

GOC SET – 1 (Thursday 1st Week)

SECTION - A

1. What equipment is associated with the land or terrestrial System ?
a) EPIRB **b) VHF-MF-HF** c) Inmarsat -C d) GPS
2. What equipment is associated with the Space Systems
a) VHF-MF-HF **b) Inmarsat -C** c) NAVTEX (d) SART
3. What is the primary equipment for receiving MSI ?
a) SART b) EPIRB **c) NAVTEX** d) Inmarsat-C
4. What is defined as an area excluding sea areas A1 and A2 within the coverage of an Inmarsat geostationary satellite in which continuous alerting is available.
a) Ocean Area regions AOR-E, AOR-W, POR, IOR b) Sea Area A4
c) Sea Area A3 d) Coastal and Inland waters
5. SITOR (NBDP) equipment is a full, partial or alternate carriage requirement under GMDSS for vessels operating in which sea area (s) ?
a) A1 b) A1 and A2 **c) A3 and A4** d) A1, A2, A3 and A4
6. Which of the following is a functional or carriage requirement for compulsory vessels?
a) A Compulsory vessel must carry atleast two (2) licensed GMDSS Radio operators.
b) A compulsory vessel must satisfy certain equipment carriage requirements that are determined by where the vessel sails.
c) A compulsory vessel must be able to transmit and respond to distress alerts.
d) All of the above.
7. Which communication functions must all vessels be capable of performing under GMDSS as defined by the International Maritime Organisation ?
a) Radio Direction Finding
b) Distress alerting to and from vessels, search and rescue coordination, on-scene communications,
signals for locating, maritime safety information, general and bridge to bridge communications.
c) Communications in each of the operational ocean areas.
d) All communications possible within the international Safety-Net service.
8. GMDSS-equipped ships will be required to perform which of the following communication functions ?
a) Distress alerting and maritime safety information.
b) Search and Rescue coordination and on-scene communications.
c) Bridge to Bridge and general communications.
d) All of these.
9. What equipment can be used to receive Maritime Safety Information ?
a) Navtex b) EGC receiver c) HF NBDP **d) All of the above.**
10. Which of the following is a required GMDSS function ?
a) Transmit and Receive locating signals.
b) Transmit and Receive general communications.
c) Both of the above.
d) None of the above.

11. What statement is true regarding the additional equipment carriage requirement imposed for the survival craft of vessels over 500 gross tons ?
- Additional carriage of two radio equipped life boats aft.
 - A second radar transponder is required.**
 - Four additional portable VHF radios are required.
 - The ability to communicate in all modes with any shore station.
12. Vessels operating in which sea areas are required to carry either Inmarsat or HF equipment or a combination thereof under GMDSS ?
- All sea areas
 - A3**
 - A4
 - A1
13. If operating within ocean area A1 and outside of NAVTEX coverage, A GMDSS equipped vessel must carry ?
- An Inmarsat-A terminal
 - a GPD receiver
 - Equipment capable of maintaining a continuous DSC watch on 2187.5 Khz.
 - Equipment capable of reception of maritime safety information by the Inmarsat enhanced group call system or HF.**
14. What is the equipment carriage requirement for survival craft under GMDSS
- At least three approved two-way VHF radiotelephones on every passenger ship and cargo ships of 500 gross tons and upwards
 - At least two approved two way VHF radiotelephone on every cargo ship between 300-500 gross tons
 - At least one radar transponder must be carried on every cargo ship of 300-500 gross tons and two transponders (one for each side) of every passenger ship and every cargo ship of 500 gross tons and upward.
 - all of these**
15. Which of the following statements concerning maintenance requirement is true ?
- The options are duplication of equipment, at sea maintenance and shore based maintenance.**
 - Compulsory vessels between 300-500 gross tons are required only to provide one maintenance options, while compulsory vessels larger than 500 gross tons and all passenger ships are required to provide any two of the three maintenance options.
 - The at-sea maintenance may be waived if the compulsory vessel carries at least three licensed GMDSS radio operators.
 - Compulsory vessels operating in sea A4 area are required to carry at least one licensed GMDSS radio maintainer.
16. What statement is generally correct regarding the maintenance requirements for ships under GMDSS ?
- Redundancy of functions of certain equipment will partially meet this requirement.
 - On board maintenance provided by a person holding GMDSS Maintainer's license will partially meet the requirement.
 - Shore maintenance and scheduled tests and inspections will partially meet the requirement.
 - All of the above.**
17. Ships operating in sea area A3 must have the following provisions for maintenance :
- Duplication of equipment
 - Shore based maintenance
 - At sea maintenance
 - any two of the above**
18. A ship operating in sea area A1 must have the following provisions for maintenance :

- a) Duplication of equipment
 - b) Shore based maintenance
 - c) At sea maintenance
 - d) **any one of the above**
19. When may a compulsory vessel not be allowed to leave port ?
- a) When the vessel is an over-carriage condition
 - b) When the vessel has arranged for both duplication of equipment and shore based maintenance.
 - c) **When the vessel has replaced a required piece of GMDSS related equipment but its performance has not been verified or logged.**
 - d) When vessel is carrying only two licensed GMDSS Radio Operators and is capable of performing all required functions.
20. What are the vessel equipment and personnel requirements of GMDSS ?
- a) Two licensed GMDSS radio operators.
 - b) Equipment carriage requirements.
 - c) Distress alerting and response.
 - d) **All of these.**
21. What is the meaning of Reserve Source of Energy ?
- a) **The supply of electrical energy sufficient to operate the radio installation for the purpose of conducting distress and safety communications in the event of failure of the ships main and emergency source of electrical power.**
 - b) High caloric value items for lifeboat per SOLAS regulations.
 - c) Diesel fuel stored for the purpose of operating the powered survival craft for a period equal to or exceeding the SOLAS requirements.
 - d) None of these.
22. Which frequency is associated with the space systems ?
- a) 518 Khz
 - b) 2187.5 Khz
 - c) **156.80 Mhz**
 - d) VHF channel 16 when the vessel is sailing in sea area A1 and 2187.5 Khz in sea Area A2.
23. What sea area is defined as being within the range of a shore-based MF station that provides for continuous DSC alerting ?
- a) **Sea Area A2**
 - b) Coastal waters
 - c) Sea Area A3
 - d) Sea Area A1
24. The RT signal indicates return to normal working is :
- a) Seelonce mayday
 - b) Seelonce over
 - c) Seelonce Distress feenee
 - d) **Seeloncefeenee**
25. Which would indicate a malfunction in a 2182 Khz radiotelephone system ?
- a) No disemblem traffic has been heard on the 2182 khz during the Radiotelephone silence periods,
 - b) **Failure to contact another stations 60 miles distant during day time operations.**
 - c) Dramatic decrease in noise level observed during night and early morning hours.
 - d) The visual indication of the power to the antenna fluctuates while testing the RT alarm signal generator into an artificial antenna.
26. What usually comprises a coastal station's call sign ?
- a) Three numerals from a group assigned to the coastal stations nation by ITU.
 - b) Four numerals from a group assigned to the coastal stations nation by ITU

- c) **Three letters from a group assigned to the coastal stations nation by the ITU.**
 - d) Four letters from a group assigned to the coastal stations nation by the ITU.
27. A DSC Distress call is received by your vessel and your transceiver frequency display reads : Transmit 4207.5 Khz and Receive 4207.5 Khz – What information can you infer from this ?
- a) The DSC controller decoded the requested voice frequency as 4207.5 Khz simplex and your DSC Controller has automatically set-up your transceiver.
 - b) The DSC controller decoded the contents of the DSC call but the request is illegal.
 - c) Both A and C are True.
 - d) **The DSC call came in on 4 Mhz DSC and you should set up transmitter and respond on the appropriate voice follow-on the frequency.**
28. When making test transmission we should :
- a) Use artificial antenna
 - b) Use low power
 - c) Test call does not exceed 10 secs with identity
 - d) **All the above.**
29. An Inmarsat EPIRB is not useful for sea Area :
- a) A1 b) A2 c) A3 d) **A4**
30. You are to abandon the ship due to some reason, which of the following will you take with you ?
- a) SART & EPIEBs
 - b) VHF DSC
 - c) Portable VHF
 - d) **A & C above**

SECTION B

31. Your ship MV Jala Usha/VWLC in position 0120N 09010E MMSI 419230000 is sinking :

a) What initial action will you take to inform all ships in area around 150 Nautical miles. **(1)**

Ans : Send DSC Distress Alert on 2187.5 Khz, call and message on 2182 Khz.

b) What are the methods will you use to inform RCC on SAT-B. **(1)**

Ans : Telex/Telephony

c) What are the methods will you use to inform RCC on SAT-C. **(1)**

Ans : Telex

d) What are the methods will you use to inform RCC on Fleet 77. **(1)**

e) **Ans : Telephony**

f) Write specimen message you will send. **(2)**

Mayday

MV Jala Usha/VWLC/419230000

Posn. 0120N 09010E

Sinking

Require immediate assistance

SART & EPIRB activated

Master

Over

32. Your ship MV Jala Usha/VWLC in position 0120N 09010E
MMSI 419230000 sailing off Andamans and received information in EGC
that a ship has sunk and crew abandoned the ship 8nm SE of your position.

a) What initial action will you take ? (1)

Ans : Set watch on Ch16 and 06 and try to establish contact with survivors.

b) Your master instructs to inform all the ships within the radius of 40NM.

**Ans : Send DSC Distress relay alert to all ships on CH70 and call
and message on ch16. (1)**

Mayday Relay³ (1)

All Stations X³

this is

MV Jala Usha³/VWLC³/MMSI 419230000

Mayday (4)

**Have received on EGC that a unknown ship has sunk and crew
abandoned the ship 8nm SE of my position.**

My position 0120N 09010E

Self proceeding for assistance.

Require further assistance from vessels in vicinity.

Master

MV Jala Usha/VWLC/MMSI 419230000

33. Your ship MV Jala Ganga/from VWFF in position 0420N 08010E
MMSI 41923500 sailing off Lacadives is on fire and also came to know
that some ships from African countries who are not good in English are
nearby.

a) What action will you take on MF ? (2)

**Ans : Send DSC Distress alert on 2187.5 Khz indicating subsequent
mode of communication as Telex/NBDP on 2174.5 Khz.**

b) Write down the message. (4)

Mayday

MV Jala Ganga/VWFF/MMSI 41923500

Posn. 0420N 08010E

On fire

Require immediate assistance

23 persons onboard.

Master

Over

34. You are in ship MV Jala Usha/ATBI in position 0420N 08010E
MMSI 419335000 and inadvertently pressed the emergency button on
EPIRB – Take Action.

Ans : (2)

1. Switch off the EPIRB.
2. Select Sat-C
3. Edit the cancellation message
4. Select the Transmit menu
 - a. Select the Distress priority for automatic connection to RCC/MRCC.
 - b. Select the cancellation message.
 - c. Select the LES
 - d. Send the message.

Example of cancellation message: (3)

To : RCC

Fm: Jaja Usha/ATBI//MMSI/Inm -C No. 419335000 /Ocean region

**please cancel my EPIRB false Distress alert sent from
Position 0420N 08010E at 301400 UTC.**

EPIRB switched off.

MMSI No. 419335000

Hexa Decimal Code

Master

NNNN

b. Terrestrial Communication : (1)

If a ship does not have Inmarsat system or beyond Inmarsat coverage area (beyond 76N and 76S). Contact the CRS on HF by voice or tekex and cancel the false alert (Do not use Distress priority). In all cases, inform owners of your vessel and flag state (Country of ship's registry).

