Code No: **R231201** **R23** **SET - 1**

I B. Tech II Semester Regular Examinations, June/July-2024
ENGINEERING PHYSICS

(Common to CSE, EEE, Ph. E.)

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***

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PART –A (20 Marks)

1.	a)	How does the angular separation between fringes in single-slit diffraction experiment change when the distance of separation between the slit and screen is doubled?	[2M]
	b)	In what way is plane polarized light different from an unpolarized light?	[2M]
	c)	What is the difference between a primitive cell and a conventional cell?	[2M]
	d)	What is X-ray diffraction used for in crystallography?	[2M]
	e)	Mention any two applications of dielectric materials.	[2M]
	f)	Define residual flux density.	[2M]
	g)	Justify that the matter waves are not EM waves.	[2M]
	h)	Calculate the probability that an electron state with energy E is occupied for the case of $E=E_F$	[2M]
	i)	What is valance band?	[2M]
	j)	How drift current is related to diffusion current in semiconductor?	[2M]

PART – B (50 MARKS)

UNIT-I

2.	a)	Explain the formation of Newton's rings. How the refractive index of a given liquid can be determined with the help of Newton's rings.	[5M]
	b)	Discuss the formation of bright and dark fringes in a thin film.	[5M]

(OR)

3	a)	Discuss the diffraction effects due to a N-slits qualitatively.	[5M]
	b)	Explain the phenomenon of double refraction with a neat ray diagram.	[5M]

UNIT-II

4.	a)	Name the seven types of crystal systems and mention the lengths of axes and the relation of angles between the axes of a unit cell in each type.	[5M]
	b)	Explain BCC and FCC crystal structures.	[5M]

(OR)

5.	a)	Deduce the relation between the inter planar distance'd' and the Miller indices (hkl) of the planes for a cubic system.	[5M]
	b)	Write the principles of Bragg's law. Calculate the longest wavelength that can be analyzed by rock salt crystal of spacing 2.82A° in the first order.	[5M]

UNIT-III

6.	a)	Define electric polarizability, polarization and electric displacement vectors.	[5M]
	b)	Describe ionic polarization in an ionic dielectric and obtain an expression for Ionic polarizability.	[5M]
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(OR)

7. a) Explain how susceptibility varies with temperature for ferro, antiferro and ferri magnetic materials in detail. [5M]
   b) Why do ferromagnetic materials exhibit spontaneous magnetization? Explain. [5M]

UNIT-IV

8. a) What is Heisenberg's uncertainty principle? Explain with examples. [5M]
   b) Obtain Schrodinger's time independent wave equation. [5M]

(OR)

9. a) Write down the merits of classical free electron theory. [5M]
   b) What is Fermi Dirac distribution function? Explain the variation of Fermi Dirac distribution function with temperature. [5M]

UNIT-V

10. a) Deduce an expression for the concentration of electrons per unit volume in the conduction band of an intrinsic semiconductor. [5M]
    b) How does the Fermi level change with temperature in the extrinsic semiconductor? Explain with a neat plot. [5M]

(OR)

11. a) Discuss the effect of donor and acceptor impurities in semiconductors. [5M]
    b) What is the importance of Hall effect? Derive the relation between Hall voltage and Hall coefficient. [5M]

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Code No: **R231201** **R23** **SET - 2**

I B. Tech II Semester Regular Examinations, June/July-2024

ENGINEERING PHYSICS

(Common to CSE, EEE, Ph.E.)

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***

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PART –A (20 Marks)

1. a) Why is necessary to have coherent sources in order to produce an interference pattern? [2M]
b) Define ordinary and extra ordinary ray. [2M]
c) What is the Bragg's law equation? [2M]
d) Explain the term 'Bravais' lattice. [2M]
e) What are polar and non-polar dielectrics? [2M]
f) Write down the properties of diamagnetic materials. [2M]
g) Explain the concept of wave-particle duality. [2M]
h) Write down the Fermi-Dirac distribution function by explaining all terms involved in it. [2M]
i) Define mobilities of charge carriers in a semiconductor. [2M]
j) What is the process of doping? [2M]

PART – B (50 MARKS)

UNIT-I

2. a) What are Newton's rings? Derive the expression for diameter of bright and dark rings. [5M]
b) Explain why different colours are exhibited by thin film in the white light. [5M]

(OR)

3 a) Explain the transverse nature of the light through a demonstration with help of suitable diagrams. [5M]
b) Discuss the Fraunhofer diffraction effects qualitatively at a double slit. [5M]

