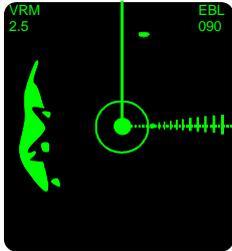# Radar questions

Part A Operating questions

1.   The figure below is an example of:

a)   a ramark
b)   multiple echo
c)   a SART

2.   The purpose of the T/R cell is to:
a)   radiate the radar pulses to the target
b)   protect the receiver during transmission
c)   shape the beam in the vertical plane

3.   The purpose of the gain control is to adjust:
a)   the amplification of target echoes
b)   the brightness of the display picture
c)   the sharpness of the display picture

4.   The tuning control adjusts:
a)   the frequency of the receiver
b)   the brightness of the picture
c)   the power output

5.   When ducting occurs the radar beam:
a)   bent upwards to penetrate cooler air
b)   carried long distances between air layers
c)   bent downwards and reflected off the sea

6.   Indirect echoes are caused by reflections from:
a)   large close targets
b)   obstructions close to the scanner
c)   targets on the beam

7.   Minimum range depends mainly on:
a)   scanner height
b)   vertical beamwidth
c)   pulse length

8.   A vessel equipped with both a 10 cm and a 3 cm radar. One would expect the 3 cm radar to provide better:
a)   range discrimination
b)   range
c)   attenuation

9.   The theoretical detection range of an object 81 metres high, from a ship with an aerial 16 metres above sea would be:

a)   29 miles
b)   27 miles
c)   21 miles

10.   A small GRP vessel is considered a poor radar target mainly because:
a)   GRP is transparent to radar energy
b)   GRP absorbs radar energy
c)   GRP reflects all the radar energy

11.   Range discrimination between two targets at about 8 miles on the display can be
improved by:
a)   reducing gain
b)   reducing pulse length
c)   reducing tuning

12.   If an echo appears in a shadow sector you could check if it was a real echo by:
a)   reducing gain
b)   reducing brilliance
c)   altering course

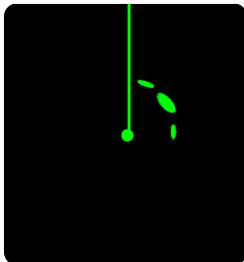13.   Increasing the sea clutter control:
a)   reduces echo strength from waves
b)   reduces amplification of close echoes
c)   blanks out the inner screen

14.   A rasterscan radar differs from a analogue radar in that:
a)   the screen is rectangular
b)   the screen is round
c)   the screen is coloured

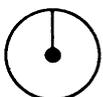15.   The figure below could be an example of:

a)   a multiple echo
b)   side echoes
c)   mutual interference

16.   The figure below is that used by the IMO to indicate:

a)   pulse length
b)   short pulse
c)   long pulse

17.   The figure below is that used by the IMO to indicate:

a)   true motion
b)   north-up
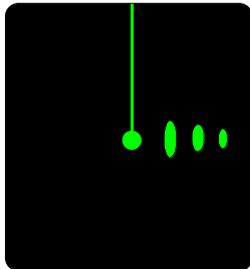
c)   ships head up

18.   The figure below is that used by the IMO to indicate:

a)   radar on
b)   scale illumination
c)   brilliance

19.   The figure below could be an example of:

a)   a multiple echo
b)   side echoes
c) mutual interference

20.   The figure below is that used by the IMO to indicate:

a)   VRM
b)   pulse length
c)   range

21.   The figure below is that used by the IMO to indicate:

a)   VRM
b)   range
c)   transmitting

22.   A higher screen resolution would mean that the display would be:
a)   bigger
b)   sharper and clearer
c)   better focused

23.   LCD means;
a)   locally centred display
b)   local centralised display
c)   liquid crystal display

24.   A analogue radar differs from a rasterscan radar in that:
a)   the display must be viewed through a hood in daylight
b)   the display is coloured
c)   the display is green and black

