

1. The Doppler shift D_f is given by [01D01]

- a. $2V_r / k$
- b. $V_r / 2k$
- c. $2k / V_r$
- d. k / V_r

2. Magnetrons are commonly used as radar transmitters because [01D02]

- a. high power can be generated and transmitted to aerial directly from oscillator
- b. it is easily cooled
- c. it is a cumbersome device
- d. it has least distortion.

3. A simple CW radar does not give range information because [01M01]

- a. it uses the principle of Doppler shift
- b. continuous echo cannot be associated with any specific part of the transmitted wave
- c. CW wave do not reflect from a target
- d. multi echoes distort the information

4. Increasing the pulse width in a pulse radar [01M02]

- a. increases resolution
- b. decreases resolution
- c. has no effect on resolution
- d. increase the power gain

5. COHO in MTI radar operates [01M03]

- a. at supply frequency
- b. at intermediate frequency
- c. pulse repetition frequency
- d. station frequency.

6. A high noise figure in a receiver means [01M04]

- a. poor minimum detectable signal
- b. good detectable signal
- c. receiver bandwidth is reduced
- d. high power loss.

7. Which of the following will be the best scanning system for tracking after a target has been acquired. [01M05]

- a. Conical
- b. Spiral
- c. Helical
- d. Nodding

8. A RADAR IS used for measuring the height of an aircraft is known as [01S01]

- a. radar altimeter
- b. radar elevator
- c. radar speedometer
- d. radar latitude

9. VOR stands for [01S02]

- a. VHF omni range
- b. visually operated radar
- c. voltage output of regulator.
- d. visual optical rader

10. The COHO in MTI radar operates at the [01S03]

- a. received frequency
- b. pulse repetition frequency
- c. transmitted frequency
- d. intermediate frequency.

11. Radar transmits pulsed electromagnetic energy because [01S04]

- a. it is easy to measure the direction of the target.
- b. it provides a very ready measurement of range
- c. it is very easy to identify the targets
- d. it is easy to measure the velocity of target

12. A scope displays [01S05]

- a. neither target range nor position, but only target velocity.
- b. the target position, but not range
- c. the target position and range
- d. the target range but not position.

13. Which of the following is the remedy for blind speed problem [02D01]

- a. change in Doppler frequency
- b. use of MTI
- c. use of Monopulse
- d. variation of PRF.

14. Which of the following statement is incorrect. Flat topped rectangular pulses must be transmitted in radar to [02D02]

- a. allow accurate range measurements
- b. allow a good minimum range.
- c. prevent frequency changes in the magnetron.
- d. make the returned echoes easier to distinguish from noise.

15. In case the cross section of a target is changing, the tracking is generally done by [02G01]

- a. duplex switching
- b. duplex scanning
- c. mono pulse
- d. -

16. Which of the following is the biggest disadvantage of the CW Doppler radar ? [02M01]

- a. it does not give the target velocity
- b. it does not give the target position
- c. a transponder is required at the target
- d. it does not give the target range.

17. The sensitivity of a radar receiver is ultimately set by [02M02]

- a. high S/N ratio
- b. lower limit of signal input
- c. over all noise temperature