UNIT-II

4. a) Calculate the number of atoms per unit cell, atomic radius, coordination number and packing factor for Face Centered Cubic (FCC) structure. [5M]
b) What are Miller indices? How are they obtained? [5M]

(OR)

5. a) Describe the Laue method for the determination of crystal structure. [5M]
b) Copper has FCC structure and the atomic radius is 0.1278 nm. Calculate the Inter planar spacing for (1 1 0) and (220) planes. [5M]

UNIT-III

6. a) Discuss the frequency dependence of polarization with a neat plot. [5M]
b) Obtain the expression for internal field inside a dielectric when it is placed in an electric field. [5M]

(OR)

7. a) Derive the expression for magnetic moment due to orbital and spin motion of an electron in magnetic material. [5M]
b) Explain the Weiss domain theory of ferromagnetism. [5M]
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UNIT-IV

8. a) Derive Schrodinger time dependent wave equation. [5M]

   b) Find the most probable positions for the first three energy levels of a particle trapped in an infinite square well potential. [5M]

(OR)

9. a) What are the merits of quantum free electron theory over the classical free electron theory? Explain. [5M]

   b) Discuss the behaviour of Fermi level with the variation of temperature. [5M]

UNIT-V

10. a) Deduce an expression for the concentration of holes per unit volume in the valence band of an intrinsic semiconductor. [5M]

    b) Define Fermi level in a solid. Show that Fermi level in intrinsic semiconductor lies at the centre of the forbidden gap. [5M]

(OR)

11. a) Explain the concept of the diffusion current in semiconductors. [5M]

    b) State and explain Hall effect. Derive the expression for Hall Coefficient. [5M]

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Code No: **R231201** **R23** **SET - 3**

I B. Tech II Semester Regular Examinations, June/July-2024
ENGINEERING PHYSICS

(Common to CSE, EEE, Ph.E)

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***

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PART –A (20 Marks)

1.	a)	Define resolving power of an optical instrument.	[2M]
	b)	Draw the intensity distribution curve of Fraunhofer diffraction at a double slit.	[2M]
	c)	What is a crystal lattice?	[2M]
	d)	Write the limitations of Bragg's law.	[2M]
	e)	Write a note on dielectric loss.	[2M]
	f)	Obtain the relationship between magnetic susceptibility and relative permittivity.	[2M]
	g)	How does the de Broglie hypothesis apply to macroscopic objects?	[2M]
	h)	Define Fermi energy level.	[2M]
	i)	What is the significance of forbidden energy gap?	[2M]
	j)	How mobility of the charge carriers can be calculated with Hall coefficient?	[2M]

PART – B (50 MARKS)

UNIT-I

2.	a)	What is the superposition of waves? Explain constructive and destructive interference.	[5M]
	b)	Give the theory of Newton's rings and describe how the wavelength of a unknown light source can be determine with the help of these rings.	[5M]

(OR)

3	a)	Describe briefly how a diffraction pattern is obtained on a screen due to a single narrow slit illuminated by a monochromatic source of light.	[5M]
	b)	Explain construction and working principle of a Nicol's prism.	[5M]

UNIT-II

4.	a)	Determine the atomic radius and packing factor for BCC lattice.	[5M]
	b)	What are Miller indices? Explain their role in crystal structures.	[5M]

(OR)

5.	a)	State and explain Bragg's law of X-ray diffraction.	[5M]
	b)	How to determine the crystal structure? Explain with neat sketch and describe the powder method.	[5M]

UNIT-III

6.	a)	Obtain the relation between the three electric vectors in dielectrics.	[5M]
	b)	What is electronic polarization? Show that the electronic polarization depends on the volume of the constituent atom.	[5M]

(OR)

7.	a)	Explain diamagnetism, Para magnetism and ferromagnetism based on magnetic dipole moment.	[5M]
	b)	Explain the origin of permanent magnetic moment in magnetic materials.	[5M]

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UNIT-IV

8. a) What are the matter waves? Explain their properties. [5M]
   b) Show that the energy values of a particle in a one dimensional potential box are quantized. [5M]

(OR)

9. a) Derive the expression for the density of energy states in metals. [5M]
   b) Explain the merits and demerits of classical free electron theory [5M]

UNIT-V

10. a) How solids are classified on the basis of band theory solids? Explain. [5M]
    b) How does the Fermi level change with carrier concentration in the extrinsic semiconductor? Explain with a neat plot. [5M]

(OR)

11. a) Obtain an expression for electrical conductivity of an intrinsic semiconductor. [5M]
    b) Obtain the Einstein relation between diffusion coefficient and mobility of an electron. [5M]

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Code No: **R231201** **R23** **SET - 4**