25.   Altering the range scale may automatically change the:
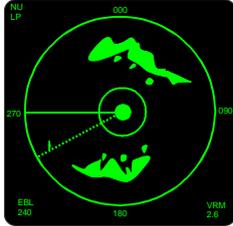a)   transmitted frequency
b)   pulse length

c)   amplification of echoes

26.   Radar uses pulse transmission in order to:
a)   conserve energy
b)   detect close targets
c)   avoid interference

27.   The figure below represents the radar display of a vessel steering 270□. What type of display is it?

a)   north-up
b)   ship's head-up
c)   true motion

28.   You have a radar target at a range of 7 miles on your starboard bow, when you hear a fog signal apparently forward of your beam. You must:
a)   alter course to starboard immediately
b)   alter course to starboard and reduce speed to steerage speed immediately
c)   slow to mere steerage way

29.   You are in restricted visibility and have plotted a target on your starboard quarter and determined that the overtaking vessel will pass at a CPA of 0.2 miles on your port side. You must:
a)   alter course to starboard to increase the CPA
b)   stop immediately
c)   alter course to port increase the CPA

30.   You are in restricted visibility and have plotted a target on your port bow and determined that the approaching vessel is on a collision course. You must:
a)   allow the approaching give way vessel time to alter course
b)   alter course to port or reduce speed or stop
c)   alter course to starboard or reduce speed or stop

31.   You would expect rain to have a greater affect on a 3 cm radar than on a 10 cm radar:
a)   no
b)   yes
c)   no difference

32.   Your radar has a beam width of 4°, you measure the relative bearing of a large headland fine on the starboard bow to be 123□ T. What is the corrected bearing:
a)   123°
b)   125°
c)   121°

33.   Range discrimination is the ability of the radar to distinguish between two targets:
a)   on the same range but slightly different bearings
b)   on the same bearing but slightly different ranges
c)   on slightly different ranges and bearings

34. Bearing discrimination is the ability of the radar to distinguish between two targets:
a) on the same range but slightly different bearings
b) on the same bearing but slightly different ranges
c) on slightly different ranges and bearings

35. Beam width distortion occurs because:
a) radar waves are reflected
b) the radar beam is wide vertically
c) the radar beam is a finite width

36. Side echoes are caused by:
a) echoes from the side of waves
b) echoes from the side lobes of the radar
c) echoes from the sides of close vessels

37. The strength or power of a radio wave is known as it's:
a) cycle
b) amplitude
c) wavelength

38. A 10 cm radar transmits in the:
a) x band
b) q band
c) s band

39. Beam width distortion can be improved by:
a) reducing the brilliance
b) reducing the gain
c) reducing the tuning

40. The figure below is an example of:

a) a SART
b) radar spooling
c) mutual interference

1.   Own vessel is in open waters on a course of 240° T, speed 8 knots in restricted visibility. Two vessels are observed as follows:

Target A
0303: bearing 200°, distance 5.8 miles
0307: bearing 200 ½ °, distance 5.2 miles
0311: bearing 201°, distance 4.6 miles

Target B
0300: bearing 168°, distance 5.4 miles
0305: bearing 169°, distance 5.1 miles
0310: bearing 170°, distance 4.9 miles

a)   Find the CPA, TCPA, course, speed and aspect of other vessels.
b)   State what action if any you are going to take.

Answers

Part A

1. c
2. b
3. a
4. a
5. b
6. b
7. c
8. a
9. a
10. a
11. b
12. c
13. b
14. a
15. b
16. b
17. c
18. b
19. a
20. c
21. a
22. b
23. c
24. a
25. b
26. b
27. a
28. c
29. c
30. c
31. b
32. b

33. b
34. a
35. c
36. b
37. b
38. c
39. b
40. c

Answers

Part D Plotting:

Target A:

CPA 0.45 nm
TCPA 0344
Course 309☐
Speed 6.5 knots
Aspect Green 72☐

Target B:

CPA 1.9 miles
TCPA 0440
Course 293☐
Speed 7.5 knots
Aspect Green 88☐

Action:

Reduce speed to 4 knots to let both vessels pass ahead.