- d. higher figure of merit
18. A rectangular wave guide behaves like a [02M03]
- band pass filter
 - high pass filter**
 - low pass filter
 - m - derived filter
19. Non linearity in display sweep circuit results in [02M04]
- accuracy in range**
 - deflection of focus
 - loss of time base trace.
 - undamped indications
20. The function of the quartz delay line in a MTI radar is to [02S01]
- help in subtracting a complete scan from the previous scan**
 - match the phase of the Coho and the output oscillator.
 - match the phase of the Coho and the stalo
 - delay a sweep so that the next sweep can be subtracted from it,
21. A high noise figure in a receiver means [02S02]
- poor minimum detectable signal**
 - good detectable signal
 - receiver bandwidth is reduced
 - high power loss.
22. Which of the following will be the best scanning system for tracking after a target has been acquired. [02S03]
- conical**
 - spiral
 - Helical
 - Nodding
23. Which of the following noise figure. [03D01]
- (Si Ni) / (So No)**
 - (So No) / (Si Ni)
 - (So / No) / sqrt. (Si / Ni)
 - (Si / Ni) / sqrt.(So / No)
24. The average power of a pulsed radar transmitter is given by [03G01]
- The product of peak power of the pulse and the duty cycle**
 - Peak power divided by the number of pulses repeated in one second.
 - Peak power divided by the duty cycle
 -
25. Which of the following diode is used as detector in a radar. [03M01]
- gunn diode
 - schotky diode
 - Impact diode**
 - varactor diode
26. In case the target cross section is changing the best system for accurate tracking is [03M02]
- monopulse**
 - lobe switching
 - sequential lobing
 - conical scanning.
27. In a radar in case the return echo arrives after the allocated pulse interval , then [03M03]
- it will not be received
 - the receiver will get overloaded
 - it may interfere with the operation of the transmitter
 - the target will appear closer than it really.**
28. PPI in a radar system stands for [03M04]
- plan position indicator
 - pulse position indicator**
 - plan position image
 - prior position identification
29. Which of the following is unlikely to be used as a pulsed device [03S01]
- TWT
 - BWO**
 - CFA
 - Multicavity klystron
30. Radar detection is limited to line of sight because [03S02]
- curvature of the earth**
 - the waves are not reflected by the ionosphere
 - long wavelengths are used
 - short wavelengths are used
31. Second time around echoes are caused by [03S03]
- second time reflection from target
 - echoes returning from targets beyond the cathode ray tube range.
 - echoes that arrive after transmission of the next pulse.**
 - extreme ends of bandwidth.
32. The resolution of a pulsed radar can be improved by [03S04]
- increasing pulse width
 - decreasing pulse width**
 - increasing the pulse amplitude
 - decreasing the pulse repetition frequency.
33. The most important application of monopulse antenna is in [04D01]
- determining the range of target
 - tracking a target**
 - identifying a target
 - Isolating the track of target.
34. In case the antenna diameter in a radar system is increased to four times. The maximum range will increase by [04D02]
- $\sqrt{2}$ times
 - 2 times
 - 4 times**
 - 8 times.

35. In case the ratio of the antenna diameter to the wavelength in a radar system is high, this is likely not to result in [04M01]
- increased capture area
 - good target discrimination
 - difficult target acquisition
 - large maximum range
36. The term RADAR stands for [04M02]
- radio direction and reflection
 - radio detection and ranging**
 - radio waves dispatching and receiving
 - random detection and re radiation.
37. The duty cycle in a pulsed radar transmitter cannot be increased beyond a point because it [04M03]
- affects the operating frequency
 - increase the average power of the transmitter tube.**
 - does not detect weak signals
 - increase minor lobes
38. In case of radar receiver the IF bandwidth is inversely proportional to [04M04]
- pulse interval
 - pulse repetition frequency
 - square root of the peak transmitted power
 - pulse width.**
39. The Doppler effect is used in [04M05]
- MTI
 - CW
 - FM
 - Radar Altimeter**
40. The gain of a radar transmitting antenna is [04S01]
- loss than that of radar receiving antenna
 - almost equal to that of radar receiving antenna
 - slightly higher than that of radar receiving antenna
 - much higher than that of radar receiving antenna.**
41. Stagger PRF is used to [04S02]
- shift the target velocities to which the MTI system is blind**
 - improves the detection of a moving target against clutter background
 - increase the average power transmitted
 - increase the peak power transmitted.
42. COHO stands for [04S03]
- coherent output
 - counter housed oscillator
 - coherent local oscillator**
 - carrier oscillator and harteley oscillator
43. If the peak transmitted power in a radar system is increased by a factor of 16, the maximum range will be increased [05D01]
- 2 times**
 - 4 times
 - 4 times
 - 16 times
44. Which of the following statement is incorrect. The radar cross section of a target. [05D02]
- depends on the aspect of a target, if this is non spherical.
 - depends on the frequency used.
 - is equal to the actual cross sectional area for small targets**
 - may be reduced by special coating of the target.
45. Which of the following statement is incorrect High PRF will [05D03]
- increase the maximum range**
 - make target tracking easier to distinguish from noise
 - make the returned echoes easier to distinguish from noise
 - have no effect on the range resolution.
46. Side lobe of an antenna causes [05M01]
- reduction in gain of antenna**
 - reduction in beam width of antenna
 - ambiguity in direction finding
 - increases directivity
47. A radar which is used for determining the velocity of the moving aircraft along with its position and range is [05M02]
- moving target indicator
 - radar speedometer
 - pulse radar**
 - radar range finder
48. Blind speed in MTI radar results in [05S01]
- restriction in speed of detectable targets**
 - blanking to PPI.
 - no change in phase detector output
 - absorption of electromagnetic waves.
49. The quartz delay line in a MTI radar is used to [05S02]
- match the signal with echo
 - subtract a complete scan from previous scan**
 - match the phase of COHO and STALO
 - Match the phase of COHO and output of oscillator
50. Which one of the following applications or advantages of radar beacons is false [05S03]
- navigation
 - target identification
 - more accurate tracking of enemy targets**
 - very significant extension of the maximum range.
51. STALO stands for [05S04]
- standard local oscillator
 - stable L-band output
 - stabilized local oscillator**
 - saturated and linear oscillator.