I B. Tech II Semester Regular Examinations, June/July-2024
ENGINEERING PHYSICS

(Common to CSE, EEE, Ph.E)

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***

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PART –A (20 Marks)

1.	a)	Write the conditions of constructive and destructive interference.	[2M]
	b)	Explain the limitation of a Nicol's prism.	[2M]
	c)	What is the coordination number in crystallography?	[2M]
	d)	Find $d_{100} : d_{110} : d_{111}$ for cubic system.	[2M]
	e)	Define electric displacement vector.	[2M]
	f)	Draw the B-H plot for hard magnetic materials.	[2M]
	g)	What is the de Broglie hypothesis?	[2M]
	h)	Write down the normalized condition of a wave function.	[2M]
	i)	What are extrinsic semiconductors?	[2M]
	j)	Define diffusion current in semiconductors.	[2M]

PART – B (50 MARKS)

UNIT-I

2.	a)	Explain the formation of Newton's rings. Obtain expression to find the wavelength of light in Newton's rings experiment.	[5M]
	b)	Explain various methods to produce plane polarized light.	[5M]

(OR)

3	a)	Obtain the conditions for central maximum, minima and secondary maxima in the case of Fraunhofer diffraction due to single slit.	[5M]
	b)	How Nicol prism acts as an analyzer? Explain with a neat ray diagram.	[5M]

UNIT-II

4.	a)	Define space lattice ,basis and unit cell.	[5M]
	b)	Determine the atomic radius and packing factor for FCC lattice.	[5M]

(OR)

5.	a)	Draw (100),(110) , (220) ,(121) and (111) planes in cubic crystal system.	[5M]
	b)	State and explain Bragg's law of x ray diffraction.	[5M]

UNIT-III

6.	a)	Explain the concepts of dielectric loss and complex dielectric constant.	[5M]
	b)	Deduce the Clausius-Mossotti relation.	[5M]

(OR)

7.	a)	Distinguish between soft and hard magnetic materials.	[5M]
	b)	Classify the magnetic materials. Distinguish between Dia, Para and Ferro magnetic materials	[5M]
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UNIT-IV

8. a) What is de Broglie hypothesis? Write the properties of matter waves. [5M]
   b) Derive an expression for energy Eigen values for a particle in a one dimensional box. [5M]

(OR)

9. a) Write down the postulates of quantum free electron theory. [5M]
   b) Obtain an expression for electrical conductivity based on quantum free electron theory. [5M]

UNIT-V

10. a) Derive the equations for carrier concentration in N-type semiconductors. [5M]
    b) How is energy bands formed in solids? Explain. [5M]

(OR)

11. a) What is the Hall effect? Obtain an expression for Hall coefficient. [5M]
    b) Relate the mobility of the charge carriers with diffusion coefficients. [5M]

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Code No: **R231207** **R23** **SET - 1**

I B. Tech II Semester Regular Examinations, June/July-2024
COMMUNICATIVE ENGLISH

(Common to CE, ME, ECE, IT, AME, Mining E, Agri E, 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***

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PART –A (20 Marks)

1. a) What were the two possessions the Youngs were proud of? [2M]
   b) Explain about colon and semicolon. [2M]
   c) Explain the lines- I slip, I slide, I gloom, I glance/ Among my skimming swallows; [2M]
   d) Define Sequencing. [2M]
   e) Write two of Musk's early business ventures. [2M]
   f) What are the steps involved in Note Making? [2M]
   g) What happen when Eric and Bertie start playing with the peace toys? [2M]
   h) What are Homophones? Give examples. [2M]
   i) How do you manage stress through Intra Personal Communication? [2M]
   j) Write few lines on Brain storming. [2M]

PART – B (50 MARKS)

UNIT-I

2. a) What are the different ways in which O. Henry discussed the financial situation of the couple? [5M]
   b) Write the differences between Skimming and Scanning. [5M]

(OR)

3 a) What was Della's reaction on receiving the gift that Jim got for her? [5M]
   b) Write about Content and Function words with examples. [5M]

UNIT-II

4. a) Men may come- Men may go But I go on forever. Explain [5M]
   b) **Summarize the following passage** [5M]

Therapy with music as medicine sounds stunning but it's true. Each raga emits a particular emotion when in turn helps in curing certain ailments. An ancient story states that once a disciple who had resided at his teacher's place one night, woke up suddenly in the midst of the dark night as he was disturbed by the hisses of venomous snakes .He was scared to see the queue of wild animals enjoying the songs rendered by his teacher. With this story as a base, research states, if wild animals can be controlled then human minds can be controlled and tamed easily. With yoga, meditation getting popular and serving as free medicine even the use of music should be optimally used. A study in Japan states that the herbs, bushes and plants grow better with music around. Music increases the metabolism rate even in humans.