35. Write the frequencies for the following : **(6)**
- a) MF frequency to send Routine alert to Singapore Radio – **2189.5 Khz**
 - b) MF frequency to send Routine alert to MV Akbar – **2177.0 Khz**
 - c) VHF channel used for intership safety of Navigation – **Channel 13**
 - d) Up link frequency of CES to Sat – **6 Ghz**
 - e) Down link frequency from Sat to SES – **1.5 Ghz**
 - f) VHF channel for from ship to aircraft during SAR – **Ch 06**

GOC SET –2 (FRIDAY 1ST WEEK)

SECTION - A

1. In the Inmarsat C System a distress alert for which no acknowledgement is received, shall be repeated at an interval of :
 - a) 10 Mins.
 - b) 3 Minse) **5 Mins**
 - d) 2 Mins.
2. An Inmarsat – B Terminal ;
 - a) **Can provide Real time telex service.**
 - b) Cannot provide Real time telex service.
 - c) Telex service depends on the Satellite being accessed
 - d) Telex service depends on the Pos. of the ship.
3. The information that must be included in a test transmission is the
 - A) GOC Operator's certificate
 - B) **Vessel's ID**
 - c) Vessel's Posn
 - D) Vessel's Nationality.
- 4 According to international regulations, VHF Ch 06 may be used for :
 - A) **Ship to aircraft engaged in SAR operation**
 - b) Ship to Shore communication
 - c) On-board communication
 - d) Bridge to bridge safety of Navigation,
5. With respect to distress communications, the main function of the On-Scene-Co-ordinator is to :
 - a) Deploy a SART to assist in homing.
 - b) Fix the posn of the casualty using an EPIRB
 - c) **Main communications with all SAR facilities.**
 - d) Recover and switch off the EPIRB.
6. In the terrestrial radio service, the category with the highest priority is :
 - a) Inmarsat-C msg to the owners
 - b) **Gale warning**
 - c) RT call to pilot
 - d) Request for berthing instructions.
7. Small passenger vessels that sail 20 to 150 nautical miles from the nearest land must have what additional equipment ?
 - a) Inmarsat-B Terminal
 - b) Inmarsat-C terminal
 - c) Transceiver with 121.5 Mhz
 - d) **MF-HF SSB transceiver**
8. What equipment is programmed to initiate transmission of distress alerts and calls to individual stations ?
 - a) NAVTEX
 - b) GPS
 - c) **DSC Controller**
 - d) Scanning watch receiver
9. What are the radio operator requirements of a passenger ship equipped with a GMDSS installation.
 - a) The operator must hold a general radiotelephone operator license or higher class license.
 - b) The operator must hold a Restricted Radiotelephone operator Permit or higher class license.
 - c) The operator must hold a Marine Radio Operator permit or higher class license.
 - d) **Two operators on board must hold a GMDSS Radio operator license or a restricted GMDSS Radio operator license, depending on the ship's operating area.**
- 10 Shipboard transmitters using F3E emission (FM voice) may not exceed what carrier power ?
 - a) 500 Watts
 - b) 250 Watts
 - c) 100 Watts
 - d) **25 Watts**
11. What is the priority of communications ?
 - a) Safety, distress, urgency and radio direction finding.
 - b) **Distress, Urgency and Safety**
 - c) Distress, Safety, Radio direction finding, SAR
 - d) Radio direction-finding, Distress, Safety.
12. Under what circumstances may a coast station using telephony transmit a general call to group of vessels.

- a) Under no circumstances
 - b) When announcing or preceding the transmission of Distress, Urgency, Safety or other important messages.
 - c) When the vessels are located in international waters beyond 12 miles.
 - d) **When identical traffic is destined for multiple mobile stations within range.**
13. Radio watches for compulsory radio telephone stations will include the following :
- a) VHF channel 22A continuous watch at sea.
 - b) 121.5 Mhz continuous watch at sea.
 - c) **VHF channel 16 continuous watch**
 - d) 500 Khz.
14. What channel must all compulsory non-GMDSS vessels monitor at all times in the open sea?
- a) Channel 08 b) Channel 70 c) Channel 06 d) **channel 16**
15. What is required of a ship station which has established initial contact with another station on 2182 Khz or Channel 16 ?
- a) **The stations must change to an authorized working frequency for the transmission of messages.**
 - b) The stations must check the radio channel for Distress, Urgency and safety calls at least once every ten minutes.
 - c) Radiated power must be minimized so as not to interfere with other stations needing to use the channel.
 - d) To expedite safety communications, the vessels must observe radio silence for two out of every fifteen minutes.
16. How many sidebands are present in the J3E mode
- a) Two sidebands and a carrier. b) **One upper sideband.**
 - c) One lower sideband d) Two carriers and one sideband
17. Which emission mode occupies the most bandwidth ?
- a) J2B b) J3E c) F1B d) **F3E**
18. Which band occupies the least bandwidth ?
- a) **J2B** b) J3E c) A3E d) F3E
19. A vertical whip antenna has a radiation pattern best described by ?
- a) A figure of eight b) A cardioids c) **A circle** d) An eclipse

20. The emission or mode control of an MF/HF Transceiver :
- Allow the tuning of the receiver
 - Allow the type of modulation to be selected.**
 - Increases the range of the transmitter
 - Reduces thereceiver gain automatically.
21. When placing a telex call to a coast station, you should always :
- Choose the closest station
 - Make sure the frequency is not occupied with nominal traffic**
 - Tune the transmitter on another frequency
 - Wait until coast station sends his traffic list.
22. If you call a coast station on working frequency, it will normally reply on :
- Distress channel
 - Suitable RTT frequency
 - DSC channel
 - On the same channel/paired channel**
23. What are the mandatory DSC Watch keeping bands / Channels ?
- Vhf Ch-70, 2 MhzMF DSC, 6 MhzHF DSC and 1 other HF Dsc.
 - 8 Mhz HF DSC, 1 other HF DSC, 2 Mhz MF DSC and Ch 70**
 - 2 Mhz MF DSC, 8 Mhz HF DSC, VHF Ch-16, and 1 other HF DSC
 - None of the above
24. Who is responsible for the proper maintenance of station logs?
- The station licensee
 - The commercial license Radio operator in charge of the station.
 - The ship's Master and the station licensee**
 - The station licensee and the radio operator incharge of station.
25. Which of the following is true?
- Battery test must be logged daily**
 - EPIRB tests are normally logged monthly
 - Radio telephone tests arenormally logged weekly
 - None of the above
26. Where should the GMDSS log book be kept on board ship ?
- Captain's Office
 - Sea Cabin
 - At the GMDSS operating position**
 - Anywhere on board the vessel
27. On what frequency should a ship station normally call a coast station when using radiotelephone emission?
- On a vacant radio channel determined by the license Radio Officer
 - Calls should be initiated on the appropriate ship to shore working frequency of the coast station.**
 - On any calling frequency internationally approved for use within ITU region 3
 - on 2182 Khz or Ch-16 at any time.
28. The urgency signal has lower priority than :
- Ship to ship routine calls
 - Distress**
 - Safety
 - Security
29. GMDSS is primarily a system based on ?
- Ship to Ship Distress communications using MF or HF radiotelephony
 - VHF digital selective calling from ship to shore.
 - Distress, Urgency and Safety communications carried out by the use of Narrow band direct printing telegraphy.
 - The linking of Search and rescue authorities ashore with shipping in the immediate vicinity of a ship in distress or in need of assistance.**
30. The urgency signal concerning the safety of the ship or person shallbe sent only on the authority of :
- Master of a Ship
 - Person responsible for mobile station
 - Either Master of the ship or person responsible for mobile station.**

d) A WPC licensed operator

SECTION – B

1. Assume your ship Desh Lok/VWTL is in position 10 00N 088 00E, Course 050 degs, Speed 12 Kts. You are 7 miles from ship named Brando/GBNK who is on fire. You are enough fire pums to fight fire on board Brando. Your ETA to Brando is 30 mins. Write down the initial action and the proceeding message on vhf Ch 16.
 - a. **Acknowledge on Ch 16. (1)**
Mayday MV Brando/GBNK³ This is MV Desh Lok/VWTL³ Received Mayday Over
Send the proceeding message. (3)
Mayday MV Brando/GBNK This is Desh Lok/VWTL

My Present position 10 00N 088 00E, Course 050 Degs (T), Speed 12 Kts.
Presently 7 miles from your location. Proceeding for your assistance.
ETA to your location 30 mins.
Having enough fire pums to fight fire on board your ship.
Master
Over
 - b. Ship Viking/SDEQ is interfering with the above distress traffic.
Write down the message to keep him silent (Assume you are controlling distress traffic). **(2)**
Mayday Viking/SDEQ This is Desh Lok/VWTL SEELONCE MAYDAY OUT
2.
 - A. State the R/T Urgency Signal – **PAN PAN (1)**
 - B. What does the Urgency signal indicate? **(2)**
It indicates that a very urgent message concerning the safety of a mobile unit or person (s) is about to follow.
 - C. Give an example of an urgency R/T call on 2182 Khz. **(2)**
PanPan³ All Stations³ This is MV Desh Lok /VWTL
 - D. Can an urgency can be addressed to a particular station ? - **Yes (1)**
3.
 - a. State the signal to be used in NBDP when Distress traffic is finished and Normal working may be resumed – **Silence Fini (1)**
 - b. State the NBDP distress frequencies on 8 and 12 Mhz bands - **(1)**
8376.5 Khz, 12520.0 Khz
 - c. State the heading under which a Distress Relay message would be received in Sat-C. **(1)**
Distress
 - d. When abandoning a ship state the two radio equipment to be activated for Locating purpose ? **(1)**
EPIRB & SART
 - e. Under what circumstances the signal “Seelonce Distress’ is used. **(2)**
The signal is used by other than controlling station to impose silence on interfering station.

4. a) What does the Distress Alert indicate? **(1)**
It indicates that a mobile unit or person (s) are threatened by grave and imminent danger and require immediate assistance.
- b) What does the Urgency alert indicate? **(1)**
It indicates that a very urgent message concerning the safety of a mobile unit or person (s) is about to follow.
- c) On which MF frequency will you send Distress/Urgency Alert ? – **2187.5 Khz (1)**
- d) What is Urgency Signal? – **Pan Pan (1)**
- e) What does the Safety signal indicate? **(1)**
It indicates that an important message concerning a navigational or meteorological warning is about to follow.
- f) Signal : Seelonce Distress when it is used ? **(1)**
This signal is used by other than controlling station to impose silence on interfering station.
5. State the purpose of the following frequencies in GMDSS **(6)**
- | | | |
|----------------|-----------|---|
| a) 2187.5 Khz | MF | DSC Distress, Urgency & Safety alerting only |
| b) 406.025 Mhz | | Copsas-Sarsat EPIRB (Uplink frequency from EPIRB to Satellite) |
| c) 2182 Khz | MF | R/T Distress, Urgency, Safety & Routine calling |
| d) 4125 Khz | HF | R/T Distress, Urgency, Safety & Aircraft - Ship during SAR |
| e) 8414.5 Khz | HF | DSC Distress, Urgency & Safety alerting only |
| f) 3023 Khz | MF | R/T Voice communications between Ship – Aircraft during SAR |

GOC SET – 3 (SATURDAY 1ST WEEK)

Section A

1. When a 30 kHz carrier is amplitude modulated by 6 kHz signal the upper side band frequency is
 - a. 27 kHz
 - b. 30 Khz
 - c. 33 Khz
 - d. 36 Khz**
2. The radio wave propagation in which communication range essentially limited by the heights of transmitting and receiving antenna is
 - a. Ground Wave
 - b. Sky wave
 - c. Space Wave following LOS**
 - d. Anomalous
3. One of the following is a Secondary Cell
 - a. Lead acid cell**
 - b. Dry cell
 - c. Lithium cell
 - d. Leclanche cell
4. Inmarsat satellites are
 - a. Polar orbiting satellites
 - b. Geo-stationary orbit satellites**
 - c. Low earth orbiting satellites
 - d. Medium earth orbiting satellites
5. The meteorological and navigational warnings information are available to a ship station outside the coverage area of Navtex through
 - a. Inmarsat safety Net
 - b. MSI (HF)
 - c. Broadcast on 2187.5 kHz
 - d. A and b above**
6. In the maritime band between 156 Mhz to 174 Mhz the carrier power of the ship station transmitter shall not exceed
 - a. 5 watts
 - b. 25 watts**
 - c. 15 watts
 - d. 50 watts
7. When distress working is in force on 2182 kHz. Ships may make routine R/T calls to coast station on
 - a. 2191 kHz**
 - b. 2189.5 kHz
 - c. 2177 Khz
 - d. 2187.5 kHz
8. The speed of digital data is measured in
 - a. Data per second
 - b. Baud per second
 - c. Meters per second
 - d. Bit per second**
9. The process of combining two waves of different frequencies in a (non-linear) device to obtain sum, difference of the two frequencies is called
 - a. Modulating
 - b. Multiplying
 - c. Multiplexing
 - d. Mixing**
10. If a ship in distress does not receive acknowledgement to a HF DSC Distress alert then
 - a. It should repeat the same in 1.5 minutes
 - b. It should listen on DSC distress Freq for 1 minute

