TEST SERIES (PHYSICS)

MT 1H COMMUNICATION AND EMW MM30

Q1.Distinguish point to point and broadcast communication modes.Give one example of each.(1)

Q2. Write the name of the part of electromagnetic spectram which is used in taking photograph of earth under foggy conditions from great height?(1) **Q3**.Find the min. length of antenna required for transmitting a signal of frequency 100MHZ.(1) **Q4.**Amplitude of electric field in an electromagnetic wave is120N/C and its frequency is 50MHz.Find expression for E and B.(1)

Q5.During the charging of capacitor write the relation between displacement current and conduction current.(1) Q6.Why(a)audio signals converted in to an electromagnetic wave are not directely transmitted?(b)amplitude of a modulating signal is kept less than amplitude of carrier wave? (2)

Q7. Draw a plot of variation amplitude vs ω for an amplitude modulated wave.

.Define modulation index. State its importance for effective amplitude modulation.(2)

Q8.Draw block diagram of simple radio receiver. Briefly describe the function of intermediate frequency stage.(2)

Q9.Write how we can produce radiowaves? Write its frequency .Write its one use.(2)

Q10.Explain why we use space wave in tv transmission .write how we can increase the range of tv transmission?(2)

Q11.A 12KHZ massage signal with peak voltage 20v is used to modulate a carrier wave of frequency 12Mhz and peak voltage 30V.Calculate (i) modulation index (ii)side band frequencies.(3)

Q12.Draw schematic diagram showing the (i)ground wave(ii)sky wave (iii)space wave.write the frequency range for(i)AM broadcast(ii)television(iii)satellite(3)

Q13.A parallel plate capacitor is being charged by a time varying current. Explain briefly how Amperes circuital law is generalized to incorporate the effect due to the displacement current.(3)

Q14.(i)why is the communication using line of sight limited to frequencies above 40 MHZ ?(II)Height of transmitting and receiving antennas are32m and 50m.what is the maximum distance between them for satisfactory communication in line of side mode?(3)

Q15.A transmitting station is situated at a height of 450m.Write the method of communicating the frequencies(a)5Mhz(b)100Mhz up to a distance of 100km.$N_{max}=10^{12}m^{-3}$.(3)