52. Large antenna is used in radar because it [05S05]

- a. gives higher gain
- b. gives lesser side lobes.
- c. increases the beam width
- d. increases band width

53. The range of radar is [06D01]

- a. directly proportional to the gain of the radar antenna
- b. directly proportional to the minimum detectable signal by the receiver
- c. inversely proportional to the gain of the radar antenna
- d. inversely proportional to the transmitted power.

54. A bistatic radar has [06M01]

- a. one antenna for transmitting as well as for receiving
- b. two antennas for receiving the signal.
- c. two antennas for transmitting signal
- d. transmitting and receiving antennas

55. Blind speed causes target to appear [06M02]

- a. moving uniformly
- b. moving irregularly
- c. stationary
- d. intermittently

56. For precise target location and tracking radars operate in [06M03]

- a. s- band
- b. D- Band
- c. L- Band
- d. X - Band

57. The sensitivity of a radar receiver is ultimately set by [06M04]

- a. high S/N ratio
- b. lower limit of useful signal input
- c. overall all noise temperature
- d. low S/N ratio

58. A radar system cannot be used [06M05]

- a. to detect moving objects
- b. to detect trajectory of moving objects
- c. to detect aircraft
- d. to detect storms

59. Which of the following is essential for fast communication [06M06]

- a. High S/N ratio
- b. High channel capacity
- c. large bandwidth
- d. Higher directivity

60. The major advantage of pulsed radar CW radar is that [06S01]

- a. pulsed radar readily gives the range of target while CW radar cannot give range information
- b. pulsed radar can identify a target more easily than CW radar.
- c. Pulses get reflected from the target more efficiently as compared to CW waves
- d. Pulses have variation of magnitude and frequency both

61. Which of the following statement is incorrect. The Doppler effect is used in [06S02]

- a. MTI system
- b. CW radar
- c. FM Radar
- d. Moving target plotting on the PPI

62. A transponder comprises of [06S03]

- a. transmitter only
- b. receiver only
- c. transmitter and receiver
- d. transmitter and receiver and antenna

63. If A be the capture area of receiving antenna of a radar then the maximum range will be proportional to [07D01]

- a. A
- b. A^2
- c. $1 / \sqrt{A}$
- d. \sqrt{A}

64. For high power radars the peak power is limited by [07M01]

- a. breakdown of RF components
- b. increased complexity of transmitter circuitry
- c. cost aspects
- d. max. band width

65. The maximum range of a radar depends on [07M02]

- a. pulse frequency
- b. pulse duration
- c. pulse energy
- d. pulse intervals

66. The term rat race in a radar is associated with [07M03]

- a. duplexer.
- b. receiver bandwidth
- c. modulator
- d. hybrid ring

67. Most of the aircraft surveillance radars operate in [07M04]

- a. L band
- b. c band
- c. s band
- d. x band.

68. The minimum range of detection by a pulse radar depends on [07M05]

- a. pulse width
- b. Average transmitter power
- c. beam width of the antenna
- d. bandwidth of antenna

69. An MTI system eliminates permanent echoes while preserving echoes from a moving target by [07S01]

- a. decreasing pulse width
- b. utilizing the Doppler effect
- c. increasing peak transmitted power
- d. wide beam width