- c. **It should repeat the distress call after a lapse of 3.5 to 4.5 minutes from the starting time of the call**
d. None of the above
11. What is the basic unit of electrical power?
a. Ohm
b. Watt
c. Volt
d. Ampere
12. How would you calculate the total capacitance of three capacitors in parallel?
a. $C_T = C_1 + C_2/C_1 - C_2 + C_1$
b. $C_T = C_1 + C_2 + C_3$
c. $C_T = C_1 + C_2/C_1 \times C_2 + C_3$
d. $C_T = 1/C_1 + 1/C_2 + 1/C_3$
13. How might you reduce the inductance of an antenna could?
a. Add additional turns
b. Add more core permeability
c. Reduce the number of turns
d. Compress the coil turns
14. If a current of 2 amperes flows through a 50-ohm resistor, what is the voltage across the resistor?
a. 25 volts
b. 52 volts
c. 200 volts
d. 100 volts
15. Which of the following statement concerning INMARSAT geostationary satellites is true?
a. They are in a polar orbit, in order to provide true global coverage
b. They are in a equatorial orbit, in order to provide true global coverage
c. They provide coverage to vessels in nearly all of the world's navigable waters
d. Vessels sailing in equatorial waters are able to use only one satellite, whereas other vessels are able to choose between at least two satellites
16. What statement best describes the INMARSAT – B services?
a. Voice at 16 kbps, Fax at 14.4 kbps and high-speed Data at 64/54
b. Store and forward high speed data at 36/48 kbps
c. Voice at 3 kHz , Fax at 9.6 kbps and Data at 4.8 kbps
d. Service is available only in areas served by highly directional spot beam antennas
17. What services are provided by the INMARSAT – M service?
a. Data and Fax at 4.8 kbps plus e-mail
b. Voice at 3 kHz, Fax at 9.6 kbps and Data at 4.8 kbps
c. Voice at 6.2 kbps, Data at 2.4 kbps, Fax at 2.4 kbps and e-mail
d. Data at 408 kbps and Fax at 9.6 kbps plus e-mail
18. The average fully-charged voltage of a lead-acid storage cells is:
a. 1 volt
b. 1.2 volt
c. 1.56 volts
d. 2.06 volts
19. Which of the following statements concerning SITOR communications is true?
a. ARQ message transmissions are made in data groups consisting of three-character blocks
b. ARQ transmissions are acknowledged by the information receiving station only at the end of the message
c. ARQ communications rely upon error correction by time diversity transmission and reception
d. Forward error correction is an interactive mode
20. What causes the SART to begin a transmission?
a. When activated manually, it begins radiation immediately
b. After being activated the SART responds to RADAR interrogations
c. It is either manually or water activated before radiating
d. It begins radiating only when keyed by the operator

21. In routine VHF RT communications between two ships, the controlling station is deemed to be the
 - a. Ship stations which initiates the call
 - b. Nearest CS
 - c. Ship with the highest priority of traffic
 - d. Ship station that has been called**
22. Your vessel is being called, but you are unsure of the ID of the calling station. You must
 - a. Reply immediately**
 - b. Wait for the call to be repeated
 - c. Wait one minute, then reply
 - d. Wait two minutes, then reply
23. In the event of a distress situation, the transmission of distress alert is authorized by
 - a. The GMDSS operator
 - b. The person in charge of engine room
 - c. The Master or person in charge of the vessel**
 - d. The person responsible for equipment maintenance
24. In the terrestrial radio service, the category message with the highest priority is a
 - a. Weather observation
 - b. Telex call to owners
 - c. Urgency message from Master**
 - d. Message to port control
25. Services that are available in Fleet 77 are
 - a. Telex
 - b. Store and forward message only
 - c. Show speed fax only
 - d. Data and voice communications**
26. Vessel sailing in Sea area A3/A4 must keep continuous watch in MF/HF DSC on:
 - a. VHF Ch 70, 2187.5 kHz and 2174.5 kHz
 - b. VHF Ch 70 & 2187.5 kHz only
 - c. VHF Ch 70, 8414.5 kHz plus one HF distress frequency
 - d. VHF Ch 70 2187.5 Khz, 8414.5 Khz plus one other HF distress frequency**
27. Distress messages are sent on Sat-C using the following service
 - a. Voice
 - b. Store and forward**
 - c. Real time
 - d. E-mail
28. The ISND and MPDS data communications facility is available using
 - a. Inmarsat – A
 - b. Inmarsat - B
 - c. Inmarsat - C
 - d. Inmarsat Fleet 77**
29. The word WAIT indicates
 - a. End of transmission when no reply is expected or required
 - b. Pause for few seconds**
 - c. Your transmission is received satisfactorily
 - d. End of transmission when immediate reply is expected
30. Communication through the Inmarsat system are by
 - a. Ground wave
 - b. Combination of Ground and Sky wave
 - c. Sky wave
 - d. Space wave**

PART – B

1. Your ship MV Kirti/ATML, MMSI No. 410450000 in posn. 12 20N 065 25W.
The chief officer having severe chest pain. You came to know that passenger ship MV Akash/WVLX MMSI 419245000 round about 60nm from your position having doctor on board. Your master decides to get medical assistance from the ship.
 - (a) Write down the initial action you take.
 - (b) Write specimen copy of the message.
2. Your ship MV Maharishi Vasist / VWFC MMSI No. 419350000 in posn. 0720N 06525W Selcal No. 42534 received a distress message from MV Akbar / ATGR 419235000.
 - (a) How will you acknowledge on 2174.5 Khz.
 - (b) How will you acknowledge on 2182 Khz.
 - (c) How will you inform all ships that restricted working can take place on 2182 Khz.
 - (d) At 1200 UTC inform all ships to resume normal working on NBDP.
3. Your ship PARMESHWARI/VTPG at 1030 UTC has sighted a floating metal container, which dangerous to navigation, in posn. 50 miles SE of Girdleness light. It is drifting east wards.
 - (a) Give an example of the call you would transmit on VHF/RT.
 - (b) On which channel would you transmit the call.
 - (c) Give an example of the message you would transmit on the working channel.
4. Your ship MV MAHARISHI/VWFD Fleet 77 No. 760358082 on a voyage from Chennai to Hongkong. You are logged on to Arvi LES. A crew member is suffering from fever. Your master decides to seek medical advice from Singapore through Sentosa LES. Take action.
 - (a) Write the initial action.
 - (b) Write the message.
5. What the following signals indicate :
 - a) Mayday/Distress Alert –
 - b) Seelonce Feenee
 - c) Seelonce -
 - d) Seelonce Mayday
 - e) Prudonce
 - f) Silence

PART – B-

1. Your ship MV Kirti/ATML, MMSI No. 410450000 in posn. 12 20N 065 25W.
The chief officer having severe chest pain. You came to know that passenger ship MV Akash/WVLX MMSI 419245000 round about 60nm from your position having doctor on board. Your master decides to get medical assistance from the ship.
 - (a) Write down the initial action you take. (2)
 - (b) Write specimen copy of the message. (4)

(a) Send selective DSC urgency alert to passenger ship MV Akash /MMSI 419245000 on 2187.5 Khz call and message on 2048 Khz.

(b) On 2048 Khz
Panpan³
MV Akash³/WVXL³ this is MV Kirti³/ATML³
Panpan
Medico
MV Kirti/ATML/MMSI 410450000
Posn. 1220N 06525W
Chief officer having severe chest pain.
Male, Age-34, Nationality Indian
Carrying medical chest No. 12B
Request urgent medical assistance =
Master MV Kirti/ATML
140900UTC
2. Your ship MV Maharishi Vasist / VWFC MMSI No. 419350000 in posn. 0720N 06525W Selcal No. 42534 received a distress message from MV Akbar / ATGR 419235000.
 - (a) How will you acknowledge on 2174.5 Khz. (1½)
MAYDAY
MV Akbar/ATGR/MMSI 419235000
This is
MV Maharishi Vasist / VWFC / MMSI 419350000 or Selcal No. 42534
RRR Mayday
NNNN
 - (b) How will you acknowledge on 2182 Khz. (1½)
MAYDAY
MV Akbar³/ATGR³ This is MV Maharishi Vasist³ / VWFC³
Received Mayday
Over
 - (c) How will you inform all ships that restricted working can take place on 2182 Khz. (1½)
MAYDAY
All Stations³
This is
MV Maharishi Vasist³ / VWFC³
At 1115UTC MV Akbar/ATGR PRUDONCE
OUT
 - (d) At 1200 UTC inform all ships to resume normal working on NBDP. (1½)
MAYDAY
All Stations
This is
MV Maharishi Vasist / VWFC
At 1200 UTC MV Akbar/ATGR SILENCE FINI
NNNN
3. Your ship PARMESHWARI/VTPG at 1030 UTC has sighted a floating metal container, which dangerous to navigation, in posn. 50 miles SE of Girdleness light. It is drifting east wards.

- (a) Give an example of the call you would transmit on VHF/RT. (2)
 (b) On which channel would you transmit the call. (1)
 (c) Give an example of the message you would transmit on the working channel. (3)

(a) Securite³
All Stations³
This is
MV Parmeshwari / VTPG³

(b) On channel 06.

(c) On channel 06

Securite

MV Parmeshwari / VTPG

Have sighted a floating metal container in posn. 50 miles SE of Girdleness light and it is drifting east wards. Vessels to keep a wide berth.

Master MV Parmeshwari / VTPG

At 141130UTC

Message ends

OUT

4. Your ship MV MAHARISHI/VWFD Fleet 77 No. 760358082 on a voyage from Chennai to Hongkong. You are logged on to Arvi LES. A crew member is suffering from fever. Your master decides to seek medical advice from Singapore through Sentosa LES. Take action.
 (c) Write the initial action. (3)

1. Prepare the Medical advice message.
2. Select the Telephone mode.
3. Select 2 digit code – 32
4. Select Urgency priority.
5. Select Sentosa LES
6. Wait for voice response from concerned authorities.
7. Pass the medical advice message.

(d) Write the message. (3)

Panpan

Medico

MV Maharishi / VWFD / Fleet 77 No. 760358082

From Chennai to Hongkong

One crew member suffering from high fever

Male, Age-43, Nationality- Indian

Temp 102, Pulse 90

Carrying medical chest No. 12B

Request urgent medical advice.

Master

MV Maharishi/VWFD

5. What the following signals indicate :

- a) Mayday/Distress Alert – It indicates that a mobile unit or person (s) are threatened by grave and imminent danger and require immediate assistance (1)**
- b) Seelonce Feenee - The signal is used by the controlling station or ship in distress by voice to indicate that distress working is over and normal working may be resumed. (1)**

- c) Seelonce Distress - This signal is used by other than controlling station to impose silence on interfering station. (1)
- d) Seelonce Mayday - This signal is used by the ship in distress or controlling station to impose silence on interfering station. (1)
- e) Prudonce - The signal is used by the controlling station or ship in distress by voice to indicate that distress is still on but restricted working ing may be resumed. (1)
- f) Silence fini - The signal is used by the controlling station or ship in distress by telex to indicate that distress working is over and normal working may be resumed. (1)

GOC Set 4 (MONDAY 2ND WEEK)

Section A

1. What is the frequency range of Ultra High Frequency?
a. 3-30 MHz **b. 300-3000 MHz** c. 30-300 MHz d. 10-30 MHz
2. Which system is least likely to be affected by atmospheric disturbances?
a. NAVTEX **b. Inmarsat** c. MF NBDP d. HF NBDP
3. Which statement best describes amplitude modulation?
a. The character data from the terminal is changed to audio tones
b. The frequency is varied in synchronization with the modulating signal
c. The information signal changes the amplitude but does not change the carrier frequency
d. The amplitude of the carriage is changed but there is still only a single frequency being transmitted
4. What is the emission designation for MF-HF voice signals?
a. F1B **b. J3E** c. J2B d. F3E
5. What is the signal transmitted in H3E mode?
a. Two sidebands, upper and lower
b. A reduced carrier and the lower sideband
c. A full carrier and the upper sideband
d. A full carrier and both upper and lower sidebands
6. Which mode occupies the least bandwidth?
a. H3E **b. J2B** c. AME d. F3E
7. Testing of a compulsory radiotelephone station should be done?
a. Into an artificial antenna
b. May be accomplished by using the radiotelephone for normal business
c. On 2182 kHz and must be heard clearly under normal conditions at a range of 150 nautical miles
d. Either A) or B)
8. Why must all VHF Distress, Urgency and safety communications (as well as VTS traffic performed in Simplex operating mode)?
a. Minimize interference from vessels engaged in routine communications
b. To insure that vessels not directly participating in the communications can hear both sides of the radio exchange
c. To enable RCC or Coast stations to only hear communications from the vessel actually in distress
d. To allow an RCC or Coast station to determine which transmissions are from other vessels and which transmissions are from the vessel actually in distress
9. MF/HF transceiver power levels should be set
a. To the lowest level necessary for effective communications
b. To the level necessary to maximize the propagation radius
c. To the highest level possible so as to ensure other station cannot break-in on the channel during use
d. Both A) and C) are correct
10. VHF ship station transmitters must have the capability of reducing carrier power to
a. **1 watt** b. 10 watts c. 25 watts d. 50 watts

