

24446

B.Tech. 7th Semester (F) Scheme (ECE) Examination,

December-2018

RADAR & SONAR ENGINEERING

Paper-ECE-453-F

Time allowed : 3 hours]

[Maximum marks : 100

Note : Students have to attempt five questions. Question no. 1 is compulsory and attempt one question from each of the four sections.

1. (a) Give some applications of Radar. 5
- (b) Explain various propagation effects. 5
- (c) Discuss Tracking in Range. 5
- (d) Discuss Duplexer. 5

Section-A

2. (a) Derive the Radar Range Equation. Also show the effects of receiver noise. 12
- (b) Explain various system losses. 8
3. (a) Explain the Doppler Effect. 5
- (b) Explain frequency modulated CW Radar. Also explain use of multiple frequency CW Radar. 15

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Section-B

4. Explain the Radar operation with the help of its block diagram. 20
5. (a) Explain the Radar frequencies. 10
(b) Explain various types of Radars. 10

Section-C

6. (a) Explain MTI Radar with its block diagram. 10
(b) Explain the limitations of MTI performance. 10
7. What do you mean by Tracking Radars ? Explain Conical Scan in detail. 20

Section-D

8. (a) Explain Receiver Protectors. 10
(b) Explain various Radar Display devices. 10
9. Write a note on SONAR. 20