More radar questions

1. The formula for echo-ranging principle is:
a) $t = (d \times s) / 2$
b) $d = (t \times s) / 2$ ✓
c) $s = d \times s$

2. The heading marker off switch is used to:
a)   distinguish the heading marker from the bearing cursor
b)   search for weak targets dead ahead ✓
c)   align the heading marker to north

3. The energy used by radar to detect targets is in the form of a:
a)   heat wave
b)   radio wave ✓
c)   light wave

4. A complete oscillation of a radio wave is called:
a)   the amplitude
b)   the cycle ✓
c)   the wave

5. A rasterscan radar differs from a analogue radar in that:
a)   the screen is rectangular ✓
b)   the screen is round
c)   the screen is coloured

6. A higher screen resolution would mean that the display would be:
a)   bigger
b)   sharper and clearer ✓
c)   better focused

7. LCD means:
a)   locally centred display
b)   local centralised display
c)   liquid crystal display ✓

8. The main advantage of a radome over a conventional scanner is:
a)   ease of installation
b)   will not foul rigging ✓
c)   more compact

9. To assist in detecting targets in a area of rain, you should:
a)   turn up the gain
b)   turn down the sea clutter
c)   turn up the rain clutter ✓

10. A pixel is a:
a)   a garden gnome
b)   a measure of speed
c)   a tiny dot on a screen ✓

11. A analogue radar differs from a rasterscan radar in that:
a)   the display must be viewed through a hood in daylight ✓
b)   the display is coloured
c)   the display is green and black

12.   The function of the waveguide is to:
a)   shape the beam in the vertical plane
b)   generate the RF pulses
c)   conduct pulses to and from the scanner✓

13.   Horizontal beamwidth depends mainly on:
a)   waveguide cross-section
b)   transmitted power
c) scanner width✓

14.   What is the minimum range of a radar with a pulse length of 0.6 μs in nautical miles and metres?
a)   0.0789 nm,120 metres
b)   0.0485 nm, 90 metres✓
c)   0.0546 nm, 86 metres

15.   With a wavelength of 10 cm at a constant speed of 300 m/μs what is the frequency?
a)   3000 MHz
b)   30000 MHz✓
c)   300 MHz

16.   Marine radars most often operate in the:
a)   q band
b)   x band✓
c)   v band

17.   Altering the range scale may automatically change the:
a)   transmitted frequency
b)   pulse length✓
c)   amplification of echoes

18.   Radar uses pulse transmission in order to:
a)   conserve energy
b)   detect close targets✓
c)   avoid interference

19.   Electromagnetic energy, reflected by waves and appearing on the display is called:
a)   wave return
b)   sea return
c)   sea clutter✓

20.   An atmospheric condition favouring sub-refraction is:
a)   an increase of temperature with height
b)   a cold air overlies a warm sea surface✓
c)   no change in temperature with height

21.   Super-refraction is likely to cause:
a)   inaccuracies in detection ranges
b)   decreased target detection ranges
c)   increased target detection ranges✓

22.   Attenuation is cause by:
a)   reflective surfaces
b)   dense materials
c)   water vapour✓

23.   A smooth textured target placed in the path of a radar beam will produce the strongest echo when its shape is:
a)   cylindrical

b)   plane at 90° to the beam✓
c)   spherical

24.   Which of the following is the poorest radar reflector:
a)   wood
b)   GPR✓
c)   metal

25.   A target with a rough surface is likely to:
a)   give only a weak signal
b)   appear very smooth to a 3 cm radar
c)   give a fair echo at any aspect✓

26.   A small ship dead ahead visually, bears 355° rel on the radar display:
a)   the heading marker represents Red 5°✓
b)   the heading marker represents Green 5°
c)   the gyro is reading 3° low
27.   A target on a collision course will change its relative radar bearing:
a)   parallax error exists
b)   radar aerial is off centre
c)   own vessel is yawing on ship's head up display✓

