

Electrical Circuits (B) - Quiz 1

Max Time Allowed: 5 min

- Q.1)** in electrical circuits, the Complementary solution Represent the transient solution
- A. False
- B. True
- Q.2)** typical characteristics of filter response curve is more sharp than ideal characteristics
- A. True
- B. False
- Q.3)** mutual coupling exists when the circuits are driven by time-constant sources
- A. False
- B. True
- Q.4)** For RC series circuit with DC supply and two position switch, the boundary condition of the current of position two become 0 ampere.
- A. True
- B. False
- Q.5)** in series RLC with DC supply, The particular integral solution can be one of three different forms according to the roots of the auxiliary equation.
- A. True
- B. False
- Q.6)** for Low pass filter, At low frequency $V_{out} = 0$
- A. True
- B. False
- Q.7)** in electrical circuits, the particular integral solution Represent the steady-state solution
- A. False
- B. True
- Q.8)** in series resonance, If the band of frequencies to be selected or rejected is narrow, the quality factor of the resonant circuit must be high.
- A. False
- B. True
- Q.9)** in ideal transformer the voltage ratio is directional proportional to current ratio
- A. True
- B. False
- Q.10)** Since the current is maximum at resonance, it follows that the power must similarly be maximum at resonance.
- A. True
- B. False
- Q.11)** When two loops with or without contacts between them affect each other through the magnetic field generated by one of them, they are said to be magnetically coupled.
- A. False
- B. True
- Q.12)** Differential equation give the same solution for transient current that obtained by laplace
- A. False
- B. True
- Q.13)** Passive Filters is more preferable than Active filters
- A. False
- B. True
- Q.14)** The Bandwidth of the resonant circuit (BW) is The difference between the frequencies at which the circuit delivers half of the maximum power.
- A. True
- B. False

Q.15) current may vary in an electrical circuit when a change in the applied voltage or a change in one of the circuit elements done.

- A. True
B. False

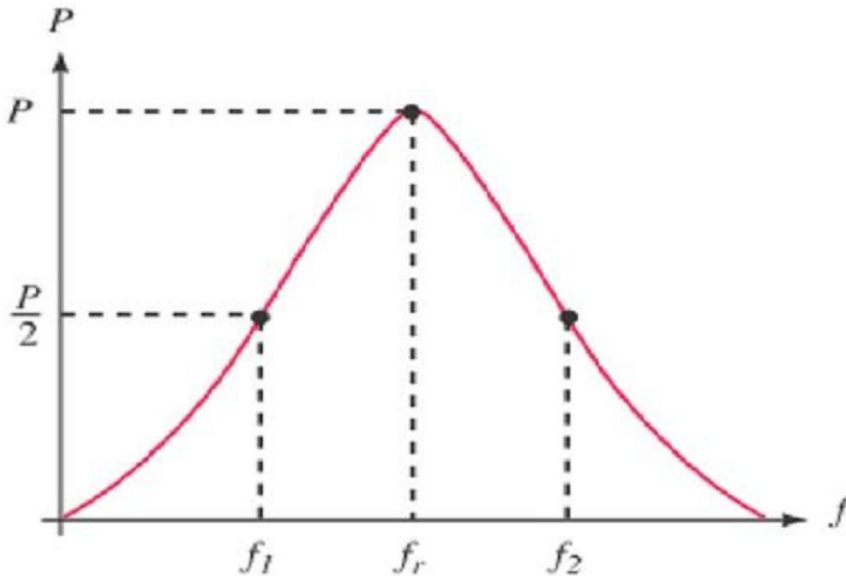
Q.16) No protection needed when the inductance from one coil can interfere with the operation of another adjacent component by means of electromagnetic induction

- A. True
B. False

Q.17) Active Filters consists of only passive elements R, L, and C.

