Program: BE Electronics and Telecommunication Engineering

Curriculum Scheme: Revised 2016

Examination: Third Year Semester VI

Course Code: ECCDLO6022 and Course Name: Radar Engineering

Time: 1hour Max. Marks: 50

==============================================================================

Note to the students:- All the Questions are compulsory and carry equal marks .

|  |  |
| --- | --- |
| Q1.  | The term radar cross section defines the: |
| Option A: | Amount of energy scattered by unwanted objects |
| Option B: | Power radiating ability of the radar |
| Option C: | Scattering ability of the target |
| Option D:  | Cross section of radar area through which energy is emitted |
|  |  |
| Q2. | Target sends an echo signal to the Radar with speed of |
| Option A: | 100kmph  |
| Option B: | 800kmph  |
| Option C: | Sound  |
| Option D: | Light  |
|  |  |
| Q3. | 𝑷𝒓 received by the Radar depends on the effective aperture |
| Option A: | Ae of target |
| Option B: | Ae of Receiver  |
| Option C: | Ae of clock pulse |
| Option D: | Ae of transmitter |
|  |  |
| Q4. | The lowest signal the receiver can detect is called |
| Option A: | Weakest detectable signal |
| Option B: | minimum detectable signal |
| Option C: | minimum range signal |
| Option D: | echo signal from target |
|  |  |
| Q5. | The ability of the antenna to turn radiated energy into conducted energy is called |
| Option A: | Capture area |
| Option B: | Power ratio |
| Option C: | Return ratio |
| Option D:  | RCS |
|  |  |
| Q6. | Total equivalent input noise generated by receiver with input noise Ni and Noise Factor F is given by |
| Option A: | (F-1)\*Ni |
| Option B: | (F+1)\*Ni |
| Option C: | F\*Ni |
| Option D:  | F/Ni |
|  |  |
| Q7.  | The minimum Doppler shift is equal to |
| Option A: | 100khz |
| Option B: |  Zero |
| Option C: | Infinity |
| Option D:  | Transmitter frequency |
|  |  |
| Q8.  | The Doppler radar works by measuring the \_\_\_\_\_\_\_\_ of the reflected radio wave. |
| Option A: | Intensity |
| Option B: | Doppler shift |
| Option C: | Doppler amplitude |
| Option D:  | Frequency |
|  |  |
| Q9. | The average power of Pulsed radar transmitter is given by |
| Option A: | peak power divided by the duty cycle |
| Option B: | the addition of peak power of the pulse and the duty cycle |
| Option C: | peak power divided by the number of pulses repeated in one second |
| Option D:  | the product of peak power of the pulse and the duty cycle |
|  |  |
| Q10.  | Which statement regarding CW Doppler radar is wrong? |
| Option A: | it does not use duplexer |
| Option B: | it gives continuous transmission |
| Option C: | it gives accurate measurement of relative velocity |
| Option D:  | it is capable of measuring target range |
|  |  |
| Q11.  | MTI radar operating at 5 GHz has a PRF of 800 pps. The lowest blind speed is |
| Option A: | 64 m/sec |
| Option B: | 48 m/sec |
| Option C: | 36 m/sec |
| Option D:  | 24 m/sec |
|  |  |
| Q12.  | MTI stands for |
| Option A: | Moving Transmitter Indicator |
| Option B: | Moving target interval |
| Option C: | Moving target indication |
| Option D: | Modulation Transmitting Interval |
|  |  |
| Q13. | Techniques in angular tracking is |
| Option A: | Sequential lobing |
| Option B: | Conical scanning |
| Option C: | Doppler shift tracking |
| Option D:  | A and B |
|  |  |
| Q14.  | Sequential switching gives  |
| Option A: | The details of both magnitude and direction of angular error |
| Option B: | The details of only magnitude of angular error |
| Option C: | The details of only direction of angular error |
| Option D:  | Range |
|  |  |
| Q15. | Phased array radar is used for |
| Option A: | fast scanning |
| Option B: | non-scanning only |
| Option C: | weather forecasting |
| Option D:  | speed trapping |
|  |  |
| Q16.  | Clutter is |
| Option A: | An desired echo |
| Option B: | A unwanted echo |
| Option C: | A target |
| Option D:  | A radar beam |
|  |  |
| Q17. | The characteristic of the magnetron output pulse that relates to accurate range measurement is its |
| Option A: | Amplitude |
| Option B: | Decay time |
| Option C: | Duration |
| Option D: | Rise time |
|  |  |
| Q18. | Electron-bombarded semiconductor has following technology |
| Option A: | Vacuum tube |
| Option B: | Semiconductor |
| Option C: | Hybrid Vacuum tube –semiconductor  |
| Option D:  | Metal semiconductor |
|  |  |
| Q19.  | The attenuator is used in the traveling-wave tube to |
| Option A: | prevent saturation |
| Option B: | prevent oscillations |
| Option C: | help bunching |
| Option D:  | increase gain |
|  |  |
| Q20. | What are the two basic kinds of cross-field amplifiers (CFAs)? |
| Option A: | Cross beam and perpendicular beam |
| Option B: | Injected beam and distributed emission |
| Option C: | Reticulated beam and focused beam |
| Option D: | Mad beam and upset beam |
|  |  |
| Q21. | A microwave tube amplifier uses an axial magnetic field and a radial electric field. |
| Option A: | CFA |
| Option B: | coaxial magnetron |
| Option C: | traveling-wave magnetron |
| Option D:  | reflex klystron |
|  |  |
| Q22.  | The cavity magnetron uses strapping to |
| Option A: | improve the phase-focusing effect |
| Option B: | prevent cathode back-heating |
| Option C: | ensure bunching |
| Option D:  | prevent mode jumping |
|  |  |
| Q23. | B-scope radar display is more suitable for |
| Option A: | Multiple target detection radar |
| Option B: | Military Radars. |
| Option C: | Manually tracking Radar. |
| Option D:  | non stationary target detection radar |
|  |  |
| Q24.  | Radar uses what form of energy to detect planes, ships and land masses |
| Option A: | Sound energy |
| Option B: | Visible light |
| Option C: | Infrared radiation |
| Option D:  | Electromagnetic energy |
|  |  |
| Q25. | What IF frequency normally used in radar receivers? |
| Option A: | 30 or 60 MHz |
| Option B: | 455 kHz |
| Option C: | 70 MHz |
| Option D:  | 10.7 MHz |