change it into indirect speech)
5) Raju wondered who to invite to the party. (Change it direct speech)
6) My friend is so generous. (Underline the adjective)
7) Do you drink----- Coco cola every day. (much, a lot of, many)

UNIT – V

9. a) Steve Jobs said, “You have to trust in something- Your gut, destiny, life, karma, whatever.”- Explain. [7M]
b) Prepare a **poster presentation** on the topic Skill India. The content should be thought provoking with effective, impressive expressions and quotations. [7M]

(OR)

- 10 a) Critically analyze Maya Angelou’s poem ‘Still I Rise’. [7M]
b) Write your **Statement of Purpose** for applying MS in Chicago State University in USA. [7M]