(OR)

5. a) What does the poet want to convey through the poem 'The Brook'. [5M]
   b) **Fill in the banks with Prepositions** [5M]
   1. He travelled all ----- the world.
   2. Shivaji fought ----- every kind of aggression.
   3. Don't depend----- others.
   4. He knows French and German ------- Russian.
   5. She has been supporting her family----- her husband's death.
~~~~~~

UNIT-III

6. a) Musk proved to be a visionary leader of cutting –edge technology- Explain with examples. [5M]

   b) **Fill in the blanks with correct form of the verbs** [5M]

   1. My sister is a writer. She -----fiction novels. (write)
   2. Shreya ---- (live) in Chennai for 20 years.
   3. Maddy ----- (be) ------ (work) very hard these days.
   4. Are you ------ (attend) the seminar?
   5. The Sun ---- (set) in the evening.

(OR)

7. a) What is the impact of Space X on space exploration? [5M]

   b) **Write two compound words for the following classes** [5M]
   1. Noun 2. Pronoun 3. Adjective 4. Adverb 5. Numerals

UNIT-IV

8. 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 election commissioner of your state suggesting some precautionary steps for the smooth and peaceful conduct of assembly elections. [5M]

(OR)

9. a) How does the story 'The Toys of Peace' highlight the challenge of redirecting established behaviors and attitudes ingrained in early childhood? [5M]

   b) **Change the following sentences** [5M]

   1. Pranay says, I work as a doctor.(change into indirect speech)
   2. Suma said that she would attend the seminar.(change into direct speech)
   3. The economist concluded that there is a significant gap in the current politics.
   (change into direct speech)
   4. The teacher explained the theories to the students. (convert into passive voice)
   5. The charity event was organized by the NGO's. (convert into active voice)

UNIT-V

10. a) How does strong intra personal communication develops one's personality? [5M]

    b) Write 10 technical jargon words in the field of Medicine. [5M]

(OR)

11. a) Comment on-Intra personal skills contribute to leadership development. [5M]

    b) Write an essay on benefits of Artificial Intelligence in future. [5M]

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Code No: **R231207** **R23** **SET - 2**

I B. Tech II Semester Regular Examinations, June/July-2024
COMMUNICATIVE ENGLISH

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

Time: 3 hours Max. Marks: 70

*Note: 1. Question paper consists of two parts (**Part-A** and **Part-B**)*
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*3. Answer **ONE** Question from each Unit in **Part-B***

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PART –A (20 Marks)

1.	a)	What had Jim done to give a gift to his wife?	[2M]
	b)	**Underline the adjectives in the passage**. Our class went for an exciting trip to a zoo We rode to the zoo in a yellow bus. There was a huge crowd at the main gate of the zoo. We saw one Hippopotamus in a small pond.	[2M]
	c)	How is the brook a symbol of life?	[2M]
	d)	What is chronological sequencing?	[2M]
	e)	Write two lines on Boring company.	[2M]
	f)	What are the steps involved in Paraphrasing?	[2M]
	g)	What are the objections to traditional children's toys like soldiers and guns?	[2M]
	h)	Mention the essentials elements of an official letter.	[2M]
	i)	How do you enhance intrapersonal skills?	[2M]
	j)	Write two jargon words in the field of sports.	[2M]

PART – B (50 MARKS)

UNIT-I

2.	a)	How does the sacrifices of Jim and Della compare to each other?	[5M]
	b)	**Frame questions to the following sentences** 1. They are from Chennai. 2. My entrance exam is on Sunday. 3. The Tesla car is faster than petrol car. 4. My father goes for a walk every day. 5. I am reading Harry Potter right now.	[5M]

(OR)

3	a)	Would the personalities of Jim and Della change if they were better off.	[5M]
	b)	**Identify the roots of the following words.** 1.Transport 2.Telephone 3.Monogram 4.Admit 5.Paragraph	[5M]

UNIT-II

4.	a)	The Brook offers a visual treat of sight and sound. Explain.	[5M]
	b)	Write a paragraph on your favorite holiday spot.	[5M]

(OR)

5.	a)	How has the poet drawn parallelism between the journey of the brook and the life of Man?	[5M]
	b)	**Fill in the blanks with articles** 1. It wasn't---- fair deal. 2. The robber could easily scale -----wall. 3. His lawyer produced ---- important document in the court. 4. Chimpanzee is ----- most intelligent among animals. 5. Birbal was --- honest man. .	[5M]
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UNIT-III

6. a) How have Tesla and the Hyper loop radically revolutionized transportation? [5M]

   b) **Paraphrase the following passage** [5M]