70. A CW radar cannot give information about [07S02]
- range
 - direction
 - both range and direction
 - range, direction and past track
71. A target is moving with a velocity of 360km/hour radially towards the transmitting frequency generator of 3 GHz will be [07S03]
- 300 KHz
 - 1 KHz
 - 1.5 KHz
 - 2 KHz**
72. A duplex is a device which [07S04]
- switches an antenna between transmitter and receiver by means of selective filters
 - switches an antenna between transmitter and receiver by means of gas switching tubes.**
 - neither of the above two
 - connect at a time to transmitter or receiver only
73. The minimum receivable signal in a radar receiver whose IF bandwidth is 1.5 MHz and which has a noise figure 9 dB will be [08D01]
- 4.16×10^{-10} watt
 - 4.16×10^{-12} watt
 - 4.16×10^{-13} watt
 - 4.16×10^{-14} watt**
74. When p is the peak transmitted pulse power. The maximum range of the radar is proportional to [08D02]
- P
 - $P^{1/2}$
 - $P^{1/4}$**
 - $1/P^{1/4}$
75. A RADAR SYSTEM OPERATES at 3 cm with a peak pulse power of 500KW. Its minimum receivable power is 10^{-3} W, The capture area of th antenna is 5 m^2 and the radar cross sectional area of the target is 20 m^2 . the maximum range of the radar will be [08D03]
- 343 Km
 - 44km
 - 686 km**
 - 888 km
76. Which of the following is not a display method [08M01]
- PPI
 - Computer feeding
 - Mono pulse conical scanning**
 - A scope
77. Which of the following is used for IFF [08M02]
- CW radar
 - MTI
 - Ordinary radar
 - Beacon**
78. Which of the following statement about radar is valid [08M03]
- echoes from the target are random and noise impulses are repetitive
 - echoes and noise impulse both are random
 - echoes and noise pulses both are repetitive
 - echoes from target are repetitive and noise impulses are random**
79. A radar consists of [08M04]
- display unit**
 - switching modulator
 - varactor diode
 - gunn diode
80. In radar as soon as the transmitted pulse terminates, the transmitter is disconnected from the antenna by [08M05]
- Duplexer**
 - Mixer
 - ART switches
 - Detector
81. Radar range primarily depends upon [08S01]
- peak transmitted power**
 - average trasnmitted power
 - independent of transmitted power
 - resolution of radar
82. In radar system which of the following is used for transmitter output tubes [08S02]
- parameter amplifier
 - RC coupled amplifier
 - klystron only
 - magnetron or travelling wave tube**
83. A radar is to have maximum range of 60km. The maximum allowable pulse repetition frequency for unambiguous reception should be [09D01]
- 25 pps
 - 250 pps
 - 2500 pps**
 - 25,000 pps
84. An MTI radar operates at 10 GHz with PRF of 3000pps. The lowest blind speed will be 90km/hr [09D02]
- 40 km/hr
 - 66 km./hr
 - 81 km/hr
 - 162 km/hr**
85. In which of the following case the lowest blind speed will be 90 km/hr [09D03]
- frequency 1 GHz an PRF 300 pps
 - frequency 3 GHz and PRF 500 pps**
 - frequency 5 GHz and PRF 700 pps
 - frequency 7 GHz and PRF 1000 pps
86. If a given maximum range of a radar is to be doubled, all other factors remaining constant the peak power must be increased [09M01]
- four fold
 - eight fold**

- c. sixteen fold
d. thirty fold
87. The maximum range of a radar depends on all of the following except [09M02]
- a. peak transmitted pulse power
b. direction of movement of target
c. target area
d. capture are
88. The antenna used for radar is [09M03]
- a. paraboloidal antenna
b. isotropic radiator
c. resonant antenna
d. whip antenna
89. Noise figure of radar receiver is 12 dB and its bandwidth is 2.5 MHz. the value of P_{\min} for this radar will be [09M04]
- a. 1.59×10^{-9} watt
b. 1.59×10^{-13} watt
c. 1.59×10^{-15} watt
d. 1.59×10^{-17} watt
90. IN radar system the lobe switching technique is used to [09S01]
- a. scan the area
b. move antenna in the direction fo the object
c. locate the target accurately
d. move the weapon in the required direction
91. Radar display is [09S02]
- a. A scope display
b. PPI
c. MTI
d. CRO
92. The minimum receivable signal in radar receiver which has an IF bandwidth of 1.5 MHz and is 9 dB noise figure will be [09S03]
- a. 4.17×10^{-10} watt
b. 4.17×10^{-12} watt
c. 4.17×10^{-14} watt
d. 4.17×10^{-16} watt
93. The advance and retard switches for the bearing circuit are needed due to [10D01]
- a. the gate generators being unstable
b. scanner and deflection coil misalignment
c. in accuracies in the power supply
d. failure of the switch circuits
94. When real transmitted power on a radar system, is increased by a factor of 16,. The maximum range will be increased by a factor of [10D02]
- a. 2
b. 4
c. 8
d. 16
95. The signal arriving from the transmitter to the display unit is the [10D03]
- a. trigger
b. echoes
c. heading marker
d. bearing information
96. The delay unit section of the VRM/ delay unit can be used to [10M01]
- a. extend the range of radar
b. reduce radar interference
c. expand an area for examination
d. extend the range of radar and expand an area for examination
97. The trigger circuit [10M02]
- a. is a switch connecting high voltage through to magnetron
b. is a master timing device of the radar
c. is microwave frequency oscillator
d. receives bearing information from the scanner.
98. An AFC system produces a control voltage to control the --- frequency [10M03]
- a. Magnetrons
b. Local oscillators
c. PRF oscillators
d. Tabulator
99. The local oscillators frequency is [10M04]
- a. 60 MHz above the echo frequency
b. 60 MHz below the echo frequency
c. 30 MHz above the echo frequency
d. 30 MHz below the echo frequency
100. Sea clutter returns occur [10M05]
- a. due to reflections from rain clouds
b. at short ranges
c. due to land reflections
d. due to satellite reflections
101. The time base waveform [10M06]
- a. rotates the deflection coils around the CRT.
b. causes the beam to sweep from the centre to the edge of the screen
c. rotates the deflection coils around the CRT. and causes the beam to sweep from the centre to the edge of the screen
d. causes beam to sweep from top to bottam
102. Clutter on the PPI due to rain can be reduced by use of [10M07]
- a. enhance switch
b. delay switch
c. radar on/off switch
d. A/C rain control
103. A wobulator circuit is used to [11D01]
- a. vary the radars pulse length
b. vary the radars PRT
c. increase peak power
d. generate the number of pulses
104. A short pulse transmission on shrot ranges [11D02]

