

Reg. No:

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SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY:: PUTTUR
(AUTONOMOUS)
B.Tech IV Year II Semester Regular & Supplementary Examinations July-2021
RADAR & NAVIGATIONAL AIDS
(Electronics and Communication Engineering)

Time: 3 hours

Max. Marks: 60

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

UNIT-I

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|---|--|----|----|
| 1 | a Explain the radar applications in military applications and air traffic control. | L2 | 4M |
| | b Explain about the radar cross section of simple targets. | L2 | 4M |
| | c Explain the operation of radar with neat block diagram. | L2 | 4M |

OR

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|---|--|----|----|
| 2 | a Explain the frequency bands of radar. | L2 | 6M |
| | b Derive the radar equation in terms of minimum detectable power and transmitting and receiving antenna gains. | L3 | 6M |

UNIT-II

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|---|---|----|----|
| 3 | a Explain the operation of travelling wave tubes with neat block diagram. | L2 | 6M |
| | b Give the importance of the mixer circuit in Radar system. | L2 | 6M |

OR

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|---|---|----|----|
| 4 | a List out the radar components and explain any one in detail. | L1 | 4M |
| | b Write short notes on i) balanced mixer ii) Image recover mixer? | L1 | 8M |

UNIT-III

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|---|--|----|----|
| 5 | a Write short notes on range and angle tracking? | L1 | 6M |
| | b Explain conical scan tracking radar with a neat block diagram. | L2 | 6M |

OR

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|---|---|----|----|
| 6 | a Explain MTI radar with a neat block diagram. | L1 | 6M |
| | b Give the importance of the matched filter detection in radar system | L1 | 6M |

UNIT-IV

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|---|---|----|----|
| 7 | a Explain the four course radio ranges in determining the errors in the Navigation. | L1 | 6M |
| | b Briefly discuss about the VHF Omni Directional Range (VOR). | L1 | 6M |

OR

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|---|---|----|----|
| 8 | a How the LF four course radio ranges are used to detect the errors in the radar? | L2 | 6M |
| | b Explain about the loop antenna with suitable expression. | L1 | 6M |

UNIT-V

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|---|--|----|----|
| 9 | a Explain the working principle of DMA navigation systems. | L1 | 6M |
| | b Explain hyperbolic system of navigation. | L2 | 6M |

OR

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|----|--|----|----|
| 10 | a Explain about DECCA receivers with suitable diagram. | L1 | 6M |
| | b Write short notes on Loran-A system. | L1 | 6M |

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