Books are really your best friends as you can rely on them when you are bored, upset, depressed, lonely or annoyed, They will accompany you anytime you want them and enhance your mood. They share with you the information and knowledge any time you need. Good books always guide you to the correct path in your life. Reading helps you to understand the world around you better. It keeps your mind active and enhance your creative ability. Reading helps ones vocabulary and develops communication skills. It reduces stress. It creates positive mind of body and soul. Books enable to have a glimpse into cultures, traditions, arts, history, geography, health, psychology, and several other subjects and aspects of life. We must all read on a daily basis for at least 30 minutes to enjoy the sweet fruits of reading.

(OR)

7. a) Explain about X.com and Pay pal. [5M]

   b) **Fill in the blanks with correct verb forms** [5M]

1. My friend is good at-------(paint)
2. The Arabian nights---- still a great favorite book.(is/are)
3. The Committee---- chosen their Chairman.(has/have)
4. A year---- twelve months.(has/have)
5. People ---- when they are to repent.(apology)

UNIT-IV

8. a) How did the Peace council make alternate suggestions to the parents? [5M]

   b) Write a Resume of your own along covering letter for the post of Team leader in some software Company. [5M]

(OR)

9. a) What holiday task did the boys have to do for the History class? [5M]

   b) Write a note on Data Interpretation. [5M]

UNIT-V

10. a) What is Intra personal communication and how does it relate to self-awareness? [5M]

    b) **Reading Comprehension** [5M]

I have a dream is a public speech delivered by American civil rights activist Martin Luther King Jr. During the march on Washington for jobs and freedom on August 28,1963, in which he calls for an end to racism in the United states and called for civil and economic rights. Delivered to over 250,000 civil rights supporters from the steps of the Lincoln Memorial in Washington, D.C, the speech was a defining moment of the civil rights movement.

Beginning with a reference to the emancipation Proclamation, which freed millions of slaves in 1863, King observes that "One hundred years later, the Negro still is not free.'' Toward the end of the speech, King departed from his prepared text for a partly improvised peroration on the theme "I have a dream''. Prompted by Mahalia Jackson's cry: Tell them about the dream, Martin''. In this part of the speech, which most excited the listeners and has now become its most famous, King described his dreams of freedom and equality arising from a land of slavery and hatred.

Answer the following questions

1. What issues does Martin Luther King's speech address?
2. When did Martin gave his speech?
3. What pushes King to speak: 'I have a dream'?
4. What is the name of Martin Luther King's famed speech?
5. In front of whom does King speak**?**

(OR)

11. a) Write the contribution of mindfulness practices for improving intra-personal communication. [5M]

    b) Write five jargon words in the field of Education. [5M]

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Code No: **R231207** **R23** **SET - 3**

I B. Tech II Semester Regular Examinations, June/July-2024
COMMUNICATIVE ENGLISH
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Time: 3 hours Max. Marks: 70

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*2. All the questions in **Part-A** is Compulsory*
*3. Answer **ONE** Question from each Unit in **Part-B***

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PART –A (20 Marks)

1. a) What are the gifts the Magi offered to infant Jesus? [2M]
b) My hair grows so fast. Mark the content words. [2M]
c) What are the different things carried by the brook? [2M]
d) Define Homographs. Give examples. [2M]
e) What is the aim of Tesla? [2M]
f) How do you change the sentences in a paraphrase without changing the meaning? [2M]
g) What were the views of the National Peace Council? [2M]
h) Give the meanings of the two Homophones: Principal/Principle. [2M]
i) Give examples for Intrapersonal Communication. [2M]
j) Define technical jargon. [2M]

PART – B (50 MARKS)

UNIT-I

2. a) Who were the Magi? [5M]
b) **Match the Synonyms** [5M]
a) Mandatory- 1.Useless
b) Futile- 2. Rarely
c) Broad.- 3.Compulsory
d) Hardly- 4. Dangerous
e) Hazardous- 5. Wide

(OR)

3 a) “What moral lessons are stressed upon in Gift of the Magi’’? [5M]
b) **Give the Antonyms for the following** [5M]
1. Ambiguity 2. Accurate 3. Extempore 4. Interior 5. Reckless

UNIT-II

4. a) Discuss the effectiveness of the first – person narration used by Lord Tennyson in the poem -The Brook. [5M]
b) **Fill in the blanks with correct Homonyms** [5M]
1. Don’t be near that tree as it has a ----- hive.(bee be)
2. Every day we play for an --- in the garden.(hour, our)
3.---- saw the boy who got first rank.(I. eye)
4. We are not ------to read in the library.(aloud, allowed)
5. ------ this sports column in the newspaper. (add, ad)

(OR)
~~~~~~

5. a) What kind of landscape is described in the first three stanzas of the poem -The Brook? [5M]
   b) **Rewrite the following sentences correctly replacing the prepositions** [5M]
   1. The cat is **below** the pillow.
   2. The soldiers climbed **across** the wall.
   3. The train will arrive **in** seven o' clock.
   4. I known her **for** last year.
   5. We played a joke **of** him.