11. The dual watch (DW) function is used to
 - a. Listen to Ch-70 at the same time while monitoring Cg-16
 - b. Sequentially monitor 4 different channels
 - c. Sequentially monitoring all VHF channels
 - d. Listen on any selected channel while periodically monitoring CH-16**
12. What would be an indication of malfunction on A GMDSS Station with 24 VDC battery system?
 - a. A constant 30 volt reading on the GMDSS console voltmeter**
 - b. After testing the station battery power, the ammeter reading indicates a high rate of charge that then declines
 - c. After testing the station on battery power, a voltmeter reading of 30 volts for a brief period followed by a steady 26 volt reading
 - d. None of the above
13. A vertical whip antenna has radiation pattern best describe by
 - a. A figure eight
 - b. A cardioid
 - c. A circle**
 - d. An ellipse
14. What is th advantage of 406 MHz satellite EPIRB?
 - a. It is compatible with the COSSPAS-SARSAT Satellites and the GMDSS regulations
 - b. Provides a fast, accurate method for the Coast Guard to locating and rescuing person in distress
 - c. Includes a digitally encoded message containing the ship's identity and nationality
 - d. All the above**
15. How should the signal from a Search and rescue radar Transponder appear on a RADAR display?
 - a. Series of dashes
 - b. A series of twenty dashed
 - c. A series of 12 equally spaced dots**
 - d. A series of spirals all originating from the range and bearing of the SART
16. Which of the following is the primary frequency that is used exclusively for NAVTEX broadcast internationally?
 - a. 518 kHz**
 - b. 2187.5 kHz
 - c. 4209.5 kHz
 - d. VHF channel 16 when the vessel is dialing in Sea Area A1 and 2187.5 kHz when in Sea Area A2
17. What equipment is associated with the space systems?
 - a. VHF MF HF
 - b. Inmarsat – C**
 - c. NAVTEX
 - d. SART
18. What sea area is defined as being within range of a shore-based MF statn that provides for continuous DSC Alerting
 - a. Sea Area A2**
 - b. Coastal waters
 - c. Sea Area A3
 - d. Sea area A1
19. What is defined as an area, excluding sea are A1 and A2, within the coverage of an Inmarsat geostationary satellite in which continuous altering is available?
 - a. Ocean Area regions AOR-E, AOR-W, POR or IOR
 - b. Sea Area A4
 - c. Sea Area A3**
 - d. Coastal and inland waters
20. The emission or mode control of an MF/HF transceiver
 - a. Allows fine tuning of the receiver
 - b. Allows the type of modulation to be selected**
 - c. Increases the range of the transmitter

d. Reduces the received gain automatically

21. The emission or mode used for RT (voice) operation on MF is
 a. FSK b. DSB c. ISB **d. SSB**
22. Ship to ship Safety of Navigation RT communication on Ch. 13 VHF used
 a. Common calling channel b. Semi-duplex channel c. Duplex channel **d. Simplex channel**
23. A set ITU RT paired frequencies can be described as
 a. Simplex b. Double sideband **c. Duplex** d. Single side band
24. It is important to ventilate a ship's battery locker to
 a. **Reduce the risk of explosion**
 b. Prevent sulphation on the terminals
 c. Allow oxygen into the locker to assist charging
 d. Keep the cell tops dry
25. The correct format for an RT Urgency call is
 a. **PAN PAN (X3) all station (X3) this is nonesuch (X3) GABC 232123456**
 b. PAN PAN (X3) this is nonesuch (X3) GABC 232123456
 c. All station (X3) this is nonesuch (X3)
 d. Securite (X3) all stations (X3) this is nonesuch (x3) GSBC 232123456
26. The signal Seelonc Feenee should only be transmitted by
 a. Any station involved in the distress incident
 b. The port operation station nearest the distress position
 c. The control station to impose silence
d. The station controlling the distress working
27. You are GMDSS Sea Area A1 and have received a DSC Distress Alert you should
 a. **Wait a short period, then acknowledge by RT on Ch. 16**
 b. Wait a short period, the acknowledge by DSC on ch 70
 c. Acknowledge immediately by RT on ch 16
 d. Acknowledge immediately by RT on ch 70
28. Your vessel is in GMDSS Area A1, drifting ashore and you require a tow. You should initially transmit by Ch 70 DSC
 a. **An all stations Urgency Alert** b. A Distress Alert c. An all station Safety Alert d. Distress Relay Alert
29. The main purpose of transmission on 2174.5 kHz is for
 a. NAVTEX English Language broadcasts
 b. Ship to Ship RT communications for the Safety of Navigation
 c. Routine ship to ship telex message on HF
d. MF telex Distress, Urgency and Safety message
30. Generally, communications on the Port Operations Service are restricted to
 a. Inter-ship correspondence (bridge to bridge communications) only
 b. Maritime Safety Information broadcasts only
 c. RT public correspondence only
d. Operational handling and movement of ships only

PART – B

1. Your are on a GMDSS ship MV Riveira/BYCQ. Your chief Engineer having severe chest pain, Aged 35, Male. Your posn. 05 00N 088 06E, Co 270, speed 12 kts, monitoring IOR. MV Splendor/GBQS is about 60 miles from you equipped with all medical facilities and Doctor on board.
 - (a) State the initial action you will take to contact MV Splendor ?
 - (b) Write the complete follow-up action you will take.
2.
 - (a) What is the command code in NBDP for requesting medical assistance ?
 - (b) Give an example of distress message acknowledgement in NBDP.
 - (c) Write down the message sent by CRS indicating distress is over and normal working can be resumed in NBDP.
 - (d) At 1200 UTC inform all ships to resume normal working on NBDP.
3.
 - (a) What does the DSC distress alert indicate ?
 - b) What does the DSC Urgency alert indicate ?
 - c)What does the DSC Safety alert indicate ?
 - d) On which MF frequency will you send the above mentioned DSC alerts ?
 - e) On which VHF frequency will you send the safety message ?
 - f) On which VHF frequency will you send the distress message ?
4. Your ship is in AOR-E. LES selected is Southbury. Your vsl is sinking. Convey distress message using GOONHILLY LES utilizing Telephone service of FLEET 77.
 - (a) State the initial action.
 - (b) State the follow-up message.
5. You are on MV Tamil Anna /ATMU / MMSI 419123456 / Sat-c IMN 423456789. When your vessel is 50 miles east of Colombo, inadvertently distress alert has been sent using Sat-C.
 - (a) What is the initial action you will take ?
 - (b) Write down the message you would convey after the initial action.

PART – B

1. You are on a GMDSS ship MV Riveira/BYCQ. Your chief Engineer having severe chest pain, Aged 35, Male. Your posn. 05 00N 088 06E, Co 270, speed 12 kts, monitoring IOR. MV Splender/GBQS is about 60 miles from you equipped with all medical facilities and Doctor on board.
- (a) State the initial action you will take to contact MV Splender ? (2)
- (b) Write the complete follow-up action you will take. (4)
- (a) **Send selective DSC urgency alert to MV Splender/BYCQ on 2187.5 Khz call and message on 2048 Khz.**
- (b) **On 2048 Khz**

Call :

Panpan³

MV Splender³/GBQS³ this is MV Riveira³ / BYCQ³

Message :

Panpan

Medico

MV Riveira/BYCQ /MMSI

Posn. 0500N 08806E, Course 270, Speed 12 kts.

Presently 60 miles from your posn.

Chief Engineer having severe chest pain.

Male, Age-35, Nationality- Indian

Carrying medical chest No. 12B

Request urgent medical advice =

Master MV Riveira/BYCQ

141600UTC

2. (a) What is the command code in NBDP for requesting medical assistance ? (1)
- MED+**
- (b) Give an example of distress message acknowledgement in NBDP. (2)
- MAYDAY**
- MV Splender /GBQS**
- This is**
- MV Riveira / BYCQ**
- RRR Mayday**
- NNNN**
- (c) Write down the message sent by CRS indicating distress is over and normal working can be resumed in NBDP. (1½)
- MAYDAY**
- All Stations**
- This is**
- Chennai Radio/VWM**
- At 1600 UTC**
- MV Splender/GBQS**
- Silence Fini**
- NNNN**
- (d) At 1200 UTC inform all ships to resume normal working on NBDP. (1½)

MAYDAY
All Stations
This is
MV Maharishi Vasist / WVFC
At 1200 UTC MV Akbar/ATGR SILENCE FINI
NNNN

3. (a) What does the DSC distress alert indicate ? **(1)**
It indicates that a mobile unit or person (s) are threatened by grave and imminent danger and require immediate assistance.
- b) What does the DSC Urgency alert indicate ? **(1)**
It indicates that a very urgent message concerning the safety of a mobile unit or person (s) is about to follow.
- c) What does the DSC Safety alert indicate ? **(1)**
It indicates that an important message concerning a navigational or meteorological warning is about to follow.
- d) On which MF frequency will you send the above mentioned DSC alerts ? **(1)**
2187.5 Khz
- e) On which VHF frequency will you send the safety message ? **(1)**
156.300 Mhz / Ch 06
- f) On which VHF frequency will you send the distress message ? **(1)**
156.80 Mhz / Ch 16
4. Your ship is in AOR-E. LES selected is Southbury. Your vsl is sinking. Convey distress message using GOONHILLY LES utilizing Telephone service of FLEET 77.
- (a) **State the initial action. (3)**
- 1. Prepare the distress message.**
 - 2. Select the Telephone mode**
 - 3. Press the Distress button for 5 Secs. for automatic connection to RCC/MRCC.**
 - 4. Select Goonhilly LES.**
 - 5. Press the Hash (#) or Press Ok and wait for the response from RCC/MRCC and pass the distress message.**
- (b) **State the follow-up message. (3)**
- Mayday**
MV Splendor / GBQS / MMSI 419123456 AOR-E
Posn. 06 00N 087 06E
Sinking
Require immediate assistance
23 persons on board.
Master
5. You are on MV Tamil Anna /ATMU / MMSI 419123456 / Sat-c IMN 423456789. When your vessel is 50 miles east of Colombo, inadvertently distress alert has been sent using Sat-C.
- (a) **What is the initial action you will take ? (3)**
- 1. Wait for acknowledgement from an RCC/MRCC**
 - 2. Edit the cancellation message**
 - 3. On transmit menu :**
 - a. Select the Distress priority for automatic connection to RCC**
 - b. Select the cancellation message**

c. Select the same LES (through which the false alert was sent)

d. Send the cancellation message.

(b) Write down the message you would convey after the initial action. **(3)**

To : RCC

**Fm : MV Tamil Anna / ATMU / MMSI 419123456 / Sat-C No. 423456789 / Ocean
Region**

**Please cancel my Sat-C false Distress alert sent from posn. 05 00N 082 00E
at 140800UTC.**

Master

MV Tamil Anna / ATMU

GOC SET – 5 (TUESDAY 2ND WEEK)

Section A

1. When sending a DSC Call:
 - a. Vessels position will automatically be sent
 - b. Vessels position will automatically be sent if the vessels is sending a Distress Hot Key alert**
 - c. Vessels MMSI will indicate its ocean region
 - d. None of these
2. The propagation path used by satellite EPIRB equipment is
 - a. Relay wave
 - b. Direct wave (line of sight)**
 - c. Ground wave
 - d. Sky wave
3. As a safety precaution when working aloft near a transmitter antenna, ensure that the
 - a. The transmitter switched off, main fuses removed and connect antenna to earth**
 - b. Antenna insulators are clean and transmitter switched off
 - c. Antenna is disconnected from the transmitter and main fuses removed
 - d. Transmitter is switched to the standby condition
4. The maximum output power of marine VHF is limited to
 - a. 100 Watts
 - b. 10 Watts
 - c. 25 watts**
 - d. 50 Watts
5. Inmarsat Fleet used a
 - a. Whip antenna
 - b. Long wire antenna
 - c. Directional antenna**
 - d. Omni-directional antenna
6. When making RT test signals for transmitter adjustment, the call should include
 - a. An indication of the mode of emission being used
 - b. An indication of the frequency to be used
 - c. The identification of the station making the test**
 - d. The position of the station making the test
7. The following equipment should be tested at least once a month and details entered into radio log
 - a. NAVTEX
 - b. Reserve source of energy if not a battery
 - c. Each printer for adequate paper
 - d. SART, EPIRB and Handheld VHF sets**
8. On VHF the transmitted power should be reduced to
 - a. Increase the volume of the received signal
 - b. Minimize interference**
 - c. Use more battery energy
 - d. Give maximum range
9. A common abbreviation for the mode of emission for a RT distress message on 2182 KhZ IS
 - a. AM**
 - b. FM
 - c. Telex
 - d. SSB**
10. When carrying out battery maintenance, petroleum jelly is recommended for protecting
 - a. The battery casing from corrosion
 - b. Hands from acid flashes
 - c. Exposed terminals and connectors**
 - d. Against acid leakage thru cell top caps
11. What would be an indication of malfunction on a GMDSS station with a 24 VDC battery system?
 - a. A constant 30 volt reading on the GMDSS console voltmeter**
 - b. After testing the station on batter power, the ammeter reading indicated a high rate of charge that then declines
 - c. After testing the station on battery power, a voltmeter reading of 30 volts for brief period followed by a steady 26 volt reading
 - d. None of the above