28.   The anti-sea clutter control should be :
a)   set to a position in the middle of its range
b)   adjusted carefully and continuously while searching the areas
close to the centre of the screen✓
c)   set to zero in heavy rain

29.   The true range of a racon beacon compared to the racon paint is:
a)   shorter
b)   longer✓
c)   equal to the closest point of the paint

30.   A "SART" is a:
a)   emergency radar
b)   special auxiliary radar transponder
c)   search and rescue transponder✓

31.   The main difference between a analogue radar and a rasterscan radar is:
a)   the transmitter
b)   the display✓
c)   the aerial

32.   The most common type of scanner is:
a)   titled parabolic waveguide
b)   horizontal slotted waveguide✓
c)   rounded parabolic

33.   The transmitted PRF is determined by the action of:
a)   magnetron
b)   trigger unit✓
c)   modulator

34.   The transmitted pulse length is determined by the action of:
a)   magnetron
b)   trigger unit
c)   modulator✓

35. Which of the following would give the poorest echo:
a)   a wooden yacht
b)   a ferro-cement yacht
c)   a fibreglass yacht✓

36. A target to starboard 7° visually and dead ahead on the radar, is incorrectly positioned because:
a)   parallax error
b)   radar aerial not on centreline
c)   heading marker misaligned✓

37. The true range of a racon beacon compared to the racon paint is:
a)   in front of the paint✓
b)   equal the nearest edge of the paint
c)   equal to the furthest edge of the paint

38. Super-refraction is normally caused by:
a)   disturbances in the upper atmosphere
b)   cool air layer over a warm sea surface
c)   warm air layer over a cooler sea surface✓

39. Before switching on the radar you must:
a)   Check that the heading marker is properly aligned
b)   Check that the scanner is free to rotate✓
c)   Turn up the brilliance and gain
40. The vertical beam must be wide to allow for:
a)   to detect small targets
b)   reduce the effect of sea clutter
c)   heavy rolling and pitching✓

41. A target gives the best echo when its aspect is:
a)   60°
b)   90°✓
c)   45°

42. Bearing accuracy depends mainly on:
a)   scanner rotation speed
b)   pulse length
c)   horizontal beam width✓

43. A characteristic of a racon beacon is that it:
a)   transmits continuously
b)   receives a pulse and then transmits its own pulse✓
c)   receives a pulse and then re-transmits the pulse

44. The gain control adjusts the:
a)   brightness of the display
b)   transmitter frequency
c) receiver sensitivity✓

45. The tuning control:
a)   tunes the transmitter to the magnetron output
b)   tunes the frequency of the transmitter
c)   tunes the receiver to the frequency of the transmitter✓

46. The sea clutter control works by:
a)   reducing the power of the transmitter
b)   reducing receiver gain in close to own ship✓

c)   reducing receiver power

47.   Changing the range will affect the radars:
a)   transmitted frequency and power output
b)   pulse length and PRF✓
c)   receiver frequency and power output

48.   A guide to the correct setting of the sea clutter is:
a)   a heavy speckled area around the centre of the display
b)   a dark area around the centre of the display
c)   sea clutter a small echoes are observed✓

49.   Own ship alters to starboard. On a north-up stabilised display:
a)   the heading marker turns clockwise✓
b)   echoes turn clockwise on the face of the display
c)   echoes turn anti-clockwise on the face of the display

50.   A correctly adjusted true motion display operating in sea stabilised mode indicates, with reference to the target:
a)   the motion relative to own ship
b)   the motion relative to the sea✓
c)   the motion relative to the ground

51.   Targets beyond a rain storm can sometimes be detected by:
a)   applying rain clutter✓
b)   applying sea clutter
c)   reducing the gain

52.   Manual tuning should be checked:
a)   on changing pulse length
b)   on changing range
c)   after a period on stand-by✓

