

Microwave and Radar Engineering BE Sem VII Set 1

1 mark

Q No	Question
1	One of the following radar systems is mainly used in remote sensing applications. a) Pulse compression radar b) FM-CW radar c) Synthetic aperture radar d) Phased array radar
2	Radar range primarily depends upon a) peak transmitted power b) average transmitted power c) independent of transmitted power d) distance between ends
3	Assuming perfect conductors of a transmission line, pure TEM propagation is NOT possible in (a) coaxial cable (b) air-filled cylindrical wave guide (c) parallel twin-wire line in air (d) semi-infinite parallel plate wave guide
4	Which mode of propagation is supported by a strip line? a) TEM mode b) TM mode c) TE mode d) None of the mentioned
5	Shunt stubs are preferred for: a) Strip and microstrip lines b) Coplanar waveguides c) Circular waveguide d) Circulators
6	For co-axial lines and waveguides, _____ is more preferred. a) Open circuited stub b) Short circuited stub c) Slotted section d) Co-axial lines cannot be impedance matched
7	The matrix of an ideal isolator is not _____ a) Unitary b) Symmetric c) Lossless d) None of the mentioned
8	The isolators constructed using ferrite materials must operate at: a) Gyro magnetic resonance b) Magnetic resonance c) Isolator resonance d) None of the mentioned
9	The primary purpose of the helix in a travelling wave tube is to a) reduce the noise figure b) ensure broadened operation

	<p>c) reduce the axial velocity of the RF field d) prevent the electron beam from spreading in the long tube</p>
10	<p>Which microwave tube has a repeller? a) TWT b) Klystron c) Magnetron d) BWO</p>
11	<p>Which of the following is one of the mode in Reflex Klystron a) Give same frequency but different transit time b) Are caused by spurious frequency modulation c) Are just for theoretical consideration d) Result from excessive transit time across resonator gap</p>
12	<p>A space between two cavities in two cavity klystron is _____ a) Normal space b) Free space c) Running space d) Drift space</p>
13	<p>Magnetron is an _____ a) Amplifier b) Oscillator c) Phase shifter d) Both phase shifter & amplifier</p>
14	<p>The width of depletion region of a varactor diode _____ with increase in reverse bias voltage. a) Increases b) Decreases c) Remains constant d) None of the mentioned</p>
15	<p>GaAs is used in the fabrication of GUNN diodes because: a) GaAs is cost effective b) It less temperature sensitive c) it has low conduction band electrons d) less forbidden energy gap</p>
16	<p>To prevent an IMPATT diode from burning, a constant bias source is used to maintain _____ at safe limit. a) average current b) average voltage c) average bias voltage d) average resistance</p>
17	<p>Silicon junction transistors are used as amplifiers at frequency range of about: a) 5-10 MHz b) 2-10 GHz c) 40-50 MHz d) 12-45 GHz</p>
18	<p>In a radar transmitter, the function of modulator is to a) allow the use of same antenna for transmission and reception b) switch the tube OFF and ON as required c) control pulse repetition frequency (PRF) d) increase maximum range of the radar</p>

	<p>c) 4 times d) 8 times</p>
29	<p>The relation between incident voltage matrix, reflected voltage matrix and S matrix for a microwave network:</p> <p>a) $[v^-] = [s] [v^+]$. b) $[v^+] = [s] [v^-]$. c) $[v^-] [v] = [s]$. d) $[s] = [v] [v^-]$.</p>
30	<p>A target is moving with a velocity of 360 km/hour radially towards the transmitting frequency generator of 3 GHz will be</p> <p>a) 300 Hz b) 1 kHz c) 1.5 kHz d) 2 kHz</p>
31	<p>For a load impedance of $Z_L = 60 - j80$. Design of 2 single-stub shunt tuning networks to match this load to a 50Ω line is to be done. What is the normalized admittance obtained so as to plot it on smith chart?</p> <p>a) $1 + j$ b) $0.3 + j0.4$ c) $0.4 + j0.3$ d) $0.3 - j0.4$</p>
32	<p>If a ferrite slab provides a phase shift of $48^\circ/\text{cm}$, then the length of the ferrite slab required to produce a phase shift of 180° is:</p> <p>a) 4 cm b) 3.75 cm c) 4.5 cm d) 3.5 cm</p>
33	<p>The cutoff frequency for operation of a varactor diode at a specific bias is given by:</p> <p>a) $1/2\pi R_s C_{jv}$ b) $1/2\pi C_s R_{jv}$ c) $1/2\pi\sqrt{LC}$ d) None of the mentioned</p>
34	<p>In the series configuration of a PIN diode switch, the terminated load impedance was found to be 50Ω and the diode impedance was 60Ω. Then the insertion loss of the switch is:</p> <p>a) 4 dB b) 2 dB c) 3.6 dB d) 4.8 dB</p>
35	<p>In a Gunn diode oscillator, the electron drift velocity was found to be 107 cm/second and the effective length is 20 microns, then the intrinsic frequency is:</p> <p>a) 2 GHz b) 6 GHz c) 4 GHz d) 5 GHz</p>