- a. provides good minimum range
 b. provides good bearing resolution
 c. provides good hearing resolution
 d. provides good long resolution
105. If the 1.5 nm range is selected by the operator, the long pulse short pulse control line from the display unit will select a PRT of --- and a pulse length of ----- [11D03]
- a. 1500 Hz, 0.55 micro seconds
 b. 750 Hz, 0.08 micro seconds
 c. **1500 Hz, 0.08 micro seconds**
 d. 750 Hz, 0.55 micro seconds
106. In a radar, IF amplifier is tuned to the ----- the local oscillator and echo frequency [11D04]
- a. sum of
 b. **difference between**
 c. sum of and difference between
 d. multiplication of two frequencies
107. If the PRF = 1500 Hz, the the PRT = [11D05]
- a. **666 micro seconds**
 b. 1333 micro seconds
 c. 300 micro seconds
 d. 1200 micro seconds
108. Which of the following is not function of T/R switch [11M01]
- a. allows us to employ a common antenna for transmission and reception
 b. protects the receiver during transmission
 c. allows received echoes to pass to the receiver
 d. **changing the signal frequency**
109. The scanner unit houses the [11M02]
- a. scanner, transmitter and display
 b. transmitter, receiver and CRT
 c. **scanner and transceiver**
 d. scanner and transmitter
110. The bearing transmitter sends the scanner position information to the ----- in the [11M03]
- a. gate generator, display unit.
 b. time display, display unit
 c. **deflection coil, display unit**
 d. grid of the CRT, display unit
111. How many heading marker lines are produced in one resolution of the scanner [11M04]
- a. 10
 b. **1**
 c. 3
 d. 4
112. The deflection coils must be rotated in synchronism with antenna to ensure correct [11M05]
- a. range of targets displayed
 b. amplitude of echoes
 c. frequency of transmission
 d. **bearing of targets displayed.**
113. Which method of transmitting radar energy works well with stationary or slow- moving targets, but is not satisfactory for locating fast-moving objects? [12D01]
- a. AM
 b. **CW**
 c. FM
 d. Pulse
114. A radar cannot determine range if it uses which of the following types of energy transmission? [12D02]
- a. AM
 b. CW
 c. FM
 d. **Pulse**
115. Which of the following radar units generates all pulses? [12D03]
- a. Duplexer
 b. Modulator
 c. **Receiver**
 d. Indicator necessary timing
116. A radar transmits a pulse, and 309 ?sec later the radar receives an echo. What is the number of nautical miles between the radar and the contact? [12M01]
- a. 6.1
 b. **12.2**
 c. 25
 d. 50
117. Which of the following methods of energy transmission is used to a great extent in Navy radars? [12M02]
- a. AM
 b. CW
 c. **FM**
 d. Pulse
118. Which radar unit permits the use of a single antenna for both transmit and receive functions? [12M03]
- a. Antenna
 b. **Duplexer**
 c. Indicator
 d. Modulator
119. Which of the following radar units supplies RF energy of high power for short time intervals? [12M04]
- a. **Transmitter**
 b. Receiver
 c. Modulator
 d. Duplexer
120. Which of the following radar units ensures that intervals between pulses are of the proper length? [12M05]
- a. **Transmitter**
 b. Receiver
 c. Modulator
 d. Antenna
121. Antenna Which of the following radar units converts the weak RF ECHO to a discernable video signal? [12M06]
- a. Duplexer