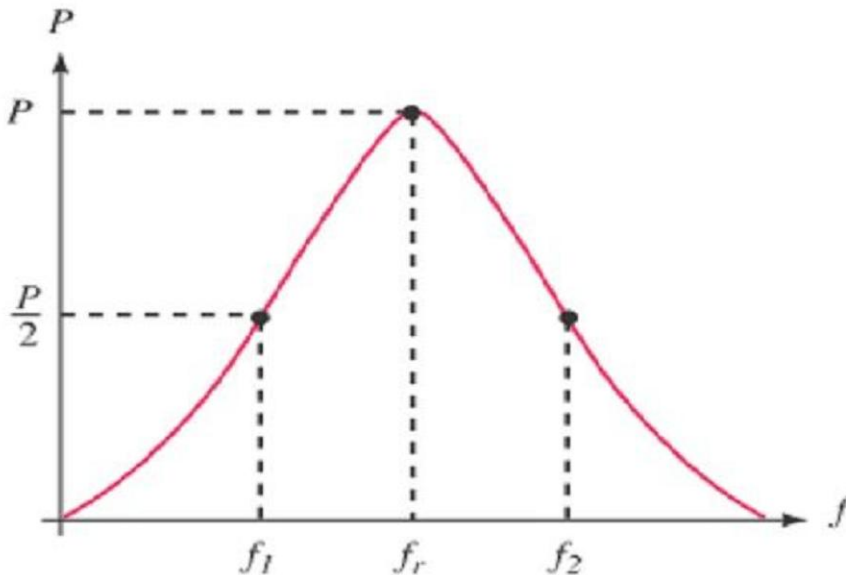
- A. False
B. True

Q.18) The bandwidth is the average between the half power points on the response curve of the filter.



- A. True
B. False

Q.19) This curve indicates that power will be a maximum at f_r and varying the frequency in either direction results in a rise of the power.



- A. True
B. False

Q.20) At parallel resonance, The value of current will be minimum since the total admittance is maximum

- A. True
B. False

Q.21) At parallel resonance, The Power factor is unity.

- A. False
B. True

Q.22) For Sinusoidal source $d/dt = 1/j\omega$

- A. False
B. True

Q.23) Active filters can be used to perform the same operations of passive filters

- A. False
B. True

Q.24) in series RL circuit, the steady state current is zero

- A. True
B. False

Q.25) At parallel resonance, the admittance consists only conductance $G = 1/R$.

- A. True
B. False

Q.26) A series RLC with DC supply is considered first order circuit

- A. False
B. True

Q.27) The “sharpness” of the resonance in a resonant circuit is measured quantitatively by the quality factor Q.

- A. False
B. True

Q.28) in series RLC with DC supply, the transient current obtained will be a part of solution for the same circuit but with AC supply

- A. False
B. True

Q.29) The resonant frequency is the geometric mean of the half-power frequencies. The resonant frequency is the geometric sum of the half-power frequencies.

- A. False
B. True

Q.30) band stop filters used to pass a certain band of frequencies

- A. True
B. False

Q.31) Transformer is the direct application for mutual inductance phenomena

- A. False
B. True

Q.32) The resonant circuit consists only of inductor with a voltage or current source.

- A. True
B. False

Q.33) Second Order Filters contain two reactive elements (L and C)

- A. False
B. True

Q.34) At parallel resonance, The currents through the inductor and the capacitor have the same magnitudes but are 90 out of phase.

- A. False
B. True

Q.35) the quality factor of resonance circuit doesn't depend on resistance

- A. False
B. True

Q.36) When two coils are close to each other, the magnetic flux caused by current in one coil links with the other coil.

- A. False
B. True

Q.37) A steady state period obtained when a circuit is switched from one condition to another.

- A. True
B. False

Q.38) The resonant circuit consists only of a capacitor with a voltage or current source.

- A. False
B. True

Q.39) in dot convention, if currents enter dotted terminals of two coils , M will be positive

- A. False
B. True

Q.40) The power response of a series resonant circuit has a bell-shaped curve called the selectivity curve.

- A. False
B. True

Q.41) in step down transformer , the current at secondary coil is greater than primary.