12. Which would indicate a malfunction in a 2182 kHz radio telephone system?
- No discernable traffic has been heard on the 2182 kHz during the radiotelephone silence period
 - Failure to contact another station 60 miles distant during day time operation**
 - Dramatic decrease in noise level observed during night and early morning hours
 - The visual indication of power to the antenna fluctuates while testing the RT alarm signal generator into an artificial antenna
13. What usually comprises a Coast Station call sign
- Three numerals from a group assigned to the coast stations nation by the ITU
 - Our numerals from a group assigned to the coast stations nation by ITU
 - Three letters from a group assigned to the coast stations nation by ITU**
 - Four letters from a group assigned to the coast station nation by ITU
14. A DSC Distress call is received by your vessel and your transceiver frequency display reads transmit=4207.5 kHz and Receive=4207.5 kHz what information can you infer from this?
- The DSC controller decoded the requested voice frequency as 4207.5 kHz Simplex and your DSC Control has automatically set-up your transceiver
 - The DSC Controller decoded the contents of the DSC call but the request is illegal
 - Both A) and B) are true
 - The DSC call came in on 4 MHz DSC and you should set-up your transmitter and respond on the appropriate voice follow-on frequency**
15. GMDSS operators should routinely focus on the factors affecting propagation in what priority for MF/HF?
- Distance & time of day, Seasonal variation, Sunspot cycle, solar flare alert**
 - Sunspot cycle, distance & time of day, seasonal variation, solar flare alert
 - Solar flare alerts, sunspot cycle, seasonal variations, distance & time of Day
 - Solar flare alerts, distance & time of Day, Sunspot cycle, seasonal variations
16. Why must the GMDSS operator be able to set-up FEC & ARQ modes and differentiate between them
- The proper mode must be selected for reception of HF MSI
 - The proper mode must be selected for follow-on telex communications in a distress situation
 - The ARQ telex mode must be selected for follow-on telex communications in a distress situation and the FEC telex mode selected for reception of HF MSI
 - Both a) and b) are correct**
17. Which of the following would be a valid automatic telex code and number for request for real-time telex connection to a shore-based telex terminal?
- DIRTLX023424998**
 - DIRTLX then waits for MSG + to dial 023419645+
 - DIRTLX23122445
 - DIRTLX then after GA+ then sends telex number
18. When placing a telex call to a Coast Station, you should always
- Choose the closest station
 - Make sure the frequency is not occupied with normal traffic**
 - Tune the transmitter on another frequency
 - Wait until coast station send his traffic list
19. For RF communications. "bandwidth" is best defined as
- The modulation technique required to insure proper ITU channel spacing
 - Emission designation resulting from the desired modulation technique
 - The portion of the radio spectrum consumed by a particular emission selection and modulation technique**
 - The portion of the radio spectrum reserved for frequency allocations by the ITU
20. The purpose of ITU channel spacing is
- To maximize the number of voice and telex channels available
 - The minimize the possibility of interference from adjacent channels**
 - To make most efficient use of the radio spectrum by using voice channel rather than telex channels
 - To make most efficient use of the radio spectrum by using telex channels rather than voice channels

21. You are in Sea Area A2 and require medical advice from Humber Coastguard. You should initially transmit by MF DSC on 2187.5 kHz
- An urgency alert addressed to Humber Coastguards MMSI**
 - A distress alert addressed to Humber Coastguards MMSI
 - A Safety Alert to all stations
 - A Routine alert to all stations
22. Your vessel is in GMDSS Sea area A1 and you have sighted an unlit buoy. To warn other ships you should transmit on Ch 70 by DSC
- A routine alert addressed to all stations
 - A Safety alert addressed to all stations**
 - An Urgency alert addressed to all stations
 - A Distress relay alert
23. The RT signal that indicates return to normal working is
- Seelonce Mayday
 - Seelonce Over
 - Seelonce Distress FeeneeSeelonceFeenee**
 - Seelonce Mayday
24. A coast station making a DSC international Routine shore to ship alert transmit on
- 2177 kHz**
 - 2182 kHz
 - 2187.5 kHz
 - 2189.5 kHz
25. To maintain serviceability and availability of GMDSS equipment onboard ship, SBM means
- A qualified maintainer is carried on board a ship
 - A recognized shore based company responsible for maintenance**
 - The ship's GMDSS GOC operator is responsible for maintenance
 - The ship's GMDSS equipment is duplicated
26. A station causing interference with RT communications between another ship and coast station shall
- Cease transmission on the first request by the coast station**
 - Change the mode of emission being used
 - Reduce transmitter power
 - Request the mobile station to cease transmission
27. In routine VHF RT communications between two ships, the controlling station is deemed to be the
- Nearest coast station
 - Ship with the highest priority of traffic
 - Ship station which initiated the call
 - Ship station that has been called**
28. In the terrestrial radio service, the category with the highest priority is
- Request for berthing instructions
 - Inmarsat – c message to the owners
 - RT call to Pilot
 - Gale warning**
29. In the event of a Distress situation, the transmission of a Distress Alert and message is authorized by
- The Master or person in charge of the vessel**
 - The GMDSS Operator
 - The person responsible for equipment maintenance
 - The CEO or person in-charge of EIR
30. Prioritization and pre-emption are features of
- Inmarsat Fleet 55
 - Inmarsat C
 - Inmarsat Fleet 77**
 - Inmarsat B

PART – B

- a) Ship Brando is informing ship Malvino “Seelonce Mayday”. Which vessel is in control of distress traffic at the moment ?

- b) What action should you take if you receive an “Urgency” call not followed by a message even after waiting for 3 minutes.
 - c) What is Navtex International Broadcast Frequency ?
 - d) When you are controlling distress traffic, State under what circumstances you will send Mayday Relay message
 - e) In satcom-B, how many seconds you will press the distress push button switch if you want to send a distress R/T call ?
 - f) What is primary inter-ship working channel on VHF ?
2. Your ship NandShivchand/VTGC at 1210UTC has sighted a floating metal container which is dangerous to navigation, in position 50nm SE of Girdleness Lt. It is drifting eastwards.
- (a) Give an example of the call you would transmit on VHF R/T.
 - (b) On which channel would you transmit the call?
 - (c) Give an example of the message you would transmit on the working channel.
3. You are on MT Aditya Vardhan/VVTM in area A3. You receive a DSC distress alert on 8414.5 kHz. Take action.
4. You are a GMDSS operator on LNGC Onaiza/9VVT and you have inadvertently sent a Distress alert through Inmarsat C while vessel is off Colombo.
- (a) Take action.
 - (b) Write down the message you would convey after the initial action.
5. What will you see on your X-Band radar when a SART is active in your area
- a) 6 NM away from your vessel.
 - b) 1 NM from your vessel
 - c) Less than 1 NM from your vessel

PART – B

1. a) Ship Brando is informing ship Malvino “Seelonce Mayday”.
Which vessel is in control of distress traffic at the moment ?
Ship Brando (1)
- b) What action should you take if you receive an “Urgency” call not followed by a message even after waiting for 3 minutes. **(1)**
Inform the nearest CRS and resume normal watch.
- c) What is Navtex International Broadcast Frequency ? **(1)**
518 Khz
- d) When you are controlling distress traffic, State under what circumstances you will send Mayday Relay message **(1)**
a. When the master or other person responsible for the station not in distress considers that further help is necessary.
- e) In satcom-B, how many seconds you will press the distress push button switch if you want to send a distress R/T call ? **(1)**
5 Seconds
- f) What is primary inter-ship working channel on VHF ? **(1)**
Ch 06
2. Your ship Nand Shivchand/VTGC at 1210UTC has sighted a floating metal container which is dangerous to navigation, in position 50nm SE of Girdleness Lt. It is drifting eastwards.
 - (a) Give an example of the call you would transmit on VHF R/T.
Securite³ All stations³ this is MV Shivchan/VTGC³
 - (b) On which channel would you transmit the call? **(1)**
Ch 06
 - (c) Give an example of the message you would transmit on the working channel.

Securite

Nand Shivchand/VTGC

At 1210UTC, have sighted a floating metal container in position 50nm SE of Girdleness Lt. Drifting eastwards and is dangerous to navigation.

Vessels in the vicinity to keep a wide berth and navigate with caution.

Master

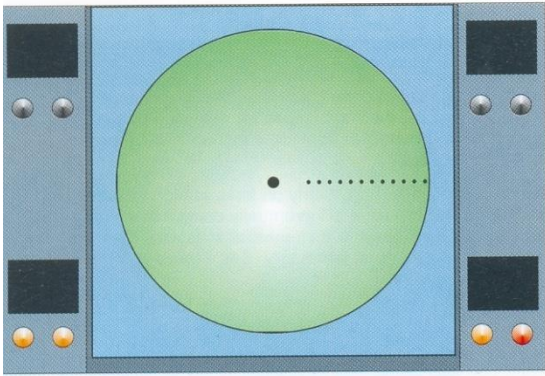
MV Shvichand

011605 UTC

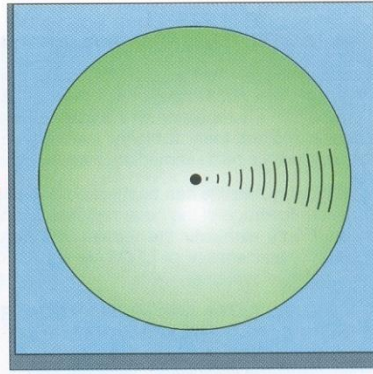
Message ends

OUT

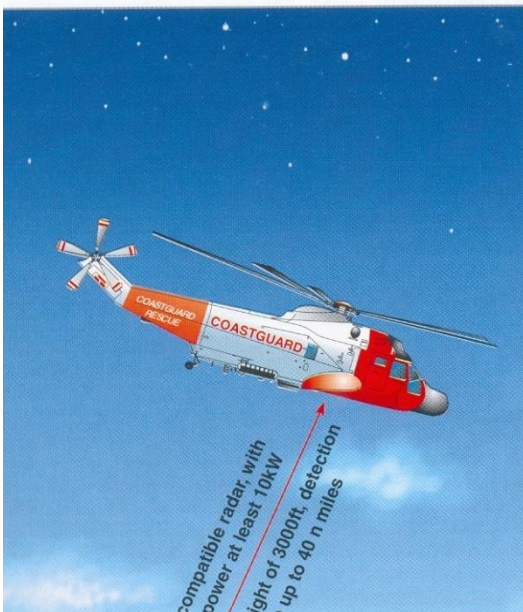
3. You are on MT Aditya Vardhan/VVTM in area A3. You receive a DSC distress alert on 8414.5 kHz. Take action.
DO NOT ACKNOWLEDGE
Log down and inform Master
Set watch on corresponding RT(NBDP) Distress frequency on same HF band.
Wait 3 mins for CRS to acknowledge
If no acknowledgement from CRS by voice or DSC
Relay Distress alert to MRCC ashore by any means.
4. You are a GMDSS operator on LNGC Onaiza/9VVT and you have inadvertently sent a Distress alert through Inmarsat C while vessel is off Colombo. Take action.
1. **Wait for acknowledgement from an RCC/MRCC**
 2. **Edit the cancellation message**
 3. **On transmit menu :**
 - a. **Select the Distress priority for automatic connection to RCC**
 - b. **Select the cancellation message**
 - c. **Select the same LES (through which the false alert was sent)**
 - d. **Send the cancellation message.**
- (b) Write down the message you would convey after the initial action. (3)
- To : RCC**
Fm : MV Onaiza/9VVT / MMSI / Sat-C No. / Ocean Region
Pls cancel my Sat-C false Distress alert sent from posn. 05 00N
082 00E at 140800UTC.
Master
MV Onaiza / 9VVT
5. What will you see on your X-Band radar when a SART is active in your area
- a) 6 NM away from your vessel.
 - b) 1 NM from your vessel
 - c) Less than 1 NM from your vessel



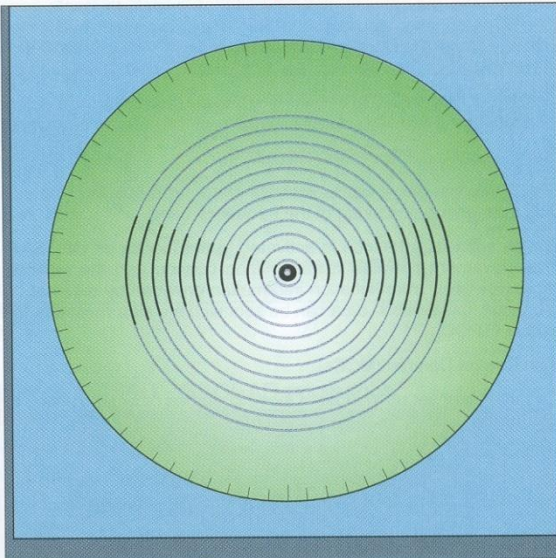
Radar Display showing the SART 12 dot blip code (bearing approximately 90°)



As the search craft approaches to within about 1 n mile of the SART the 12 dots will change to wide arcs.