UNIT-III

6. a) How did Elon Musk become successful? [5M]
   b) Write a letter to the Chairman, CBSE, Preet Vihar, enquiring about the fee to be deposited, mode of payment, time taken by the board for issuing duplicate certificates for class XII. [5M]

(OR)

7. a) How has Musk's business ventures attempted to transform the health industry? [5M]
   b) **Identify the tense of the underlined words/phrases** [5M]
   1. The army personnel **will have been** travelling all night.
   2. I **have had** this costume for quite some time now.
   3. Children **like** to go to cinema.
   4. Raju **has been having** this problem with the Television **since** yesterday.
   5. I **will come** to your house definitely tomorrow.

UNIT-IV

8. a) Eleanor believes that it is possible to curb a boy's natural enthusiasm for violent games by giving them peace toys. Did she succeed? Explain. [5M]
   b) **Convert the following sentences** [5M]
   1. My uncle said, I am cooking lunch.(change into indirect speech)
   2. Mohit said, Switzerland is a very beautiful country.(change into indirect speech)
   3. Meera said that she was not feeling well.(change into direct speech)
   4. The man shouted to them to let him go. .(change into direct speech)
   5. The artist painted a beautiful mural on the wall. (change into passive voice)

(OR)

9. a) Towards the end of the story, Harvey exclaims the experiment- has failed. We have begun too late. Why does he say that? [5M]
   b) List graphic elements used for Data interpretation. [5M]

UNIT-V

10. a) How do you incorporate intrapersonal communication in your own life? [5M]
    b) **Edit the following passage** [5M]
    everyone have a mental picture of a volcano one appearance it looks like a cone-shape mountain but a top of the cone is rather flat than hollow

(OR)

11. a) How does decision making influenced by positive intra personal communication? [5M]
    b) Write an essay on **Education should be free.** [5M]

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Code No: **R231207** **R23** **SET - 4**

I B. Tech II Semester Regular Examinations, June/July -2024
COMMUNICATIVE ENGLISH

(Common to CE, ME, ECE, IT, AME, Mining E, Agri E, 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***

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PART –A (20 Marks)

1.	a)	How much money had Della managed to save for Jim's present?	[2M]
	b)	Write the difference between content and function words.	[2M]
	c)	Where does the brook carry all the things?	[2M]
	d)	Write two examples for Prefix and Suffix.	[2M]
	e)	What is the interesting quality of Elon Musk?	[2M]
	f)	Where do you use Simple Present tense?	[2M]
	g)	What is the theme of The Toys of Peace?	[2M]
	h)	Define Collocation. Give two examples.	[2M]
	i)	What is the role of intra personal communication?	[2M]
	j)	Write the difference between Advice and Advise.	[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)	**Rewrite the jumbled sentences in the** correct order. 1. Laboratory is the second floor on. 2. The goat around the tree is running is. 3. In the tall city Dubai buildings are 4. Brother loves my shakes milk. 5. Cold the was water very.	[5M]

(OR)

3	a)	Show how the twist in the tale makes the story of Jim and Della a moral lesson.	[5M]
	b)	**Underline the adverbs** 1. The boy is too careless. 2. The winds are very strong. 3. The movie is to end soon. 4. I was rather busy. 5. Surely you are mistaken.	[5M]

UNIT-II

4.	a)	What are the types of water bodies and plant life that are described in the poem The Brook?	[5M]
	b)	Write a descriptive paragraph about your garden. Identify the plants that are in the garden, and use descriptive phrases to make the reader feel as if they are walking through your garden.	[5M]

(OR)

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5. a) What is the message of the poem The Brook? [5M]

   b) **Fill in the blanks with connectives(Though, rather than, unlike ,after, to repeat)** [5M]

   1**.** Shreya prefers to dance------ reading a book.

   2. Maddy attends her gym classes regularly,------ her brother Dhruva who is always irregular.

   3.Ammi held a jewelry exhibition earlier this month in Banjara hills---- a workshop was organized in gemmology.