- A. False
B. True

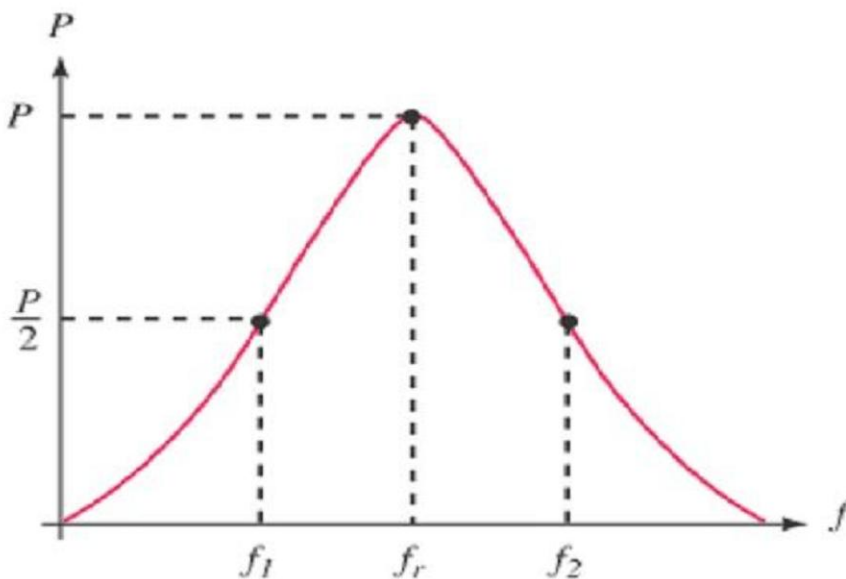
Q.42) in ideal transformer the turns ratio inversely proportional to the root of self inductance ratio

- A. False
B. True

Q.43) passive filters can be designed to generate output voltage greater than input voltage

- A. False
B. True

Q.44) This curve is for bandstop filter



- A. True
B. False

Q.45) The total impedance of RLC parallel circuit is given in the shown relation

$$R + j \left(\omega L - \frac{1}{\omega C} \right)$$

- A. False
 B. True

Q.46) In RLC series resonance the Magnitude of inductive reactance must Eliminates the Magnitude of capacitive reactance to result a pure inductor

$$R + j \left(\omega L - \frac{1}{\omega C} \right)$$

- A. True
 B. False

Q.47) Laplace Transform is more complex method for solving transient equations

- A. False
 B. True

Q.48) for high pass filter, At high frequency $V_{out} = 0$

- A. False
 B. True

Q.49) For RC series circuit with DC supply the transient current take the form of triangle wave form

- A. False
 B. True

Q.50) for Ideal transformer there is no power Loss

- A. False
 B. True

Q.51) The phase of The current across coil in series resonant circuit is +90 when the supply is $5\sin\omega t$

- A. True
 B. False

Q.52) The RLC parallel resonant circuit provides a band-stop filter when the output is taken off the LC

- A. True
 B. False

Q.53) First-order circuits contain a single capacitor and inductor

- A. False
 B. True

Q.54) M21 relates the induced voltage in coil 1 to the current in coil 2

- A. True
 B. False

Q.55) in series resonance, The higher the value of Q , the more selective the circuit is but more bandwidth.

- A. False
 B. True

Q.56) The value of ω that satisfies this condition is called the resonant frequency

$$\omega_s = \frac{1}{\sqrt{LC}} \text{ (Hz)}$$

- A. True
B. False

Q.57) A filter that prevents a band of frequencies between two designated values is called high stop filter

- A. True
B. False

Q.58) Mutual inductance M may be Negative or positive

- A. True
B. False

Q.59) The mutual voltage may be negative or positive

- A. True
B. False

Q.60) If the bandwidth of a circuit is kept very narrow , the circuit is said to have a Low selectivity

- A. True
B. False

Q.61) For RC series circuit with DC supply the transient current decays with time

- A. False
B. True

Q.62) mutual coupling exists when The inductors or coils are in far proximity

- A. True
B. False

Q.63) After the steady state interval , the circuit is said to be in the transient.

- A. True
B. False

Q.64) partial fraction is an urgent step to solve transient current using differential equation method

- A. False
B. True

Q.65) The magnitude of current in the reactive elements at parallel resonance is Q times Lower than the applied source current.

- A. False
B. True

Q.66) Active filters Can generate gains greater than one

- A. True
B. False

Q.67) Passive Filters consists of only passive elements R, and C.

- A. True
B. False

Q.68) The RLC parallel resonant circuit provides a bandpass filter when the output is taken off the resistor

- A. True
B. False

Q.69) Band pass filters are also called band reject filters

- A. True
B. False

Q.70) in practical parallel resonance , if the internal resistance of the coil is negligible , so the resonance frequency of the circuit will be equal to the resonant frequency of ideal parallel resonance

- A. True
- B. False