Using compatible radar, with output power, at least 10kW on a search height of 3000ft, detection ranges are up to 40 n miles



The wide arcs change into complete circles as the SART is closed



SURVIVAL CRAFT
IMO recommends SART mounted at least 1 metre above sea level

With antenna height of 15 metres, detection ranges are up to at least 5 n miles



IMO SYMBOL FOR SART

GOC SET – 6 (WEDNESDAY 2ND WEEK)

Section A

1. How should the signal from a search and Rescue RADAR transponder appear on a RADAR display?
 - a. A series of dashes
 - b. A series of spirals all originating from the range and bearing of the SART
 - c. A series of twenty dashes
 - d. A series of 12 equally spaced dots**
2. In which frequency band does a search and rescue transponder operate?
 - a. 9 GHz**
 - b. 3 GHz
 - c. S-Band
 - d. 406 MHz
3. Which piece of required GMDSS Equipment is the primary source of transmitting locating signals
 - a. Radio direction Finder (RDF)
 - b. A SART transmitter on 406 MHz
 - c. Survival Craft transceiver
 - d. An EPIRB transmitting on 406 MHz**
4. Which of the following statements concerning satellite EPIRBs is true?
 - a. Once activated, these EPIRBs transmit a signal for use in identifying the vessel and for determining the position of the beacon**
 - b. The coded signal identifies the nature of the distress situation
 - c. The coded signal only identifies the vessel's name and port of registry
 - d. If the GMDSS Radio Operator does not program the EPIRB, it will transmit default information such as the follow on communications frequency and mode
5. Which of the following is the primary frequency that is used exclusively for NAVTEX broadcasts internationally?
 - a. 2187.5 kHz
 - b. 4209.5 kHz
 - c. VHF channel 16
 - d. 518.kHz**
6. What are the directional characteristics of the Inmarsat C SES antenna?
 - a. Highly directional parabolic antenna requiring stabilization
 - b. Wide beam width in a cardioid pattern off the front of the antenna
 - c. Very narrow beam width straight-up from the top of the antenna
 - d. Omnidirectional**
7. What is the best description for the Inmarsat c system?
 - a. It provides slow speed telex and voice service
 - b. It is a store-and-forward system that provides routine and distress communications**
 - c. It is a real-time telex system
 - d. It provides world-wide coverage
8. How can selectivity be achieved in the front-end circuitry of a communications receiver?
 - a. By using an audio filter
 - b. By using an additional RF amplifier stage
 - c. By using and additional IF amplifier stage
 - d. By using a preselector**
9. Which of the following is true?
 - a. Battery test must be logged daily
 - b. EPRIB test are normally logged monthly
 - c. Radiotelephone test are normally logged weekly
 - d. Both A) and B) above**
10. Where should GMDSS radio Log be kept on board ship?

- a. Captain's office vessel B. Sea Cabin **C. At the GMDSS operating position** D. Anywhere on board the vessel

11. Under what circumstances may a coast station using telephony transmit a general call to a group of vessels?
 - a. Under no circumstances
 - b. When announcing or preceding the transmission of Distress, Urgency, safety or other important Messages
 - c. When the vessels are located in international waters beyond 12 miles
 - d. When identical traffic is destined for multiple mobile station within range**
12. What is required of a ship station which has established initial contact with another stn 2182 Khz or Ch 16
 - a. The stations must change to an authorized working frequency for the transmission of message**
 - b. The stations must check the radio channel for Distress, Urgency and Safety calls at least once every 10 minutes
 - c. Radiated power must be minimized so as not to interfere with other stations needing to use the channel
 - d. To expedite safety communications. The vessels must observe radio silence for two out of every 15 min
13. What is the priority of communications?
 - a. Safety, Distress, Urgency and radio direction Finding
 - b. Distress Urgency and Safety**
 - c. Distress, Safety, Radio Direction-finding SAR
 - d. Radio Direction-finding, Distress, Safety
14. On what frequency should a ship station normally call a coast station when using radiotelephony emission?
 - a. On a vacant radio channel determined by the license radio officer
 - b. Calls should be initiated on the appropriate ship to shore working frequency of the coast station**
 - c. On any calling frequency internationally approved for use within ITU region 3
 - d. On 2182 Khz or Ch 16 at any time
15. What is Distress traffic?
 - a. All message relative to the immediate assistance required by a ship, aircraft or other vehicle threatened by grave and imminent danger, such as life and safety of persons on board, or man overboard**
 - b. In radiotelephony, the speaking of the work Mayday
 - c. Health and welfare message concerning property and the safety of a vessel
 - d. Internationally recognized communications relating to important situations
16. Ordinarily, how often would a station using telephone emission identify?
 - a. At least every 10 minutes
 - b. At the beginning and end of each transmissions and at 15 minutes intervals**
 - c. At 15 minute intervals, unless public correspondence is in progress
 - d. At 20 minute intervals
17. The urgency signal has lower priority than
 - a. Ship to ship routine calls
 - b. Distress**
 - c. Safety
 - d. Security
18. The Urgency signal concerning the safety of a ship or person shall be sent only on the authority of
 - a. Master of a ship
 - b. Person responsible for mobile station
 - c. Either Master of ship or person responsible for mobile station
 - d. A WPC licensed operator
19. GMDSS is primarily a system based on?
 - a. Ship to ship Distress communications using MF or HF radiotelephony
 - b. VHF digital selective calling from ship to shore
 - c. Distress, Urgency and Safety communications carried out by the use of narrow band direct printing telegraphy
 - d. The linking of search and rescue authorities ashore with shipping in the immediate vicinity of a ship in distress or is in need of assistance**
20. VHF ship station transmitters must have the capability of reducing carrier power to
 - a. **1 watt**
 - b. 10 watt
 - c. 25 watt
 - d. 50 watt

21. Why must all VHF Distress, Urgency and Safety communications (as well as VTS traffic calls) be performed in Simplex operating mode?
- To minimize interference from vessels engaged in routine communications
 - To ensure that vessels not directly participating in the communication can hear both sides of the radio exchange**
 - To enable RCC or Coast station to only hear communications from the vessel in distress
 - To allow an RCC or Coast station to determine which transmissions are from other vessels and which transmissions are from the vessel actually in distress
22. Which VHF channel is used for digital selective calling?
- Channel 70**
 - Channel 16
 - Channel 22A
 - Channel 6
23. Which mode could be selected to receive vessel traffic list from high seas shore station?
- AM and VHF FM
 - ARQ and FEC
 - VHF FM and SSB
 - SSB and FEC**
24. What emission must be used when operating on the MF distress and calling frequencies?
- J3E – Single side band radiotelephony**
 - A1A – On-off keying without modulation by an audio frequency
 - F2E – Frequency Modulation telephone
 - A3E Amplitude modulation telephony, double sideband
25. When testing is conducted on 2182 kHz or Ch 16, testing should not continue for more than _____ in any 5 min period
- 2 minutes
 - 1 minute
 - 30 seconds
 - 10 seconds**
26. The best way to test the MF HF NBDP system is?
- Make a radiotelephone call to a coast station
 - Initiate an ARQ call to demonstrate that the transmitter and antenna are working
 - Initiate FEC call to demonstrate that the transmitter and antenna are working
 - Initiate an ARQ call to Ac Coast station and wait for the automatic exchange of answerbacks**
27. Under normal circumstances, what do you do if the transmitter aboard your ship is operating on other frequency, over-modulating or distorting?
- Reduce to low power
 - Reduce audio volume level
 - Stop transmitting**
 - Make a notation in station operating log
28. Which of the following conditions would be a symptom of malfunctions in a 2182 kHz radiotelephone system that must be reported to the Master, then logged appropriately.
- Much higher noise level observed during daytime operations
 - No indication of power output when speaking in to the microphone**
 - When testing a radiotelephone alarm on 2182 kHz into an artificial antenna, the Distress frequency watch receiver becomes unmated, and improper testing procedure
 - Failure to contact a shore station 600 nautical miles distant during daytime operation
29. What is the most common type of antenna for GMDSS VHF?
- Horizontally polarized circular antenna
 - Long wire antenna
 - Both of the above
 - None of the above**
30. For a small passenger vessel inspection, reserve power batteries must be tested
- At intervals not exceeding every 3 months
 - At intervals not exceeding every 6 months

c. At intervals not exceeding 12 months, or during the inspection

d. Before any new voyage

31.

32. **PART – B**

33.1. Your vessel MV Strider Juno / WVUT MMSI 623495000 is in sea area A2 in position 42 33'N 027 36'W. You have sighted a vessel capsizing 3NM SSE from your position at 0830 UTC. You have neither received any distress alert nor any distress alert relay.

You also observe the vessel's crew abandoning vessel into two life rafts.

State the action that you as a Master of your vessel would take ?

34. a) **Set watch on Ch16 and Ch 06 and try to establish contact with survivors. (1)**

35. b) **Send DSC Distress relay to all stations on 2187.5 Khz and call and message on 2182 Khz. (2)**

36. **Mayday Relay x 3 (3)**

All station x 3

This is

MV Stider Juno / WVUT MMSI 623495000

37. **Mayday**

Have sighted a unknown vessel capsizing 3NM SSE of my position.

My position 42 33'N 027 36'W.

Also observed the crew abandoning vessel into two life rafts.

Self proceeding for assistance.

Require immediate assistance from vessel's in vicinity.

Master

MV Strider Juno/WVUT

Over

38.2. Your Inmarsat B is fully operational and set to operate in the IOR with default CES as Eik, Norway. Your vessel is in distress.

39. a) State the procedure you would use to send a distress alert by Telephone. **(3)**

40. **1. Prepare the Distress message**

2. Select Telephone mode.

3. Press the Distress button for 5 Secs for automatic connection with RCC/MRCC

4. Press the Hash (#) key and wait for the response from RCC/MRCC and pass the distress message.

41. b) Give an example of the distress message you would send. **(3)**

(assume all necessary details).

42. **Mayday**

MV Stride Juno / WVUT / MMSI 623495000 IOR

Position 42 33'N 027 36'W.

Sinking

Require immediate assistance.

23 persons on board.

Master

Over

43.3. Your ship MT GARGI / VWDG is in sea area A1. You have received a DSC distress alert on VHF Ch70 from a vessel also in sea area A1. You are a fully loaded tanker.

State the correct procedure to be followed. **(6)**

44. **1. Log info and inform the Master**

2. Set watch on Ch 16.

3. Wait for a short while for CRS/MRCC to acknowledge first (max 3 mins)

4. Acknowledge by voice procedure on Ch16.

5. If no contact with vessel in distress and no acknowledgement by CRS/MRCC by voice or by DSC, relay alert ashore by any means.

- 45.4. Your vessel Coraje / CXJR presently in position 17 25'N 069 53'E is towing an oil rig to Mumbai port. Your Co 093 degs and speed is 15 knts.
46. a. What type of message would you transmit ? – **Securite (1)**
47. b. Give an example of RT call you should make. **(2)**
48. **Securite³**
All stations³ This is MV Coraje/CXJR³
49. c. Give an example of the message you should transmit by Radio Telephone. **(3)**
50. **Securite**
MV Coraje/CXJR/MMSI 624596000 in position 17 25'N 069 53E towing an oil rig to Mumbai port. Present course 093 degrees, Present speed 15 knots.
Request vessels in vicinity to keep wide berth.
Master
MV Coraje/CXJR
Out
- 51.5. Your vessel MV Bait Orient / WXAP / MMSI 452312890 is in sea area A2. You have 23 persons on board and your present position is 3 miles SE of wayward point. The ship's engine has failed. The vessel is drifting NNW at 0.5 kts and is in danger of grounding. You as a Master wish to request for tow from any vessel in the vicinity. State the alert, call and message you will transmit.
52. a) **Send a DSC Urgency alert to All stations on 2187.5 khz and call and message on 2182 Khz. (1)**
53. b) **Call : (2)**
54. **Pan Pan³ All stations³ This is MV Bait Orient/WXAP³**
55. c) **Message : (3)**
56. **Pan Pan**
MV Bait Orient/WXAP/MMSI 452312890
Present position 3 miles SE of wayward point.
Ship's engine has failed and is drifting NNW at 0.5 kts and is in danger of gounding.
Request tow from any vessel in the vicinity.
Master
231015UTC

PART – B

1. Your vessel MV Strider Juno / WVUT MMSI 623495000 is in sea area A2 in position 42 33'N 027 36'W. You have sighted a vessel capsizing 3NM SSE from your position at 0830 UTC. You have neither received any distress alert nor any distress alert relay. You also observe the vessel's crew abandoning vessel into two life rafts. State the action that you as a Master of your vessel would take?
2. Your Inmarsat B is fully operational and set to operate in the IOR with default CES as Eik, Norway. Your vessel is in distress.
 - a) State the procedure you would use to send a distress alert by Telephone.
 - b) Give an example of the distress message you would send.
(assume all necessary details).
3. Your ship MT GARGI / VWDG is in sea area A1. You have received a DSC distress alert on VHF Ch70 from a vessel also in sea area A1. You are a fully loaded tanker. State the correct procedure to be followed.
4. Your vessel Coraje / CXJR presently in position 17 25'N 069 53'E is towing an oil rig to Mumbai port. Your Co 093 degs and speed is 15 knots.
 - a. What type of message would you transmit ?
 - b. Give an example of RT call you should make.
 - c. Give an example of the message you should transmit by Radio Telephone.
5. Your vessel MV Bait Orient / WXAP / MMSI 452312890 is in sea area A2. You have 23 persons on board and your present position is 3 miles SE of wayward point. The ship's engine has failed. The vessel is drifting NNW at 0.5 kts and is in danger of grounding. You as a Master wish to request for tow from any vessel in the vicinity. State the alert, call and message you will transmit.

