



# Headquarters Air Cadets Examination

Senior Cadet  
35/3 Adv Radio & Radar  
Generated 17-Jul-00

Serial: 270

1. Use black or dark blue pen, NOT pencil.
2. Mark one answer per question with a cross.
3. If you wish to change an answer, cancel the original mark and mark another single answer.

- A selected answer.  
 A cancelled answer.

Mark:

Name and Initials \_\_\_\_\_

Date of Exam \_\_\_\_\_

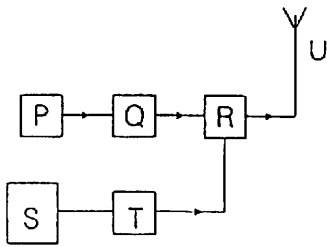
Date of Birth \_\_\_\_\_

Squadron/Unit \_\_\_\_\_

Wing \_\_\_\_\_

1 What does the block marked S represent in the diagram?

- a  Power Amplifier  
b  Microphone  
c  Master Oscillator  
d  Buffer Amplifier



2 A pulse radar calculates the target range, using:

- a  The height of the blip on its range display  
b  The time between a transmitted pulse and a received pulse  
c  A transmitted pulse long enough to reach the target  
d  The time between transmitted pulses

3 The purpose of the reflector and directors of an aerial, as in the Yagi array, is to:

- a  Alter the aerial's electrical length  
b  Modify the aerial's radiation pattern  
c  Allow the aerial to work at many frequencies  
d  Match the aerial to the transmission line

4 300 m/s is the speed of?

- a  Light  
b  Air  
c  Sound  
d  Electrons

5 What medium replaces sound for effective long range communication:

- a  Kinetic energy  
b  Electrical energy  
c  Potential energy  
d  Electromagnetic energy

6 If the velocity of radio waves is 300,000,000 metres per second, what would the value of the wavelength be for a wave of frequency 30 Mhz:

- a  1 metre  
b  10 metres  
c  100 metres  
d  1000 metres

7 What type of modulation does Morse Code use?

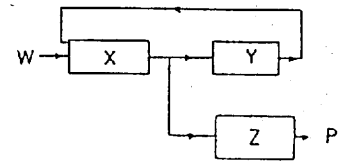
- a  Wavelength modulation  
b  Frequency modulation  
c  Carrier shift modulation  
d  Amplitude modulation

8 What does the abbreviation SSB stand for?

- a  Single silicone band  
b  Single side band  
c  Ship to shore broadcast  
d  Solo side band

9 The diagram shows a discriminator (ratio detector) - what does the letter Y represent:

- a  Amplifier output  
b  Recovered signal  
c  Carrier input  
d  Phase Detector



10 What system is used to locate a target using radio waves:

- a  Radar  
b  Cathode ray tube  
c  Transmitter  
d  Receiver

11 Which of the listed answers is a type of primary radar:

- a  Frequency modulated  
b  Pulsed-demodulated  
c  Pulsed-modulated  
d  Frequency demodulated.

12 Mode C in SSR gives out what information:

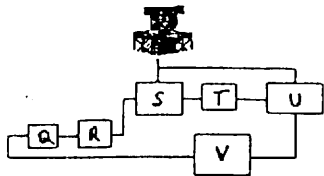
- a  Civil identify  
b  Height encoded data  
c  Aircraft type  
d  Military identify

13 The ground range of a target can be calculated using:

- a  Slant range x sin ?  
b  Slant range x height  
c  Slant range x tan ?  
d  Slant range x cos ?

14 In this block diagram of a radar system, what does the block marked U represent:

- a  CRT indicator
- b  RX
- c  MTU
- d  TX



15 Which radar employed by the RAF can be rotated to serve the runway in use:

- a  PIR
- b  PUR
- c  PER
- d  PAR

16 The purpose of PAR is to:

- a  Reduce interruptions to a station's flying programme because of poor weather
- b  Allow flying in high cloud in the area of the airfield
- c  Allow flying at all times in the area of the airfield
- d  Allow flying in good visibility in the area of the airfield

17 How many distinctive assemblies does PAR consist of:

- a  4
- b  1
- c  2
- d  3

18 At what distance could a pilot use ILS:

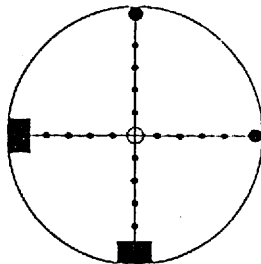
- a  Within 25 nautical miles
- b  Over 50 nautical miles
- c  Under 5 nautical miles only
- d  At 1 nautical mile only

19. What information comes from an ILS Localiser?

- a  Elevation
- b  Range
- c  Azimuth
- d  Height

20 In the diagram, what state is displayed

- a  Flags set - signal strength high
- b  Flags not set - signal strength high
- c  Flags set - signal strength low
- d  Flags not set - signal strength low



21 DRDF provides the controller with data in three forms, digital pulses, a DC voltage and which other:

- a  A sinusoidal output
- b  An AC voltage
- c  Combined digital pulses
- d  A sawtooth waveform

22 How many aircraft can Tacan reply to at any one time:

- a  Any 50 aircraft
- b  200 correctly equipped aircraft
- c  100 correctly equipped aircraft
- d  Any 100 aircraft

23 The pilot of an aircraft receives beacon identification, distance and which other from TACAN:

- a  Bearing
- b  Elevation
- c  Azimuth
- d  Altitude

24 What does DCN stand for ?

- a  Defence Communications Network
- b  Defence Command Network
- c  Defence Communications Number
- d  Direct Communications Number

25 RAF FTS has two sub-systems, one is called Uniter the other is called:

- a  Boxer
- b  Boxit
- c  Foxer
- d  Boxed