53.   Which of the following is the best method to use when tuning the radar set:
a)   quality of the radar picture✓
b)   extent of sea clutter
c)   maximum number of tuning lights

54.   The figure below is that used by the IMO to indicate:

a)   aerial rotating✓
b)   transmit
c)   aerial not rotating

55.   The figure below is that used by the IMO to indicate:

a)   tuning
b)   gain✓
c)   brilliance

56.   The figure below is that used by the IMO to indicate:

a) radar off
b) receiving
c) radar on✓

57.   The figure below is that used by the IMO to indicate:

a)   range
b)   VRM
c)   bearing marker✓

58.   You are in a vessel steering 135☐T. Your radar is in ship's head-up unstabilised mode. To what point on the screen should the heading marker be aligned to?
a)   135☐
b)   000☐✓
c)   180☐

59.   The figure below is that used by the IMO to indicate:

a)   rain clutter maximum
b)   sea clutter maximum✓
c)   rain clutter minimum

60.   The figure below is that used by the IMO to indicate:

a)   scale illumination
b)   brilliance
c)   stand-by✓

61.   The figure below is that used by the IMO to indicate:

a)   gain
b)   brilliance
c)   tuning✓

62.   The figure below is that used by the IMO to indicate:

a)   VRM
b)   pulse length
c)   range✓

63.   The figure below is that used by the IMO to indicate:

a)   VRM✓
b)   range
c)   transmitting

64.   The figure below is that used by the IMO to indicate:

a)   pulse length
b)   short pulse✓
c)   long pulse

65.   The figure below is that used by the IMO to indicate:

a)   true motion
b)   north-up
c)   ships head up✓

66.   The figure below is that used by the IMO to indicate:

a)   radar on
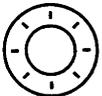b)   scale illumination✓
c)   brilliance

67.   If the radar display is placed closer to the compass than the compass safe distance, it will cause:
a)   relative bearing errors
b)   compass error✓
c)   false echoes to appear

68.   The figure below is that used by the IMO to indicate:

a)   display brilliance✓
b)   radar on
c) gain

69.   The radar aerial should be placed to minimise:
a)   side echoes
b)   indirect echoes✓
c)   multiple echoes

70.   The best method to determine the extent of a shadow sector is to:
a)   take sextant bearings
b)   measure the dark area in the sea clutter
c)   observe a small target while altering course✓

71.   Multiple echoes can be removed by:
a)   reducing gain✓
b)   retuning
c)   selecting short pulse

72.   Second trace echoes appear on the display:
a)   at a false range on true target bearing✓
b)   at a false bearing at the correct range
c)   at a false bearing and range

73.   Side echoes are caused by reflections from:

a)   the side of own vessel
b)   the side lobes of the radar beam✓
c)   obstructions in the path of the scanner

74.   Interference patterns displayed on the display can be reduced by:
a)   adjusting the gain
b)   selecting the IR control✓
c)   applying FTC

75.   An indirect echo on the display can be removed by:
a)   reducing sea clutter
b)   increasing gain
c) alteration of own ship's course✓

76.   Under conditions of severe super-refraction or ducting, false echoes from targets at long range are called:
a)   multiple echoes
b)   indirect echoes
c)   second trace echoes✓

77.   You are approaching Mourilyan harbour from the east. The entrance of the harbour is 70 metres or 0.07 nm wide, your radar has a beamwidth of 1.2°. At what range would you expect to see the entrance on radar?
a)   3.34 nm✓
b)   3.43 nm
c)   4.43 nm

78.   Beam width distortion occurs because:
a)   the radar beam is a finite width✓
b)   reflection of the radar beam
c)   refraction of the radar beam

79.   Beam width distortion can be improved by:
a)   retuning
b)   reducing the gain✓
c)   reducing the pulse length

80.   If your vessel suffers from shadow sectors you should:
a)   consult the operators manual
b)   determine and record their limits✓
c)   warn approaching vessels in fog

81.   When side echoes are displayed the true target will appear:
a)   at the centre of the pattern✓
b)   further than the false echoes
c)   closer than the false echoes