- b. Modulator
c. Receiver
d. Indicator
122. Which of the following radar units passes the echo to the receiver with minimum loss? [12S01]
- a. Transmitter
b. Duplexer
c. Modulator
d. Amplifier
123. Which of the following radar units ensures that all subsystems operate in a definite time relationship? [13D01]
- a. Duplexer
b. Modulator
c. Modulator
d. Indicator
124. Which of the following radar reference coordinates is a line from the radar set directly to the object? [13D02]
- a. Horizontal plane
b. Vertical plane
c. LOS C Relative bearing
d. LOS C Horizontal plane
125. Which of the following radar units converts the video output of the receiver to a visual display? [13M01]
- a. Duplexer
b. Modulator
c. Antenna
d. Indicator
126. Which of the following radar units converts the echo to an intermediate frequency? [13M02]
- a. Duplexer
b. Antenna
c. Indicator
d. Receiver
127. Which of the following characteristics influence(s) radar range performance? [13M03]
- a. Height of antenna
b. Peak power of the transmitted pulse
c. Receiver sensitivity
d. Resolution of transmitting Antenna
128. Which of the following methods should you use to do a radar surface angular measurement? . [13M04]
- a. Measure counterclockwise from true north
b. Measure clockwise from true north
c. Measure clockwise from the heading line of the ship
d. Measure counterclockwise from true north and Measure clockwise from the heading line of the ship
129. To determine if an echo is a false target or a true target, what radar characteristic should you change? [13M05]
- a. PW
b. STC
c. PRR
d. RPM
130. Which of the following radar reference coordinates is the angle measured clockwise from true north in the horizontal plane? [13M06]
- a. Relative bearing
b. Elevation angle
c. True azimuth angle
d. Vertical plane
131. Which of the following radar reference coordinates is an imaginary plane parallel to the earth's surface? [13S01]
- a. Horizontal plane
b. Vertical plane
c. Los
d. Relative bearing
132. Typical IF used is -----or ----- MHz. [14D01]
- a. 30MHz or 60 Hz
b. 90 MHz or 2 Hz
c. 240 MHz or 50 MHz
d. 999 MHz or 78 Hz
133. In ----- radar , antenna is continuously pointed in the direction of target. [14M01]
- a. Tracking radar
b. locating radar
c. radar velocity increases
d. radar velocity decreases
134. Duty cycle is equal to the product of ----- and ----- [14M02]
- a. PRF and Pulse width
b. PRF and pulse height
c. Pulse width and pulse interval
d. target range and peak power
135. ----- range of a radar depends on the average power radiated. [14M03]
- a. Maximum range
b. minimum range
c. velocity
d. momentem
136. Max radar range is --- proportional to wavelength [14M04]
- a. directly proportional
b. inversely proportional
c. square proportional
d. cube root
137. Following the end of pulse, the Tr and ATR boxes both - ---- and become open circuits. [14M05]
- a. Deionize
b. capitalize
c. normalize
d. authorize
138. Which of the following radar reference coordinates is the angle measured clockwise from the centerline of a ship or aircraft? [14S01]
- a. Relative bearing
b. Elevation angle
c. Azimuth angle
d. True bearing 2

139. Higher ---- higher is the average power and therefore greater is the range of radar. [14S02]

- a. TRF
- b. PRF
- c. CRF
- d. KRF

140. Range resolution is dependent on ----- [14S03]

- a. pulse length
- b. pulse width
- c. pulse power
- d. width between different pulses.

141. Most radar equipments operated in the frequency range ----- to ----- [15D01]

- a. 100 to 25000 mc/s
- b. 700 to 50000 mc/s
- c. 900 to 250000 mc/s
- d. 1000 to 50000 mc/s

142. Average power is given by the product of ----- and ----- [15G01]

- a. Duty cycle and peak power
- b. Pulse width and quality factor
- c. Transmitted power and received power
- d. -

143. --- is eliminated by using moving target indicator [15M01]

- a. Clutter
- b. MTI
- c. Doppler radar
- d. Both Clutter and MTI

144. Basically a --- system compares a set of received echoes with those received during previous sweep. [15M02]

- a. MTI
- b. Doppler radar
- c. CW radar
- d. PRF

145. The coho in MTI radar operates at ----- [15M03]

- a. IF
- b. MF
- c. mixed frequency
- d. added frequency

146. Each microsecond of delay corresponds to around-trip time of interval over a path--- long. [15M04]

- a. 582 feet
- b. 492 feet
- c. 600 feet
- d. 890 feet

147. In actual practice, radar pulse lengths usually lie in the range of [15M05]

- a. 0.1 to 10 Micro seconds
- b. 0.2 to 20 micro seconds
- c. 20 to 50 micro seconds
- d. 90 to 200 microseconds

