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181035

3rd Sem / Branch : Electronics and Communication Engg
Subject:- Network filter and transmission line

Time : 3Hrs. M.M. : 100

SECTION-A

Note: Multiple choice questions. All questions are compulsory (10x1=10)

Q.1 If an asymmetrical network is terminated by an impedance such that its input impedance is equal to its terminating impedance, then such impedance is called:
a) Source impedance b) Load impedance
c) Iterative impedance d) Image impedance

Q.2 Attenuation find application in (CO1)
a) AC circuit b) DC circuit
c) Both a & b d) None of the above

Q.3 For a symmetrical π attenuator
a) $R_1=R_0\left(\frac{N^2-1}{2N}\right)$ b) $R_2=R_0\left(\frac{N^2-1}{2N}\right)$
c) $R_1=R_0\left(\frac{N-1}{N+1}\right)$ d) $R_2=R_0\left(\frac{N-1}{N+1}\right)$

Q.4 In a prototype high pass filter π-section characteristic impedance is maximum at which frequency? (CO4)
a) Zero b) fc
c) 1.5 fc d) Infinity

Q.5 For a m-derived LPF (CO5)
a) $f_\infty=0$ b) $f_\infty=f_c$
c) $f_\infty<f_c$ d) $f_\infty>f_c$

Q.6 A band stop filter (CO5)
a) Passes all frequencies above a particular frequency

b) Passes all frequencies below a particular frequency
c) Passes all frequencies between two specified frequencies
d) None of the above

Q.7 Reflection coefficient of a line terminated in its characteristic impedance is (CO5)
a) -1 b) 0
c) 1 d) Infinity

Q.8 A finite length transmission line behaves as infinite long line when the load end is (CO7)
a) Open circuited
b) Short circuited
c) Terminated by its characteristic impedance
d) Terminated by an impedance other than characteristic impedance

Q.9 For an open circuited line load current minima occurs at_____ (CO7)
a) Load
b) Source
c) At midpoint of load and source
d) At any point between load and source

Q.10 If K=1, then VSWR will be (CO7)
a) 0 b) 1
c) -1 d) Infinity

SECTION-B

Note: Objective type questions. All questions are compulsory. (10x1=10)

Q.11 In an asymmetrical T-network the series impedance are equal. (True/False) (CO1)

Q.12 Define open circuit impedance. (CO1)

Q.13 Define image transfer constant (CO1)

Q.14 Characteristic impedance for a symmetrical T-netwrok is_____ (CO1)

Q.15 1 dB =_____ Neper (CO2)

Q.16 L-Type attenuator is a form of symmetrical attenuator (True/False) (CO3)

Q.17 Draw a m-derived π-section high pass filter. (CO5)

Q.18 VSWR for a transmission line lies between _____and_____ (CO7)

Q.19 Draw the equivalent circuit of a transmission line (CO7)

Q.20 Distance between successive voltage minima is _____ (CO7)

SECTION-C

Note: Short answer type questions. Attempt any twelve questions out of fifteen questions. (12x5=60)

Q.21 Differentiate between symmetrical and asymmetrical network. (CO1)

Q.22 Explain propagation constant of a symmetrical network . (CO1)

Q.23 Explain briefly insertion loss. (CO1)

Q.24 Obtain a half section by spitting a π-network. (CO1)

Q.25 Derive the design equation equation of symmetrical π-attenuator. (CO3)

Q.26 List five applications of attenuator. (CO4)

Q.27 List five advantages of active filter (CO6)

Q.28 Compare prototype andm-derived filters. (CO6)

Q.29 Explain the working of a low pass filter. (CO6)

Q.30 Explain the construction and working of double crystal BPF. (CO8)

Q.31 Explain briefly the primary constant of a transmission line. (CO7)

Q.32 What do you mean by reflection coefficient. How is reflection coefficient related to VSWR (CO7)

Q.33 Explain the need of impedance matching in transmission line (CO7)

Q.34 List two advantages and two disadvantages of HVDC (CO9)

Q.35 Give five types of transmission line (CO7)

SECTION-D

Note: Long answer type questions. Attempt any two questions out of three questions. (2x10=20)

Q.36 Design a symmetrical T-type attenuator to give 30dB attenuation, having a characteristic impedance of 600Ω . (CO4)

Q.37 A π section LPF consist of a series inductance of 20mH and shunt capacitance of 0.16μF. Calculate the value of f_c and R_o (CO6)

Q.38 Explain the infinite long transmission line. How can a transmission line of finite length behaves as an infinite long line. Write down the transmission line equation for an infinite long line. (CO7)

(**Note:** Course outcome/CO is for office use only)