   4. ------ Abhi eats mushroom for protein, he doesn't like it.

   5. The ground is very slippery------ the practice. Dhanvi's mother warned not to play there.

UNIT-III

6. a) Describe two of Musk's early business ventures. [5M]

   b) **You noticed a hazardous message recently—Loss weight in just a month!** [5M]
   A wonder diet comes to your rescue.. A privilege available for only a few!

   Write a letter to the **Editor of Hindu** drawing attention towards causing by such advertising. Propose the implementation of **Wholesome Lunch Month** in schools as an idea to address such practices. Share suggestions to foster healthy eating routines and develop positive body image among youngsters.

(OR)

7. a) Write few lines on Neuralink and Neural Interface Technology. [5M]

   b) Write a Resume of your own applying for the post of Business Analyst in Infosys, Bangalore. [5M]

UNIT-IV

8. a) What did Harvey see when he went back to the boys room, to check how they were getting on with their peace toys? [5M]

   b) **Convert the following sentences** [5M]

   1. The teacher instructed Vivek to draw the diagram of the plant's parts.(change into direct speech)

   2. Anish requested Sidda to lend him the book. (change into direct speech)

   3. Ruben said, "It is very cold outside." .(change into indirect speech)

   4. The Professor explained the concept to the students.(convert into passive voice)

   5.The Convocation ceremony will be hosted by the Vice Chancellor.(convert into active voice)

(OR)

9. a) What imaginative ways do the boys find to use the peace toys in their war game**s?** [5M]

   b) Reveal trends, patterns and relationships with Data Interpretation. [5M]

UNIT-V

10. a) What is the role of intrapersonal communication in one's life? [5M]

b) **Poem Reading Comprehension** [5M]

I'm leaving now to slay the foe
Fight the battles, high and low
I'm leaving, mother, hear me go!
Please wish me luck today
I've grown my wings, I want to fly seize my victories
where they lie
I want to see and touch and hear though there are dangers, there are fears
I' m going Mom, but please don't cry just let me find my way

Answer the following questions

1. Why does the young man request his mother to wish him luck?
2. What is the ambition of the young man?
3. What promise does the young man give to his mother?
4. Which lines in the poem read that the young man is ready to face struggles of life?
5. What is the meaning of sly?

(OR)

11. a) How does intra personal communication help us overcome challenges? [5M]

b) Write ten general technical vocabularies. [5M]

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Code No: **R201201** **R20** **SET - 1**

I B. Tech II Semester Supplementary Examinations, June/July-2024
MATHEMATICS-II
(Common to All Branches)

Time: 3 hours Max. Marks: 70

Answer any FIVE Questions One Question from Each Unit
All Questions Carry Equal Marks

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UNIT -I

1. a) Solve the equations $2x - 6y + 8z = 24, 5x + 4y - 3z = 2, 3x + y + 2z = 16.$ by Gauss-Elimination method. [7M]

   b) Find the Rank of the matrix $A = \begin{bmatrix} 1 & 2 & 3 & 0 \\ 2 & 4 & 3 & 2 \\ 3 & 2 & 1 & 3 \\ 6 & 8 & 7 & 5 \end{bmatrix}$ using Echelon form. [7M]

(OR)

2. a) Find the Eigen values and Eigen vectors of $\begin{bmatrix} -1 & 2 & -2 \\ 1 & 2 & 1 \\ -1 & -1 & 0 \end{bmatrix}$ [7M]

   b) Solve the system of equations $4x + 2y + z + w = 0, 6x + 3y + 4z + 7w = 0, 2x + y + w = 0.$ [7M]

UNIT- II

3. a) Reduce the quadratic form $3x^2+5y^2+3z^2-2yz+2zx-2xy$ to canonical form. [7M]

   b) Find A^4 using Cayley- Hamilton theorem for $A = \begin{bmatrix} 1 & 1 & 1 \\ 0 & 2 & 1 \\ -4 & 4 & 3 \end{bmatrix}$ [7M]

(OR)

4. a) Diagonalize the matrix $\begin{bmatrix} 1 & 0 & -1 \\ 1 & 2 & 1 \\ 2 & 2 & 3 \end{bmatrix}$. [7M]

   b) Find the Nature, Rank, index, signature of the quadratic form $2x^2 + y^2 - 3z^2 + 12xy - 4xz - 8yz$ [7M]

UNIT- III

5. a) Find the real root of the equation using $xlogx_{10} = 1.2$ Newton Raphson method. [7M]

   b) Find the real root of the equation using $x^3 - 4x + 9 = 0$ using False-position method. [7M]