148. The IF bandwidth of a radar is inversely proportional to ---- [15S01]

- a. pulse Width
- b. power
- c. current
- d. voltage

149. Radar is essentially an ---- in which the radar transmitter sends out energy in the form of periodic pulses of very high power but very short duration. [15S02]

- a. echo ranging system
- b. radar pulses
- c. high power
- d. modulator

150. Typical values of radar power lie within the range of ---- ... [15S03]

- a. 100 to 500 KW
- b. 400 TO 890 KW
- c. 890 KW TO 2900 KW
- d. 4500 TO 8000 KW

151. ---- is used where it is necessary to make angle measurement in both vertical and horizontal planes [16M01]

- a. Conical Scanning
- b. Horizontal scanning
- c. MTI radar
- d. CW radar

152. A ----- enables the same antenna to be used for both transmission and reception. [16M02]

- a. duplexer
- b. transmitter
- c. receiver
- d. multiplexer

153. A means of utilizing the Doppler effect to eliminate permanent echoes while preserving echoes from a moving target is ----- system. [16M03]

- a. MTI
- b. Conical pulse
- c. CW radar
- d. Doppler radar

154. The limitation of Doppler radar may be overcome by using ----- carrier wave. [16M04]

- a. FM
- b. Am
- c. PM
- d. CW

155. In MTI, coho is used for the generation of ---- signal [16M05]

- a. RF signal
- b. AF signal
- c. AM signal
- d. FM Signal

156. Types of pulsers in common use are ---- and -----
[16S01]

- a. line pulser and hard tube
- b. TWT tube and magnetron tube
- c. klystron Tube and reflex klystron
- d. parametric amplifier and gunn diode

157. An anti- TR box is a TR box with ---- lead omitted
[16S02]

- a. output
- b. input
- c. gain
- d. loss

158. In radar --- used for Transmitting and receiving purposes [16S03]

- a. antennas
- b. diodes
- c. tubes
- d. cables

159. A beacon does not transmit pulses continuously like a search for ---- [16S04]

- a. tracking radar
- b. target
- c. adjust radar
- d. max power

160. Lobe switching technique is ----- than sequential switching [17G01]

- a. easier
- b. difficult
- c. moderate
- d. -

161. Initial radars worked on low frequencies because sufficiently powerful tubes capable of operating at high frequencies were not available. [17M01]

- a. True
- b. False
- c. Partially true
- d. Above statement is not at all valid

162. Curvature of the earth is the one of the ----- of range of radar. [17M02]

- a. limitation
- b. advantage
- c. dangerous
- d. diffraction

163. The ----- of a target is determined by the measured total time to and from the target. [17M03]

- a. range
- b. velocity
- c. height
- d. momentum

164. In Conical scanning is a logical extension of --- [17M04]

- a. Lobe switching
- b. sequential switching
- c. Monica switching
- d. random switching

165. Beacon is used instrument -----system for aircraft. [17S01]

- a. landing
- b. lifting
- c. consume
- d. damage

166. Beam width of an antenna is proportional to [17S02]

- a. diameter of antenna & wave length
- b. power received and frequency
- c. square of the diameter of antenna and square of wave length
- d. square of diameter of antenna and wave length

167. The reason why the range of a radar is inversely proportional to the fourth power of the transmitted peak power is that the signals are subjected twice to the operation of the inverse square law, once on the outward journey and once on the return trip. [17S03]

- a. true
- b. false
- c. range of radar is inversely proportional to 6th power of transmitted power then it is true
- d. range of radar is directly proportional to 6th power of transmitted power then it is true

168. Flat topped rectangular pulses must be transmitted in radar to make the returned echoes to distinguish from --- [17S04]

- a. noise
- b. velocity
- c. power
- d. voltage

169. Expansion of RDD's [18M01]

- a. Radar Detectors Detector
- b. Radar defence detector
- c. Radar dynamite detector
- d. radio dynamic detector

170. The four main sections of a radar system are scanner, transmitter, receiver and ----- [18M02]

- a. repeater
- b. modulator
- c. display unit
- d. reflector

171. Range resolution is better if ----- pulses are used. [18M03]

- a. Short duration
- b. Long duration
- c. More peak
- d. distorted pulses

172. When duplexer is active, the ATR permits the generated pulse to pass through to the --- . [18M04]

- a. antenna
- b. LED
- c. reflector
- d. reflector

173. In a phased array, antenna is moved for [18S01]

- a. scanning
- b. to find velocity
- c. to find distance
- d. to find rotation

174. The antenna used in the scrambler is [18S02]

- a. Effective reflector
- b. Effective transmitter
- c. Effective receiver
- d. Effective modulator

