

Reg. No:

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SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY:: PUTTUR
(AUTONOMOUS)

B.Tech I Year I Semester Regular & Supplementary Examinations March-2023

ENGINEERING PHYSICS

(Common to CE & AGE)

Time: 3 hours

Max. Marks: 60

(Answer all Five Units 5 x 12 = 60 Marks)

UNIT-I

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|----------|---|------------|-----------|-----------|
| 1 | a Summarize the theory of interference of light due to thin films by reflection with suitable ray diagram. | CO1 | L1 | 6M |
| | b List the engineering applications of interference and diffraction of light. | CO1 | L2 | 6M |

OR

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|----------|---|------------|-----------|-----------|
| 2 | a Define diffraction. Distinguish between Fresnel's and Fraunhofer's diffraction of light. | CO1 | L2 | 6M |
| | b What is diffraction grating? Describe the construction of diffraction grating | CO1 | L2 | 6M |

UNIT-II

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|----------|--|------------|-----------|-----------|
| 3 | a Explain the various types of crystal systems with a neat diagram and examples. | CO2 | L2 | 7M |
| | b Mention the procedure to find Miller indices. Write the important features of Miller indices. | CO2 | L1 | 5M |

OR

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|----------|--|------------|-----------|-----------|
| 4 | a State and explain Bragg's law of X-ray diffraction. | CO2 | L2 | 6M |
| | b Describe the principle and procedure of the powder method of X-ray diffraction. | CO2 | L2 | 6M |

UNIT-III

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|----------|--|------------|-----------|-----------|
| 5 | a Define the following
i) Reverberation time ii) Absorption coefficient iii) intensity of sound. | CO3 | L1 | 6M |
| | b Mention the importance of acoustics in engineering. | CO3 | L1 | 6M |

OR

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|----------|--|------------|-----------|-----------|
| 6 | a Explain the application of Ultrasonic in non-destructive testing of material. | CO3 | L2 | 6M |
| | b List the applications of ultrasonic waves. | CO3 | L1 | 6M |

UNIT-IV

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|----------|---|------------|-----------|-----------|
| 7 | a Derive the relation between various types of elastic moduli. | CO4 | L3 | 6M |
| | b Discuss the various types of beams. | CO4 | L2 | 6M |

OR

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|----------|--|------------|-----------|-----------|
| 8 | a Derive the expression for internal energy due to strain. | CO4 | L3 | 6M |
| | b Define shear strain. Relate how shear strain is related to the modulus of rigidity. | CO4 | L1 | 6M |

UNIT-V

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|----------|--|------------|-----------|-----------|
| 9 | a Differentiate Type-I and Type-II superconductors. | CO5 | L4 | 6M |
| | b Explain BCS theory of superconductors. | CO5 | L2 | 6M |

OR

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|-----------|---|------------|-----------|-----------|
| 10 | a Demonstrate sol-gel technique for the synthesis of nanomaterial. | CO5 | L2 | 6M |
| | b List the applications of nanomaterials in different fields. | CO5 | L1 | 6M |

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