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Printed Pages : 2

TEC-12

(Following Paper ID and Roll No. to be filled in your Answer Book)

PAPER ID : 0307

Roll No.

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B. Tech.

**(SEM. VII) EXAMINATION, 2008-09
FUNDAMENTALS OF RADAR & NAVIGATION**

Time : 3 Hours]

[Total Marks : 100

- Note :*
- (i) Attempt all questions.*
 - (ii) All questions carry equal marks.*

1 Attempt any **four** parts of the following : **5×4=20**

- (a) Derive the simple form of radar range equation and relate the transmitted peak power to the maximum range of the radar.
- (b) What are the different types of system losses ? Explain them briefly.
- (c) What are PRF and range ambiguities ?
- (d) What do you understand by term Doppler effect ? What are its advantages ?
- (e) Discuss the matched filter for the pulse burst waveform.

2 Attempt any **two** parts of the following : **10×2=20**

- (a) Describe the radar detection as hypothesis testing.



- (b) Give the Shnidman's equation and explain the error in this equation.
- (c) Explain the terms radar clutter and explain various types of radar clutterers.

3 Attempt any **two** parts of the following : $10 \times 2 = 20$

- (a) Draw the block diagram of CADF and explain the function of each block.
- (b) Explain the working of loop antenna as a direction finder and enumerate the errors that occur in direction finding.
- (c) Describe the automatic direction finder with the help of simple block diagram.

4 Attempt any **two** parts of the following : $10 \times 2 = 20$

- (a) Explain the working of DME system with the help of block diagram.
- (b) Write the major segments of GPS system and explain them briefly.
- (c) Explain MTI radar functional block diagram using power amplifier.

5 Attempt any **two** parts of the following : $10 \times 2 = 20$

- (a) NAVSTAR Receiver
- (b) FM-CW Radar
- (c) Instrument Landing Systems.

