

## ANTI SUBMARINE WARFARE

(21 periods)

(Max Marks 50)

Type of Exam – written

Duration – 02 hrs

### PERIOD

### TOPIC

01 – 04

#### General ASW

- a. Introduction to ASW
- b. Aim, Task of ASW & duties and responsibilities of ASWO
- c. ASW Sensors, ASW Weapons & Platforms

05– 10

#### Submarine Warfare

- a. History of Submarine
- b. Types of submarines
- c. Advantages & disadvantages of Conventional & Nuclear SM
- d. Propulsion, diving & Surfacing of the Submarine
- e. Weapons & Sensors available onboard Submarines

11 – 14

#### Mine warfare

- a. Introduction
- b. Aim & Classifications of Sea Mines
- c. Mine Layers/Comparison between mine layers
- d. MCM

15 – 21

#### Port defence

- a. Importance of ports
- b. Port defence
- c. SWD&SWD Principles
- d. UW Threats
- e. Defence against UW attack

# ANTI SUBMARINE WARFARE

## TERM - II

(28 Periods)

(Max. Marks.50)

Type of Exam – written

Duration 02hrs

### PERIOD

### TOPIC

01 – 12

#### Under water Acoustics

- a. Why sound is a better form of energy for underwater applications?
- c. Characteristics of sound.
- d. Factors effecting velocity of sound in sea water.
- e. Thermal gradient.
- f. Deep sea sound velocity profile.
- g. Under water sound propagation paths.

13 – 17

#### Sonar

- a. Introduction to SONAR
- b. Parts of SONAR
- c. Types of SONAR
- d. SONAR application – military and non military

18 –22

#### Mine Warfare

- a. Aim of MCM.
- b. Offensive and Defensive MCM.
- c. Mine hunting and Mine sweeping.
- d. Types of Mine sweeping methods
- d. Modern MCM (ALMDS, RAMICS etc.)

23 - 24

Operation ‘Awakward’ states I,II and III

25 – 28

#### Introduction to Tactics

- a. Datum
- b. SAU
- c. TDZ&TDA
- d. TCM
- e. Types of ASW attacks