(OR)

6. a) Find the real root of the equation using $x = \frac{1}{2}cosx$ iteration method [7M]

   b) Find the real root of the equation using $x = e^{-x}$ bisection method [7M]

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Code No: **R201201** **R20** **SET - 1**

UNIT- IV

7. a) Fit a polynomial for the following data [7M]
$y_0 = -5, y_1 = -1, y_2 = 9, y_3 = 25, y_4 = 55, y_5 = 105.$

b) Find y(55) for the following data using Newton Backward interpolation formula [7M]

x	10	20	30	40	50
x	9.21	17.54	31.82	55.32	92.51

(OR)

8. a) Find $\Delta^2[\sin(ax + b)]$ if h =1. [7M]

b) Find y (6) using Newton's divided difference formula for the following data. [7M]

x	1	2	7	8
y	1	5	5	4

UNIT- V

9. Evaluate $\int_0^1 e^{-2x}dx$ using (a) Trapezoidal (b) Simpson's 1/3rd rule (c) Simpson's 3/8th rule and compare with exact result. [14M]

(OR)

10 a) By Runge kutta method of fourth order find y (0.1) given that $\frac{dy}{dx} = 3x - 2y^2, y(0) = 1.$ [7M]

b) By Picard's method find y (0.1) given that $\frac{dy}{dx} = x^2 - y^2, y(0) = 1.$ [7M]

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Code No: **R19BS1202** **R19** **SET - 1**

I B. Tech II Semester Supplementary Examinations, June/July-2024
MATHEMATICS-II

(Common to EEE, ECE, CSE, EIE, IT)

Time: 3 hours Max. Marks: 75

Answer any FIVE Questions One Question from Each Unit.
All Questions Carry Equal Marks

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UNIT– I

1. a) Find the rank of the matrix $\begin{bmatrix} 1 & 2 & 3 & 4 \\ 1 & 2 & 3 & 1 \\ -1 & -1 & 1 & 2 \\ -1 & -1 & 1 & -1 \end{bmatrix}$ by reduce into Normal form. [8M]

   b) Prove that Eigen values of an upper triangular matrix are its diagonal elements. [7M]

(OR)

2. a) Solve the system of equations using Gauss Elimination, method $10x + y + z = 12, x + 10y + z = 10, x - 2y + 10z = 9$ [8M]

   b) solve the system of $x + 2y + 3z = 0, 3x + 4y + 4z = 0, 7x + 10y + 12z = 0$ [7M]

UNIT-II

3. a) Verify Cayley Hamilton theorem for the matrix A=$\begin{bmatrix} 1 & 2 & 3 \\ 2 & 4 & 5 \\ 3 & 5 & 6 \end{bmatrix}$ and find A^{-1} [8M]

   b) Find the nature of the quadratic form $4x^2+3y^2+z^2-6yz+4zx-8xy$ [7M]

(OR)

4. By orthogonal transformation reduce the quadratic form $2xy + 2zx - 2yz$to canonical form hence find rank, index, signature, and nature. [15M]

UNIT-III

5. a) Find the real root of $x = cosx$ using Newton Raphson method. [8M]

   b) Find the real root of $x^3 - 5x = 7$ using secant method. [7M]

(OR)

6. a) Solve the following system of equations using Gauss-seidel iteration method. [8M]
   $x + 10y + z = 6, 10x + y + z = 6, x + y + 10z = 6$

   b) Find the real root of $x = \frac{1}{2} + cosx$ using iteration method [7M]

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Code No: **R19BS1202** **R19** **SET - 1**

UNIT-IV

7. a) Find $y(5.5)$ using Newton Back word interpolation formula from the following table. [8M]

x	3	4	5	6
y	16	24	33	45

b) Find polynomial $f(x)$using Lagrange's interpolation for the following data. [7M]

x	1	3	5	8
y	1	2	4	6

(OR)

8. a) Find $y(4)$ using Newton divided difference formula from the following table. [8M]

x	1	2	3	6
y	64	70	72	79

b) Evaluate $\Delta^2(\sin(2x+3))$ by taking h = 1. [7M]

UNIT-V

9. Evaluate $\int_{-2}^{2} \frac{x}{5+2x}\,dx$ using [15M]
(a) Trapezoidal (b) Simpson's1/3rd (c) Simpson's3/8th rules

(OR)

10 a) By RK method of fourth order find $y(0.1)$ for $\frac{dy}{dx} = 2x + y^2, y(0) = 1$ [8M]

b) By Picard's find $y(0.1)$ for $\frac{dy}{dx} = x + 2y, y(0) = 1$ [7M]

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