GAIL Electrical & Electronics Engineering Sample Paper

1.Consider the following expressions indicating the step or impulse response of an initially relaxed control system-
a.) (5 – 4e-2t) u(t)
b.) (e-2t +5) (u(t))
c.) V(t) + 8e-2t u(t)
d.) V(t) + 4e-2t 4(t)

2.Which is the following relate to rational transfer function of a system-
a.) Ratio of Fourier transform of output to input with zero initial conditions.
b.) Ratio of Laplace transform of output to input with zero initial conditions.
c.) Laplace transform of system impulse response.

3. Laplace transform of system unit step response select the correct answer using the codes given below. Codes
a.) 1 and 4
b.) 2 and 3
c.) 1 and 3
d.) 2 and 4

4.For the signal g (t) – 10 cos (50 pt) cos2 (150at) The Nyquist sampling state in t seconds is
a.) 150 samples per second
b.) 200 samples per second
c.) 300 samples per second
d.) 350 samples per second

5.In the case of a 70 MHz 1F carries for a transponder band width of 36 MHz; energy must lie between – MHz.
a.) 34 and 106
b.) 52. And 88
c.) 106 and 142
d.) 34 and 142

6.Radar used to eliminate clutter in navigational application is –
a.) Pulse radar
b.) Tracking radar
c.) MTI radar
d.) Mono pulse radar

7.The 1.55 mm windows is not yet in use with fiber optic systems because –
a.) The attenuation is higher than at 0.85 mm
b) The attenuation is higher than at 1.3mm
c.) Suitable laser devices have not yet been developed
d.) It does not lend itself to wavelength multiplexing

8.Pre-emphasis in FM systems involves-
a.) Compression of the modulating signal
b.) Expansion of the modulating signal

c.) Amplification of lower frequency components of the modulating signal.
d.) Amplification of higher frequency components of the modulating signal.

9.In a terrestrial microwave system transmission of signals is achieved through-
a.) reflection from the ionosphere
b.) line of sight mode
c) reflection from the ground
d.) diffraction from the stratosphere.

10.Casse grain feed is used with a parabolic reflector to
a.) increase the gain of the system
b). increase the bandwidth of the system
c.) reduce the size of the main reflector
d.) allow the feed to be placed at a convenient point.

11.In most microwave communication link rain drop attenuation is caused due to-
a.) scattering of microwaves by water drops of specific size.
b) scattering of microwaves by a collection of droplets acing as a single body.
c.) absorption of microwaves by water and consequent heating of the liquid
d.) absorption of the microwaves by water vapor in the atmosphere.

12.When a $(75 - j40)W$ load is connected to a coaxial line of $Z0 = 75$ W at 6MHz then the load matching on the line can be accomplished by connecting-
a.) A short – circuited stub at the load
b.)An inductance at the load
c.)A short circuited stub at a specific distance from the load
d.)none of the above

13.As compared to analog multimeters, digital Multimeters's are –
a.) less accurate
b.) more accurate
c.) equally accurate
d.) none.

14.When a signal of 10 mV at 75 MHz is to be measured then which of the following instruments can be used –
a.) VTVM
b.) Cathode ray oscilloscope
c.) Moving iron voltmeter
d.) Digital multimeter

15.Amplifier of class B has high theoretical efficiency of 78.5 percent because-
a.) It is biased almost to saturation
b.)Its quiescent current is low
c.)It's output is an exact replica of it's input
d.)It is biased well below cut off

16.The coupling that produces minimum interference with frequency response is-
a.) Direct coupling
b.) Impedance coupling

c.) R C coupling
d.)Transformer coupling

17.A superconductor is a –
a.) A material showing perfect conductivity and Meissner effect below a critical temperature
b.) A conductor having zero resistance
c.) A perfect conductor with highest di-magnetic susceptibility
d.) A perfect conductor which becomes resistance when the current density through it exceeds a critical value

18.When an inductor tunes at 200 KHz with 624 pF capacitor and at 600 KHz with 60.4 pF capacitor then the self capacitance of the inductor would be –
a) 8.05 pF
b) 10.05pF
c.) 16.01pF
d.) 20.01pF

19.The Q of a radio coil –
a.) is independent of frequency
b.) increases monotonically as frequency increases
c.) decreases monotonically as frequency increases
d.) increases upto a certain frequency and then decreases beyond that frequency

20.When a generator of internal impedance and operating at 1GHz feeds a load via a coaxial line of characteristic impedance 50 ohm then the voltage wave ratio on the feed line is –
a.) 0.5
b.) 1.5
c.) 2.5
d.) 1.75

21.The coding system typically used in digital telemetry is –
a.) PPM (pulse position modulation)
b.) PAM (pulse amplitude modulation)
c.) PCM (pulse code modulation)
d.) PDM (pulse duration modulation)

22.Radiation pyrometers are used for the measurement of temperature in the range of –
a.) -2000C to 5000C
b.) 00C to 5000C
c.) 5000C to 12000C
d.) 12000C to 25000C

23.RF amplifier of an A.M. receiver is normally biased in –
a.) Class 'A'
b.) Class 'b'
c.) Class 'C'
d.) None

24.The value of gate voltage for the operation of enhancement of only N channel MOSFET has to be –
a.) High positive
b.) High negative
c.) Low positive
d.) Zero

25. A synchronous motor works as a synchronous condenser if
a.) underexcited
b.) overexcited
c.) excited with 100% excitation
d.) unexcited