

Roll No. ....

**3554**

**B. Tech. 7th Semester (ECE)  
Professional Elective-V  
Examination – February, 2022**

**RADAR AND SONAR ENGINEERING**

**Paper : PEC-ECE-414-G**

*Time : Three Hours ]*

*[ Maximum Marks : 75*

*Before answering the questions, candidates should ensure that they have been supplied the correct and complete question paper. No complaint in this regard, will be entertained after examination.*

*Note : Attempt five questions in all, selecting one question from each Unit. Question No. 1 is compulsory. All questions carry equal marks.*

1. Write short notes on the following : 15
- (a) Radar
  - (b) FMCW
  - (c) Doppler Radar
  - (d) SONAR

**UNIT – I**

2. Describe various applications of Radar in detail. 15

3. (a) Explain the block diagram of Radar. 8  
(b) Explain the working principle of Radar. 7

#### UNIT – II

4. (a) Describe various system losses & propagation effects. 10  
(b) Explain signal to noise ratio. 5
5. (a) Give some applications of CW and FWCW radar. 8  
(b) Explain range ambiguity and pulse repetition frequency. 7

#### UNIT – III

6. (a) Describe monopulse tracking radar. 10  
(b) What do you mean by tracking in range? 5
7. Explain sequential lobbing and conical scan in detail. 15

#### UNIT – IV

8. Describe various radar displays in detail. 15
9. (a) Explain various applications of SONAR. 8  
(b) Explain the working principle of SONAR. 7