

**DIRECTORATE SENIOR CURRICULUM MANAGEMENT (SEN-FET)**

**HOME SCHOOLING SELF-STUDY WORKSHEET ANSWER SHEET**

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| **SUBJECT** | NAUTICAL SCIENCE | **GRADE** | 12 | **DATE** | 3/4/20 |
| **TOPIC** | COMMUNICATIONS | **TERM 1**  **REVISION** | X | **TERM 2 CONTENT** | (Please tick) |

**QUESTION 1**

* 1. Definitions:

1.1.1 **Vessel** includes every description of water craft used or

capable of being used as a means of transportation on water. (5)

* + 1. **Power Driven Vessel** means any vessel propelled by machinery. (2)

1.1.3 **Sailing Vessel** means any vessel under sail provided that propelling machinery, if fitted, is not being used. (2)

1.1.4 **Vessel Engaged in Fishing** means any vessel fishing with nets,

lines, trawls or other fishing apparatus which restrict manoeuvrability,

but does not include vessel fishing with trolling lines or other fishing apparatus which do not restrict manoeuvrability. (8)

1.1.5 **Vessel Not Under Command (NUC)** means a vessel which through

some exceptional circumstances is unable to maneuver to comply with

the Rules. (3)

1.1.6 **Vessel Restricted in Ability to Manoeuvre (RAM)** means a vessel which from thenature of her work is unable to keep out of the way of another vessel. (3)

1.1.7 **Restricted Visibility** means any condition in which visibility is

restricted by fog, mist, falling snow, heavy rainstorms, sand storms

and any other similar causes/circumstances. (7)

**[30]**

**QUESTION 2**

* 1. Digital dialing / coding and automation all the radio functions via DSC;

Co-ordination of SAR operations by a shore-based authority (RCC);

Transmittion of ship-to-shore distress alerts and general radio-communications; and

Receiving of shore-to-ship distress alerts and general radio-communications;

Extensive use of satellite telecommunications. (3)

* 1. *Cargo ships of 300 gross tons or greater* when travelling on international voyages

or on the open sea,

*All passenger ships* regardless of size when travelling on international voyages

or on the open sea. (2)

2.3 • Digital Selective Calling (DSC) on VHF, MF, and HF radiotelephones 

* Emergency Position Indicating Radio beacon (EPIRB) 
* Search And Rescue Transponder (SART) 
* Satellite Communications and Distress Alerting 
* Maritime Safety Information (MSI)  (5)

2.11 EPIRB is an acronym for 'Emergency  Position  Indicating  Radio  Beacon' 

This is used to alert search and rescue services to an emergency. 

It does so by transmitting a coded message (radio signal) on the emergency frequency 406 MHz or 1.6 GHz to satellites. 

An EPIRB can be activated automatically or manually. 

Full global cover is provided by INMARSAT (1.6 GHz EPIRB) and COSPAS-SARSAT (406 MHz EPIRB) satellite systems which establish the vessel's or EPIRB's position. 

Newer EPIRBs have built in GPS receivers and/or interface with the ship's navigation

System (GPS) which enables them to pass their position directly.  (10)

2.12 SART is an acronym for Search And Rescue Transponder, 

It is a radar transponder which is designed to provide a *locating signal*. 

It is portable and designed to be carried in a survival craft. 

When integrated by a 9 GHz radar a SART ‘transponds’ and produce a series of 12 dots

on the radar display showing the course to steer (bearing) and range to intercept the SART

and/or survival craft.  (5)

2.13 • Transmission of ship-to-shore distress alerts by at least two separate

and independent means. 

* Reception of shore-to-ship distress alerts. 
* Transmission and reception of ship-to-ship distress alerts. 
* Transmission and reception of search and rescue coordinating communications. 
* Transmission and reception of on-scene communications. 
* Transmission and reception of signals for locating (SART & EPIRB). 
* Transmission and reception of Maritime Safety Information (MSI). 
* Transmission and reception of general radio communications to or from shore-based radio system networks. 
* Transmission and reception of bridge to bridge communications. 

**[Any five]** (5)

**[30]**

**Sub Total [60]**