175. --- can be useful if the sensors are mounted in the area where the laser beam is pointed at a vehicle. [18S03]

- a. LASER Detectors
- b. LED detectors
- c. TRANSISTOR DETECTOR
- d. photo diode detectors

176. The radial velocity of the target is determined through a Doppler shift in the ----- [18S04]

- a. Carrier frequency
- b. Signal frequency
- c. Noised
- d. local oscillator frequency

177. Pulse duration has no significant effect on the intensity of cloud return relative to signal return from ---- [18S05]

- a. targets.
- b. transmitter
- c. modulator
- d. reflector

178. When you look at a soap film on a vertical wire hoop you see horizontal interference fringes in different colors. Over time the soap film thickness decreases at the top and increases at the bottom. This will cause _____ [19D01]

- a. the spacing between the fringes to increase,
- b. the spacing between the fringes to decrease
- c. the fringes to cease being horizontal,
- d. the fringes to become less colored

179. Directional information about the target is obtained by means of the .. [19M01]

- a. wide band antenna
- b. narrow band antenna
- c. isotropic antenna
- d. whip antenna

180. The scanner unit houses the bearing transmitter, the scanner the heading marker circuit and the - [19M02]

- a. scanner tuning motor
- b. scanner motor device
- c. receiver circuit
- d. transmitter circuit

181. What is the spacing between adjacent bright interference fringes when a pair of slits 0.1 mm apart are illuminated by light of wavelength 500 nm, and the fringes are observed on a screen 2 m behind the slits? [19M03]

- a. 0.5 cm,
- b. 1.0 cm,

- c. 2.0 cm,
- d. 10.0 cm,

182. Which of the following will exhibit the greatest amount of diffraction? [19M04]

- a. light waves incident on a human hair
- b. light waves incident on a 1 cm hole,
- c. sound waves incident on a 1 cm hole,
- d. sound waves incident on a doorway,

183. Due to total internal reflection an underwater swimmer looking up at the surface of the water from a depth of 10 ft sees a mirrored surface with a hole in it of radius R. Find R if the index of refraction of water is 1.33. [19M05]

- a. 5.67 ft,
- b. 7.46 ft
- c. 9.12 ft,
- d. 11.3 ft,

184. MTI radar determines the ----- by noting the apparent change in frequency of the returning pulse of oscillation [19S01]

- a. radial Velocity
- b. location of target
- c. distance of the target
- d. height of target

185. When light passes from air into glass ($n = 1.5$) what happens to its frequency, wavelength and velocity? [19S02]

- a. all decrease by a factor 1.5,
- b. f and v decrease by a factor 1.5
- c. f and λ increase by a factor 1.5
- d. λ and v decrease by a factor 1.5

186. radar transmitter sends large UHF or Microwave ----- - [19S03]

- a. Power
- b. voltage
- c. current
- d. noise

187. The transmitter of radar generates ----- rectangular pulses. [19S04]

- a. short
- b. long
- c. wide
- d. rectangular pulses

188. IF the target is 150 km away the return pulse covers the distance is ----- [20M01]

- a. 1Sec
- b. 1 hour
- c. 2 hour
- d. 30 min

- a. repetitive
- b. once
- c. two times repeated
- d. four times repeated

189. The distance between radar and target can be measured in ----- mile equal to ----- meters. [20M02]

- a. 1852 m
- b. 2000 m
- c. 9000 m
- d. 10,000 m

190. A distance of 2000 yards is called as ----- [20M03]

- a. satellite mile
- b. radar mile
- c. 1 yard
- d. 1 km

191. The range beyond which targets appear as second time round echoes is called the maximum ----- range. [20M04]

- a. unambiguous
- b. ambiguous
- c. both Unambiguous and ambiguous
- d. can't be predicted

192.196 The maximum range of radar is proportional to ---- power transmitted . [20M05]

- a. 4
- b. 9
- c. 78
- d. 1

193. The duplexer consists of one --- and another ---- switches. [20M06]

- a. TR and ATR
- b. KR and TR
- c. ART and TR
- d. Diode and Transistor

194. Blind speeds are one of the limitations of ----- . [20M07]

- a. Pulse MTI
- b. Doppler Radar
- c. Continuous Radar
- d. Radar altimeter

195. The IF bandwidth of radar receiver is usually expressed as N/T where T is the [20M08]

- a. Pulse width
- b. pulse amplitude
- c. pulse power
- d. frequency of pulse

196. The velocity with which a radar pulse covers the distance is ----- [20S01]

- a. velocity of light
- b. free space impedance
- c. light in gas
- d. light in glass

197. The echoes from the target are ----- in nature [20S02]