

[Total No. of Questions - 9] [Total No. of Printed Pages - 3]
(2125)

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B. Tech 7th Semester Examination

Radar & Navigation (OS)

EC-7004

Time : 3 Hours

Max. Marks : 100

The candidates shall limit their answers precisely within the answer-book (40 pages) issued to them and no supplementary/continuation sheet will be issued.

Note : Attempt five questions in all selecting one question each from sections A, B, C and D. Section E is compulsory.

SECTION - A

1. (a) Explain basic Radar system with its block diagram. What are advantages, disadvantages of Radar system?
(b) Explain pulse repletion frequency and range ambiguity in Radar system. How they are related? (10+10=20)
2. (a) Calculate the noise occurs in Radar system. Also derive the expression for SNR in basic Radar system.
(b) How losses effect radar system? Explain. (10+10=20)

SECTION - B

3. (a) Explain the working principle of continuous wave Doppler radar.
(b) Give the classification of radar types. Explain with one example. (10+10=20)

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4. (a) Write note on:
(i) Frequency Lobbing.
(ii) Delay lines.
(iii) Clutters.
(b) What are the applications of Radar system? Explain. (10+10=20)

SECTION - C

5. (a) Explain briefly radar transmitter with its parameters.
(b) Define noise figure. Show how Noise temperature is calculated for an radar receiver? (10+10=20)
6. (a) Explain Super heterodyne receiver in detail.
(b) Explain any two types of Mixers used in radar receivers. (10+10=20)

SECTION - D

7. Write short note on :
(a) Synthetic aperture radar.
(b) Instrument Landing system. (10+10=20)
8. (a) Discuss the different techniques used in direction finder.
(b) Explain VoR in detail. (10+10=20)

SECTION - E

9. (i) Define Prf.
- (ii) What is Doppler effect?
- (iii) What are antenna parameters?
- (iv) Define navigation.
- (v) Write short note on tracking.
- (vi) What are features of Doppler radar?
- (vii) What is conical scan tracking radar?
- (viii) What are radar displays?
- (ix) State radar range equation with its each parameter.
- (x) What are four methods of navigation? (2×10=20)