82.   Second trace echoes are most likely to appear when:
a)   super-refraction conditions are present✓
b)   a second radar is operating
c)   another large vessel is nearby

83.   Echoes caused by side lobes can be reduced by:
a)   decreasing brilliance
b)   increasing brilliance
c)   decreasing gain✓

84.   Multiple echoes on the display can be reduced by:

a)   adjusting the tune
b)   decreasing gain✓
c)   decreasing brilliance on raster scan radars

85.   If an echo appears in a shadow sector on the display, you could check to see if it is a real echo by:
a)   plotting
b)   changing the range scale
c)   altering course✓

86.   Attenuation of the radar energy:
a)   causes echoes to appear on the screen
b)   reduces the strength of the radar energy✓
c)   causes clutter return on the screen
87.   You are steering 180□T when a target on your starboard bow is bearing 050□ rel. What is the true bearing of the target?
a)   130□T
b)   230□T✓
c)   000□T

88.   An echo that appears in a blind sector is a:
a)   a second trace echo
b)   an indirect echo✓
c)   a multiple echo

89.   What would be the theoretical detection range of an object 36 metres high, from a ship with an aerial height of 9 metres?
a)   14.7 miles
b)   14 8 miles
c)   19.9 miles✓

90.   Considering the basic shape of objects, the strongest echo is likely to be received from:
a)   a cone
b)   a cylinder✓
c)   a sphere

91.   What would be the theoretical detection range of an object 1000 metres high, from a ship with an aerial height of 4 metres?
a)   89.5 miles
b)   74.3 miles✓
c)   79.4 miles

92.   What would be the theoretical detection range of an object 250 metres high, from a ship with an aerial height of 9 metres?
a)   43.5 miles
b)   41.5 miles✓
c)   47.5 miles

93.   The strongest echo is likely to be received from a:
a)   a mangrove swamp
b)   a vertical cliff face✓
c)   a ironwood forest

94.   The formula for the distance to the radar horizon in metres, is:
a) $1.92\sqrt{h}$
b) $2.09\sqrt{h}$
c) $2.21\sqrt{h}$✓

95. Bearing discrimination can be improved somewhat by:
a) selecting short pulse
b) selecting long pulse
c) reducing the gain✓

96. Range discrimination can be improved by:
a) selecting short pulse✓
b) selecting long pulse
c) reducing the gain

97. The theoretical detection range of an object is 81 metres high, from a ship with an aerial height of 9 metres is:
a) 26.5 miles✓
b) 20.9 miles
c) 22.9 miles

98. When taking ranges with the VRM:
a) the outer edge of the marker should touch the inner edge of the target
b) the outer edge of the marker should touch the outer edge of the target✓
c) the inner edge of the marker should touch inner edge of the target

99. Radar ranges are generally preferred to radar bearings for fixing because:
a) they are more accurate✓
b) they are quicker to take
c) they are easier to take

100. Range discrimination is the ability to display separately two targets:
a) at the same range on slightly different bearings
b) on slightly different ranges and bearings
c) on the same bearing a slightly different ranges✓

101. Range discrimination depends mainly on:
a) pulse length✓
b) scanner height
c) horizontal beam width

102. Bearing discrimination is the ability to display separately:
a) two targets at the same range but on slightly different bearings✓
b) two targets on the same bearing at slightly different ranges
c) two targets on the same bearing at the same range

103. The theoretical detection range of an object 49 metres high, from a ship with an aerial height of 16 metres is:
a) 24 miles✓
b) 16 miles
c) 28 miles

104. The most accurate radar fix is obtained from:
a) three radar ranges✓
b) three radar bearings
c) a combination of ranges and bearings

105. The purpose of the T/R cell is to:
a) radiate the radar pulses to the target
b) protect the receiver during transmission✓

c)   shape the beam in the vertical plane

106.   The purpose of the gain control is to adjust:
a)   the amplification of target echoes✓
b)   the brightness of the display picture
c)   the sharpness of the display picture