GOC SET – 7 (THURSDAY 2ND WEEK)

Section A

1. GMDSS is primarily a system based on
 - a. Ship to ship Distress communications using MF or HF radiotelephony
 - b. VHF digital selective calling from ship to shore
 - c. Distress, Urgency and Safety communications carried out by the use of narrow-band direct printing telegraphy
 - d. The linking of search and rescue authorities ashore with shipping in the immediate vicinity of a ship in distress or in need of assistance**
2. What equipment is associated with the land or terrestrial systems?
 - a. EPIRB
 - b. VHF-MF-HF**
 - c. Inmarsat C
 - d. GPS
3. What is defined as an area, excluding sea area A1 and A2, within the coverage of Inmarsat geostationary satellite in which continuous alerting is available.
 - a. Ocean Area region AOR-E, AOR-W, POR or IOR
 - b. Sea area A4
 - c. Sea Area A3**
 - d. Coastal and Inland waters
4. GMDSS – equipped ships will be required to perform which of the following communications functions?
 - a. Distress alerting and maritime safety information
 - b. Search and rescue coordination and On –scene communications
 - c. Bridge-to-bridge and general radio communications
 - d. All of these**
5. Vessels operating in which sea areas are required to carry either Inmarsat or HF equipment or a combination thereof under GMDSS?
 - a. All sea areas
 - b. A3**
 - c. A4
 - d. A1
6. What statement is generally correct regarding the maintenance requirement for ships under GMDSS?
 - a. Redundancy of functions of certain equipment will partially meet this requirement
 - b. On board maintenance provided by a person holding GMDSS maintainer's license will partially meet the requirement
 - c. Shore maintenance and scheduled tests and inspections will partially meet this requirement
 - d. All of the above**
7. What is the primary frequency range for long distance skywave communications?
 - a. 3-30 Mhz**
 - b. 300-3000 kHz
 - c. 0-300 Mhz
 - d. 10-30 Mhz
8. Which of the following systems is least likely to be subject to fading or static interference?
 - a. HF RT
 - b. Inmarsat**
 - c. MF-HF DSC Controller
 - d. VHF ARQ
9. Which statement best describes modulation
 - a. Imposing intelligence onto a radio carrier signal**
 - b. Changing mark-space to I and 0
 - c. Adjusting the frequency to the optimum band for long distance communications
 - d. Covering the carrier from a low frequency to a higher frequency
10. The carrier can be described by
 - a. The carrier consists of at least 3 separate but closely spaced frequencies
 - b. The carrier is Radio Frequency (RF) signal that is modified to carry intelligence**
 - c. The carrier is used to modulate the information signal
 - d. There are always sidebands on either side of the carrier

11. Which mode occupies the least bandwidth?
- H3E
 - J2B**
 - A3E
 - F3E
12. A quarter wave antenna vertical whip antenna has a radiation pattern best described by?
- A figure eight
 - Cardiod
 - A circle**
 - An ellipse
13. What publications should a GMDSS operator consult regarding proper set-up and operation of vessel equipment
- ITU publications
 - The manufacturer's instruction manuals**
 - IMO guidelines
 - WPC Regulations
14. What is the minimum requirement of GMDSS operator?
- Maritime Radio Operator Permit and GMDSS endorsement
 - General Radiotelephone Operator license and Radar endorsement
 - GMDSS Radio Operator license**
 - General Radiotelephone license or First or Second Class Radiotelegraph license with GMDSS Radio maintainer's endorsement
15. The best way to test the MF-HF NBDP system is?
- Make a radiotelephone call to Coast station
 - Initiate an ARQ call to demonstrate that the transmitter and antenna are working
 - Initiate FEC call to demonstrate that the transmitter and antenna are working
 - Initiate an ARQ call to a Coast station and wait for automatic exchange of answerbacks**
16. A vessel certified for service in Sea Area A2 is required to keep watch on?
- 2174.5 kHz
 - 2187.5 kHz**
 - 2182.0 kHz
 - 2738.0 kHz
17. How long must the log be retained on board before sending to the shore side licensee?
- At least on year after the last entry
 - At least two years after the last entry
 - At least 90 days after the last entry
 - At least 30 days after the last entry**
18. Which of the following statements concerning MMSI is true?
- All Coast Station MMSI must begin with 2 zeros
 - The first 3 digits of a ship MMSI comprise the MID
 - A group call must begin with a single zero followed by MID
 - All of the above**
19. Which of the following would indicate an Inmarsat-B terminal
- A 9 digit number being with the MID
 - A 7 digit number
 - A 9 digit number always starting with 3**
 - A 9 digit number always starting with 4
20. You receive a telex with the sender's ID of 433863491. What type of terminal sent this message to you vessel?
- Inmarsat C**
 - Land telex terminal
 - Inmarsat B

d. Inmarsat A

21. What is first sent by all MF-HF DSC transmission?
- Distress alert character
 - A string of dots to stop the scan receiver**
 - Priority of transmission character
 - Ship's position
22. DSC transmissions are received
- Using voice or telex modes as appropriate
 - Using J3E or H3E modes as appropriate
 - Using digital decoding by the DSC Controller**
 - Using F1B and/or J2B decoding by the transceiver
23. In all cases, the transmit frequency of a MF/HF console DSC distress alert
- Will go out first on 2187.5
 - Will go out on 8 Mhz and 2 Mhz and one other DSC distress frequency
 - It depends upon operator DSC call set up entries**
 - None of the above
24. Which of the following is not a DSC watch frequency?
- 2187.5 Khz
 - 6312 kHz
 - 2182 kHz**
 - 12577 kHz
25. Which of the following watches must a compulsory vessel maintain when sailing in Sea Area A1?
- A continuous DSC watch on 8414.5 Khz
 - A continuous DSC watch on 2187.5 Khz
 - A continuous DSC watch on Ch 16
 - A continuous DSC watch on Ch 70**
26. What is usually the first step for a GMDSS radio Operator to take when initiating a distress priority message via Inmarsat?
- By dialing the correct code on the telephone remote unit
 - By pressing a "Distress Button" or "Distress Hot Key(s)" on the equipment**
 - By contacting the CES operator and announcing a distress condition is in existence
 - By contacting the CES operator using the radiotelephone distress procedure "may" etc
27. If a GMDSS Radio Operator initiates a DSC distress transmission but does not inset a message what happens?
- The transmission is aborted and an alarm sounds to indicate this data must be provided by the operator
 - The transmission is not initiated and "ERROR" is indicated on the display readout
 - The transmission will be made with 'Default' information provided automatically**
 - The receiving station will poll the DSC unit of the vessel in distress to download the necessary information
28. You send a HF DSC alert on 8414.5 kHz. What frequency do you use for the voice transmission?
- 8376.5 kHz
 - 8291.0 kHz**
 - 8401.5 Khz
 - 8201.0 Khz
29. What does the acronym 'ECC' indicate in the received message?
- Every Cipher counted
 - Error Cannot Confirm
 - Error Check Character**
 - Even Characters Counted
30. Under what conditions would you relay a DSC Distress alert?
- If the mobile unit in distress is incapable of further Distress alert communications
 - If no Coast station/Mobile unit acknowledgement is observed
 - Answer a) and b) are both possible**
 - You should never relay such an alert – the Coast station & RCC will do that

PART – B

1. Your ship Jala Usha / ATBG MMSI 419230000 in position 0120N 09010E sailing off Andamans and received information on EGC that a ship has sunk and crew abandoned the ship 8nm SE of your position.
 - a) What initial action will you take.
 - b) Your Master instructs to inform all the ships within the vicinity of 40 NM.
2.
 - a) Write three methods of attracting the attention of a MRCC ashore to your distress situation making use of your Inmarsat-C terminal.
 - b) You are on GMDSS vessel MT Diamond Pearl. You have received a DSC Distress alert on 2187.5 Khz. The distress vessel and you are in sea area A2 within MF range of a CRS. State the action you will take.
3. You are on MV Brando / GBYT / MMSI 232523000 posn 10 09N 088 00E Course 015 degs Speed 12 kts. You have a fire on board and vessel is listing to starboard side. Write down the complete GMDSS procedure on MF band assuming any information as required.
4.
 - a) Write down the full details of Distress alert received on MF freq 2187.5 Khz assuming all information.
 - b) Under what circumstances will the following signals be used in Radio Telephony ?
 1. **Seelonce Mayday -**
 2. **Seelonce Feenee -**
 3. **Mayday Relay**
5. State the channel /frequency for subsequent RT communications in the following cases
 - a. Distress alert received on Ch 70
 - b. Urgency alert received on 2187.5 Khz
 - c. Safety alert received on ch 70
 - d. Distress alert relay on 2187.5 Khz
 - e. Distress alert received on 8414.5 Khz
 - f. Distress alert received on 16804.5 Khz

PART – B

1. Your ship Jala Usha / ATBG MMSI 419230000 in position 0120N 09010E sailing off Andamans and received information on EGC that a ship has sunk and crew abandoned the ship 8nm SE of your position.

- a) What initial action will you take.
- b) Your Master instructs to inform all the ships within the vicinity of 40 NM.

a) **Set watch on Ch16 and Ch06 and try to establish contact with survivors. (1)**

b) **Send DSC Distress relay alert to all station on VHF Ch70 and call and message on Ch16. (1)**

Call : (1)

Mayday Relay³

All Stations³ This is MV Jala Usha / ATBG / MMSI 419230000

Message : (3)

Mayday

Have received information on EGC that a unknown ship has sunk and crew abandoned the ship 8nm SE of my position. My position 0120N 09010E.

Self proceeding for assistance.

Require immediate assistance or further assistance from vessels in vicinity.

Master

MV Jala Usha / ATBG

2. a) Write three methods of attracting the attention of a MRCC ashore to your distress situation making use of your Inmarsat-C terminal. (3)

1. Undesignated Distress Alert

Undesignated Distress alert is sent by pressing ‘Distress’ and ‘Send’ buttons simultaneously on transceiver front panel for 5 seconds.

2. Designated Distress Alert

A Designated alert is sent, if time permits, by selecting the “Distress” Menu, updating the information (Selecting LES and Nature of Distress) and then pressing ‘Distress’ and ‘Send’ buttons simultaneously on transceiver front panel for 5 seconds.

3. Distress message

Prepare the Distress message.

On transmit menu :

1. Select the Distress priority for automatic connection to RCC/MRCC.

2. Select the LES

3. Select the Distress message

4. Send the message

b) You are on GMDSS vessel MT Diamond Pearl. You have received a DSC Distress alert on 2187.5 Khz. The distress vessel and you are in sea area A2 within MF range of a CRS. State the action you will take. (3)

1. **Log info and inform the Master**
2. **Set watch on 2182 Khz**
3. **Wait for a short while for a CRS to acknowledge first (max 3 mins)**
4. **Acknowledge by voice procedure**
5. **If no contact with vessel in distress and no acknowledgement by CRS/MRCC by voice or by DSC, relay alert ashore by most appropriate means.**

3. You are on MV Brando / GBYT / MMSI 232523000 posn 10 09N 088 00E Course 015 degs Speed 12 kts. You have a fire on board and vessel is listing to starboard side. Write down the complete GMDSS procedure on MF band assuming any information as required.

a) **Send a DSC Distress alert on 2187.5 Khz, broadcast call and message on 2182 Khz.** (1)

b) **Call :** (2)

Mayday³ This is MV Brando / GBYT³ / MMSI 232523000

Message : (3)

**Mayday
MV Brando / GBYT / MMSI 232523000
Position 1009N 08800E
Fire on board and vsl listing to starboard side
Require immediate assistance
23 persons on board.
Master
over**

4. a) Write down the full details of Distress alert received on MF frequency 2187.5 Khz assuming all information. (2)

**232523000
1009N 08800E
Sinking
1205UTC
Telephony**

b) Under what circumstances will the following signals be used in Radio Telephony ?