107.   The tuning control adjusts:
a)   the frequency of the receiver✓
b)   the brightness of the picture
c)   the power output

108.   The main component of the transmitter is:
a)   the cathode ray tube
b)   the scanner
c)   the magnetron✓

109.   Beam width distortion can be improved by:
a)   reducing the brilliance
b)   reducing the gain✓
c)   reducing the tuning

110.   When ducting occurs the radar beam:
a)   bent upwards to penetrate cooler air
b)   carried long distances between air layers✓
c)   bent downwards and reflected off the sea

111.   Indirect echoes are caused by reflections from:
a)   large close targets
b)   obstructions close to the scanner✓
c)   targets on the beam
112.   Minimum range depends mainly on:
a)   scanner height
b)   vertical beamwidth
c) pulse length✓

113.   The major difference between a raster scan radar and a analogue radar is:
a)   the display✓
b)   the transmission power
c)   controls

114.   Range discrimination is equal to:
a)   the horizontal beamwidth
b)   slightly less than half the pulse length✓
c)   slightly less than the pulse length

115.   An echo just visible at 12 miles may be enhanced by:
a)   increasing brilliance
b)   increasing range
c)   increasing gain✓

116.   A vessel equipped with both a 10 cm and a 3 cm radar. One would expect the 3 cm radar to provide better:
a)   range discrimination✓
b)   range
c)   better attenuation

117. The theoretical detection range of an object 81 metres high, from a ship with an aerial 16 metres above sea would be:
a)   29 miles✓
b)   18 miles
c)   21 miles

118. The radar aerial should be placed to minimise:
a)   multiple echoes
b)   side echoes
c)   indirect echoes✓

119. A small GRP vessel is considered a poor radar target mainly because:
a)   GRP is transparent to radar energy✓
b)   GRP absorbs radar energy
c)   GRP reflects all the radar energy

120. Range discrimination between two targets at about 8 miles on the display can be improved by:
a)   reducing gain
b)   reducing pulse length✓
c)   reducing tuning

121. If an echo appears in a shadow sector you could check if it was a real echo by:
a)   reducing gain
b)   reducing brilliance
c)   altering course✓

122. Second trace echoes appear when:
a)   sub-refraction conditions exist
b)   super-refraction conditions exist✓
c)   during periods of strong SE winds

123. Increasing the sea clutter control:
a)   reduces echo strength from waves
b)   reduces amplification of close echoes✓
c)   blanks out the inner screen

124. Targets on bearings that are not in or beyond rain showers are:
a)   unaffected by the rain clutter control
b)   reduced in intensity by the rain clutter control✓
c)   increased in intensity by the rain clutter control

125. Marine 3 cm radars operate in the:
a)   q band
b)   x band✓
c)   v band

126. Altering the range scale may automatically change the:
a)   transmitted frequency
b)   pulse length✓
c)   amplification of echoes

127. Radar uses pulse transmission in order to:
a)   conserve energy
b)   detect close targets✓
c)   avoid interference

128.   You have a radar target at a range of 7 miles on your starboard bow, when you hear a fog signal apparently forward of your beam. You must:
a)   alter course to starboard immediately
b)   alter course to starboard and reduce speed to steerage speed immediately
c)   slow to mere steerage way✓

129.   You are in restricted visibility and have plotted a target on your starboard quarter and determined that the overtaking vessel will pass at a CPA of 0.2 miles on your port side. You must:
a)   alter course to starboard to increase the CPA
b)   stop immediately
c)   alter course to port increase the CPA✓

130.   You are in restricted visibility and have plotted a target on your port bow and determined that the approaching vessel is on a collision course. You must:
a)   allow the approaching give way vessel time to alter course
b)   alter course to port or reduce speed or stop
c) alter course to starboard or reduce speed or stop✓

131.   You would expect rain to have a greater affect on a 3 cm radar than on a 10 cm radar:
a)   no
b)   yes✓
c)   no difference