1. **Seelonce Mayday - Signal is used by the ship in distress or controlling station to impose silence on interfering station.** (1)

2. **Seelonce Feenee** - The signal is used by the controlling station or ship in distress by voice to indicate that distress working is over and normal working may be resumed. **(1)**
3. **Mayday Relay.**
 - a. **When the station in distress is not itself in a position to transmit a distress alert or message**
 - b. **When the master or other person or other person responsible for the station not in distress considers that further help is necessary.**
 - c. **When although not in a position to render assistance, it has received a distress message which has not been acknowledged. (2)**

5. State the channel /frequency for subsequent RT communications in the flwg cases **(6)**

- a. Distress alert received on Ch 70 – **Ch 16**
- b. Urgency alert received on 2187.5 Khz – **2182 Khz.**
- c. Safety alert received on ch 70 – **Ch 06**
- d. Distress alert relay on 2187.5 Khz – **2182 Khz**
- e. Distress alert received on 8414.5 Khz – **8291 Khz**
- f. Distress alert received on 16804.5 Khz – **16420 Khz**

GOC SET – 8 (FRIDAY 2ND WEEK)

Section A

- 1) Shipboard transmitters using F3E emission (FM voice) may not exceed what carrier
a) 500 watts b) **25 watts** 3) 100 watts 4) 5 watts
- 2) Small passenger vessels that sail 20 to 150 nautical miles from the nearest land must have what additional equip ?
a) Inmarsat-B terminal c) Transceiver with 121.5 MHZ
b) Inmarsat-C terminal d) **MF-HF SSB Transceiver**
- 3) Who is required to make entries in a required service or maintenance log ?
a) The licensed Operator or a person whom he or she designates.
b) **The operator responsible for the station operation or maintenance**
c) Any commercial radio operator holding at least a Restricted Radiotelephone Operator Permit
d) The technician who actually makes the adjustments to the equipment.
- 4) The primary purpose of bridge-to-bridge communication is:
a) Search and Rescue emergency calls only
b) All short-range transmission aboard ship
c) **Navigational communications**
d) Transmission of Captain's orders from the bridge
- 5) What is distress traffic ?
a) **RI messages relative to the immediate assistance required by a ship, aircraft or other vehicle threatened by grave and imminent danger, such as life and safety of persons on board, or man overboard**
b) In radiotelephony, the speaking of the word "Mayday"
c) Health and welfare messages concerning property and the safety of a vessel
d) Internationally recognized communications relating to important situations
- 6) The primary purpose of GMDSS is?
a) Allow more effective control of SAR situations by vessels
b) Provide additional shipboard systems for more effective company communications
c) **Automate and improve emergency communications for the world's shipping industry**
d) Effective and inexpensive communications
- 7) Why must all VHF Distress, Urgency and Safety communications (as well as VTS traffic calls) be performed in Simplex operating mode?
a) To minimize interference from vessels engaged in routine communications
b) **To ensure that vessels not directly participating in the communication can hear both sides of the radio exchange**
c) To enable RCC or Coast station to only hear communications from the vessel in distress
d) To allow an RCC or Coast Station to determine which transmissions are from other vessels and which transmissions are from the vessel actually in distress.
- 8) Which VHF channel is used only for digital selective calling ?
a) **Channel 70** b. Channel 16 c. Channel 22A d. Channel 6
- 9) Which modes could be selected to receive vessel traffic lists from high seas shore stations?
a) AM and VHF-FM
b) ARQ and FEC
c) VHF-FM and SSB
d) **SSB and FEC**

- 10) What is the proper procedure for testing a radiotelephone installation?
- a) **A dummy antenna must be used to ensure the test will not interfere with ongoing communications**
 - b) Transmit the station's call sign, followed by the word "test" on the frequency being used for the test
 - c) Permission for the voice test must be requested and received from the nearest public coast station
 - d) Short tests must be confined to a single frequency and must never be conducted in port

- 11) When may you test a radiotelephone transmitter on the air?
- Between midnight and 6:00 AM local time
 - Only when authorized by the commission
 - At any time (except during silence periods) as necessary to assure proper operation**
 - After reducing transmitter power to 1 watt
- 12) What is the purpose of the antenna tuner ?
- It alters the electrical characteristics of the antenna to match the frequency in use**
 - It physically alters the length of the antenna to match the frequency in use
 - It makes the antenna look like a half –wave antenna at the frequency in use
 - None of the above
- 13) What advantages does a vertical whip have over a long wire ?
- It radiates more signal fore and aft
 - It radiates equally well in all directions**
 - It radiates a strong signal vertically
 - None of the above
- 14) How do you cancel a false EPIRB distress alert ?
- Transmit a DSC distress alert cancellation
 - Transmit a broadcast message to “all stations” cancelling the distress message
 - Notify the Coast Station or rescue coordination center at once**
 - Make a radiotelephony “distress cancellation” transmission on 2182 KHZ
- 15) At what point does a SART begin transmitting?
- I immediately begins radiating when placed in the on position
 - It must be manually activated
 - If it has been placed in the “on” position, it will respond when it has been interrogated by a 9GHZ Radar signal**
 - If it has been placed in the “on” position, it will begin transmitting immediately upon detecting that it is in water
- 16) With what other stations may portable survival craft transceivers communicate?
- Communication is permitted between survival craft
 - Communications is permitted between survival craft and ship
 - Communications is permitted between survival craft and rescue unit
 - All of the above**
- 17) When do NAVTEX broadcasts typically achieve maximum transmitting range?
- Local noon time
 - Middle of the night**
 - Sunset
 - Post sunrise
- 18) Which statement best describes amplitude modulation?
- The character data from the terminal is changed to audio tones
 - The frequency is varied in synchronization with the modulating signal
 - The information signal changes the amplitude but does not change the carrier frequency**
 - The amplitude of the carrier is changed but there is still only a signal frequency being transmitted
- 19) How many sidebands are present in the J3E mode?
- Two sidebands and a carrier
 - One upper sideband**

- c) One lower sideband
d) Two carriers and one sideband
- 20) The best way to test the Inmarsat-C terminal is?
a) Send message to a shore terminal and wait for confirmation
b) Send a brief message to your own Inmarsat-C terminal
c) Send a message to another ship terminal
d) If the send light flashes, proper operation has been confirmed
- 21) What does the MID (Maritime Identification Digits) signify ?
a) Port of Registry
b) Nationality
c) Gross tonnage
d) Passenger vessel
- 22) Which of the following numbers indicate a ship station MMSA ?
a) 003372694
b) 623944326
c) 030356328
d) 3384672
- 23) Which of the following would indicate an Inmarsat-B terminal ?
a) 150036 **b.366632824** c.430363275 d.1502460
- 24) When sending a DSC call:
a) Vessels position will automatically be sent
b) Vessels position will automatically be sent if the vessel is sending a “Distress Hot Key” alert
c) Vessel’s MMSI will indicate its ocean region
d) None of these
- 25) DSC transmission are received
a) Using voice or telex modes as appropriate
b) Using J3E or H3E modes as appropriate
c) Using digital decoding by the DSC controller
d) Using F1B and/or J2B decoding by the transceiver
- 26) What does the DSC Control unit do if the GMDSS Radio Operator fails to insert updated information when initiating a DSC distress alert?
a) It will abort the transmission and set off an audible alarm that must be manually reset
b) It will initiate the DSC distress alert but as no information will be transmitted, rescue personnel will not be able to notify the vessel, its position, or its position
c) It will initiate the DSC distress alert, and default information will be automatically be transmitted
d) It will initiate the DSC distress alert, but any station receiving it will have to establish contact with the distressed vessel to determine its identity, position and situation
- 27) How many total frequencies are available for DSC Distress alerting ?
a) ONE b. TWO c.FIVE **d.SEVEN**
- 28) What information should be included in a distress follow on voice transmission?
a) Follow on working frequency
b) ETA at next Port
c) None of the above
d) Both of the above

- 29) What does the acronym “EOS” indicate in the received message?
- a) Error of sequence
 - b) End of sequence**
 - c) End of signals
 - d) Equal Operating Signals
- 30) Under what conditions would you relay a DSC distress alert?
- a) If the mobile unit in distress is incapable of further Distress Alert communications
 - b) If no Coast Station / Mobile Unit acknowledgement is observed
 - c) Answers a) and b) are both possible**
 - d) You should never relay such an alert – the Coast Station and RCC will do that

PART – B

1. a. Your ship is in AOR-E. LES selected is Southbury. Ask for Medical Advice using Goonhilly LES utilizing service of Fleet 77.
 - i) State the initial action?
 - ii) State the follow-up message.
- b. What steps you will take in Fleet 77, to receive Medical Advice, in case you are occupied with Routine communication.
2. You are on MV Maha Sagar/VWYQ IMN 312336482. Your position is 30 28N 053 52W. The vessel is listing heavily to port. A heavy swell is being experienced and your Inmarsat B is fully operational in IOR with default CES as station 12.
 - a) State the procedure you would use to contact MRCC using Inmarsat B Telex.
 - b) When the link is established, what is the message you will send (Assume all details).
3. Your ship Jala Gopal /ATWX is in position 1108N 08100E about 800 miles from coast. You have observed blips on your radar. Also you have seen a life raft 8 nm ENE of your position.
 - a. What will be your initial action?
 - b. What will be your follow up action?
4. a. What is the purpose of an EPIRB?
 - b. What does the EPIRB signal indicate?
 - c. On what frequencies do the following operate?
 - 1. COSPAS / SARTSAT EPIRB**
 - 2. VHF EPIRB**
 - d. State the purpose of SART ? (1)
5. What signal will precede the following:
 - a) Vessel Overdue
 - b) Vessel grounded and in danger of breaking up
 - c) Floating oil drums sighted
 - d) Life buoy/Life raft sighted
 - e) When a CRS is to transmit a storm warning
 - f) Repositioning of an Oil Rig

PART – B

1. a. Your ship is in AOR-E. LES selected is Southbury. Ask for Medical Advice using Goonhilly LES utilizing service of Fleet 77.
 - i) State the initial action ? **(3)**
 1. **Select the Telephone mode.**
 2. **Prepare the medical advice message.**
 3. **Feed special service code 32.**
 4. **Select urgency priority.**
 5. **Select Goonhilly Les**
 6. **Press # key and and wait for response from concerned authorities and pass the message.**
 - ii) State the follow-up message. **(2)**

PanPan
Ganga Sagar/VVGR/Fleet 77 No. 765431250
One crew suffering from high fever, Temp 102
Require medical advice.
Master
Over
- b. What steps you will take in Fleet 77, to receive Medical Advice, in case you are occupied with Routine communication. **(1)**

I need not take any action. The shore will use Pre-emption to contact the ship.
2. You are on MV Maha Sagar/VWYQ IMN 312336482. Your position is 30 28N 053 52W. The vessel is listing heavily to port. A heavy swell is being experienced and your Inmarsat B is fully operational in IOR with default CES as station 12.
 - a) State the procedure you would use to contact MRCC using Inmarsat B Telex. **(3)**
 1. **Select Telex mode**
 2. **Select Distress menu**
 3. **After MRCC comes on line, send Distress message stored in the Distress Message Generator.**
 4. **After DMG message is complete, send the edited distress message.**
 - b) When the link is established, what is the message you will send (Assume all details). **(3)**

Mayday
MV Maha Sagar/VWYQ/ MMSI 419356000
Position 30.28N 053.52W
Vessel listing heavily to port
Require immediate assistance
A heavy swell is being experienced
Master
NNNN
3. Your ship Jala Gopal /ATWX is in position 1108N 08100E about 800 miles from coast. You have observed blips on your radar. Also you have seen a life raft 8 nm ENE of your position.
 - a. What will be your initial action ? **(1)**

Set watch on ch 16 and 06 and try to establish contact with survivors.
 - b. What will be your follow up action ?
 - i. Send DSC Distress relay alert to nearest CRS on 8414.5 Khz and call and message on 8291 Khz. **(1)**

On 8291 Khz
Call : (1)
Mayday Relay³ CRS³ this is MV Jala Gopal3/ATWX/MMSI 419236000
Message : (1)

Mayday

Have observed 12 blips on the radar and also have seen a life raft 8 NM ENE of my position. My position 11 08N 081 00E.

Self proceeding for assistance.

Require immediate assistance.

Master

MV Jala Gopal /ATWX

Over

- ii. **Send DSC Distress Relay alert to all stations on 2187.5 Khz and call and message 2182 Khz. (1)**

On 2182 Khz

Call : (1)

Mayday Relay³ All Stations³ this is MV Jala Gopal3/ATWX/MMSI 419236000

Message : Same as above

4. a. What is the purpose of an EPIRB. **(2)**
1. **Secondary means of Ship to shore Distress alerting.**
 2. **To determine the position of the survivors/distress vessel during SAR operations.**
- b. What does the EPIRB signal indicate ? **(1)**
- It indicates that one or more persons are in distress, may no longer be on-board a ship and that receiving facilities may not be available.**
- c. On what frequencies do the following operate ? **(2)**
1. **COSPAS / SARTSAT EPIRB**
406 Mhz – Uplink frequency from EPIRB to Satellite
121.5 Mhz – Homing frequency transmitted by EPIRB.
 2. **VHF EPIRB – 156.525 Mhz / Ch 70**
- d. State the purpose of SART ? **(1)**
- Main means for locating or homing the position of a mobile unit or persons in distress.**
5. What signal will precede the following : **(6)**
- a) Vessel Overdue – **Pan Pan**
 - b) Vessel grounded and in danger of breaking up – **Mayday**
 - c) Floating oil drums sighted – **Securite**
 - d) Life buoy/Life raft sighted – **Mayday Relay**
 - e) When a CRS is to transmit a storm warning – **Securite**
 - f) Repositioning of an Oil Rig - **Securite**