132.   Your radar has a beam width of 4°, you measure the relative bearing of a large headland fine on your starboard bow to be 123°. What is the corrected bearing?
a)   123°
b)   125°
c)   121°✓

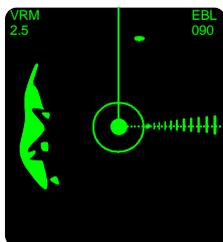133.   The strength or power of a radio wave is known as it's:
a)   cycle
b)   amplitude✓
c)   wavelength
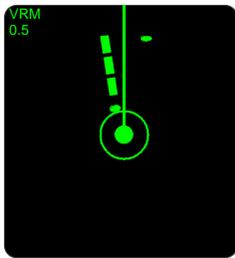
134.   A 10 cm radar transmits in the:
a)   x band
b)   q band
c)   s band✓
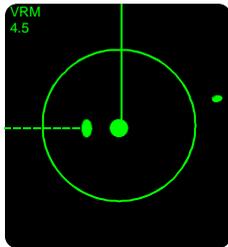
135.   The figure below is an example of:

a)   a SART✓
b)   side echo
c) second trace echo

136.   The figure below is an example of:

a)   a ramark
b)   a racon✓
c)   a SART

137.   The figure below is an example of:

a)   a ramark✓
b)   a racon
c)   a SART

138.   The figure below represents the radar display of a vessel steering 300☐ T. What type of display is it?

a)   north-up
b)   ship's head-up
c)   true motion✓

139.   The figure below represents the radar display of a vessel steering 270☐☐T. What type of display is it?
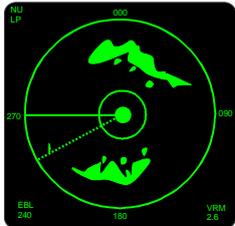
a)   north-up
b)   ship's head-up✓
c)   true motion

140.   The figure below represents the radar display of a vessel steering 270☐ T. What type of display is it?

a)   course-up✓
b)   ship's head-up
c)   true motion

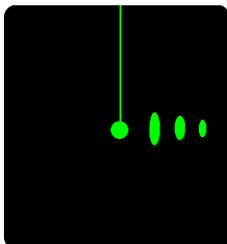141.   The figure below represents the radar display of a vessel steering 270□ T. What type of display is it?

a)   north-up✓
b)   ship's head-up
c)   true motion

142.   The figure below is an example of:

a)   a SART
b)   radar spooling
c)   mutual interference✓

143.   The figure below could be an example of:

a)   a multiple echo✓
b)   side echoes
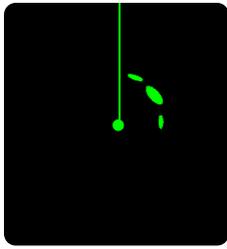c)   mutual interference

144.   The figure below could be an example of:

a)   a multiple echo
b)   side echoes✓
c)   mutual interference

145.   If the heading marker is not properly aligned with the zero on the bearing scale or with the direction of the ship's head:
a)   weak signals may become hidden under the heading marker
b)   errors may occur in the ranges you obtain✓
c)   errors may occur in the ranges you obtain

146.   To avoid the possibility of errors in bearings when using a mechanical bearing cursor:
a)   The heading marker must be turned off
b)   The centre spot must be under the centre of the bearing cursor✓
c)   The heading marker must be rotated on the screen to point to the target

147.   The most common type of scanner is:
a)   titled parabolic waveguide
b)   horizontal slotted waveguide✓
c)   rounded parabolic

148.   Side echoes are caused by:
a)   echoes from the side of waves
b)   echoes from the side lobes of the radar✓
c) echoes from the sides of close vessels

149.   A typical figure for minimum range on short pulse would be:
a)   50 metres
b)   100 metres
c)   25 metres✓

150.   A charted racon beacon enables a racon echo to be painted on the screen at:
a)   regular intervals
b)   continuously
c)   intermittently✓