

**Program: FE (All branches)**  
**Curriculum Scheme: Revised 2012**  
**Examination: First Year Semester I**

**Course Code: FEC105**

**Course Name: Basic Electrical and Electronics Engineering**

Time: 1hour

Max. Marks: 50

Note to the students: - All Questions are compulsory and carry equal marks.

Q1.	Kirchhoff's first law states that at a junction in an electric network
Option A:	$\sum E=0$
Option B:	$\sum I=0$
Option C:	$\sum V=0$
Option D:	$\sum E+\sum V=0$
Q2.	In applying the superposition theorem which statement is correct?
Option A:	All current and voltage sources are removed
Option B:	Only the current sources are removed
Option C:	Only the voltage sources are removed
Option D:	Only one source is included at a time
Q3.	While Thevenin's a circuit between two terminals $V_{TH}$ is equal to
Option A:	Short -circuit terminal voltage
Option B:	Open-circuit terminal voltage
Option C:	Net voltage available in the circuit
Option D:	Emf of the battery nearest to the terminal
Q4.	If a star – connected network consists of R ohms in each leg of star. What is equivalent delta?
Option A:	R ohm
Option B:	R/3 ohm
Option C:	3R ohm
Option D:	4R ohm
Q5.	Norton equivalent is
Option A:	parallel circuit
Option B:	series circuit
Option C:	series-parallel circuit
Option D:	resistive circuit

Q6.	In a pure inductive a.c circuit
Option A:	Voltage leads the current vector by $90^\circ$
Option B:	Voltage lags the current vector by $90^\circ$
Option C:	Current leads the voltage vector by $90^\circ$
Option D:	Current lags the voltage vector by $90^\circ$
Q7.	If a sinusoidal wave has frequency of 50Hz with 15 r.m.s value which of the following equation represents this wave
Option A:	$15\sin 50t$
Option B:	$30\sin 25t$
Option C:	$42.42\sin 100t$
Option D:	$21.21\sin 314t$
Q8.	Apparent power is expressed in
Option A:	Volt-ampere
Option B:	Watts
Option C:	Joule
Option D:	VAR
Q9.	In a series resonant circuit,
Option A:	$X_L = X_C$
Option B:	$X_L > X_C$
Option C:	$X_L < X_C$
Option D:	$X_L = 1/X_C$
Q10.	When a parallel a.c circuit is in resonance it
Option A:	Draw maximum current
Option B:	Offers maximum impedance
Option C:	Is called a rejector circuit
Option D:	Has no branch currents
Q11.	A parallel a.c circuit has a conductance of 0.6S and a susceptance of 0.8S its admittance is _____ Siemens.
Option A:	0.14
Option B:	0.75
Option C:	1.0
Option D:	1.33
Q12.	Wattmeter is an instrument which measure
Option A:	instantaneous power
Option B:	average real power
Option C:	apparent power

Option D:	reactive power
Q13.	In a balanced 3-phase, star connected system, the phase difference between phase voltage and their respective line voltage
Option A:	30°
Option B:	120°
Option C:	60°
Option D:	45°
Q14.	In two wattmeter method of three phase power measurement in balanced having 0.5 p.f lagging
Option A:	One wattmeter reads zero
Option B:	One wattmeter reads down scale
Option C:	Both the wattmeter reads equally
Option D:	Both the wattmeter gives equal and opposite reading
Q15.	When three 10 resistors are connected in star across a 400V, 3-phase supply, each resistor must have power
Option A:	5290W
Option B:	2300W
Option C:	4000W
Option D:	4600W
Q16.	When phase sequence at the 3-phase load is reversed
Option A:	Phase powers are changed
Option B:	Phase currents are changed
Option C:	Phase currents change in angle but not in magnitude
Option D:	Total power consumed to changed
Q17.	Open-circuit and short-circuit tests on a transformer give
Option A:	Windage losses
Option B:	Friction losses
Option C:	Iron and copper losses respectively
Option D:	Copper and iron losses respectively
Q18.	The induced e.m.f in the transformer secondary will depend on
Option A:	frequency of the supply only
Option B:	number of turns on secondary only
Option C:	frequency and flux in core
Option D:	frequency number of secondary turns and flux in the core
Q19.	The transformer is not connected in the d.c line because
Option A:	There is no need to step up or step down the d.c voltage
Option B:	Faraday's law is not valid as the rate of change of flux is zero
Option C:	Losses in d.c circuit are high

Option D:	It is not economical
Q20.	The primary and secondary of a transformer are _____ coupled
Option A:	electrically
Option B:	magnetically
Option C:	Electrically and magnetically
Option D:	Self
Q21.	The rating of a transformer is usually measured in
Option A:	volts
Option B:	amperes
Option C:	KW
Option D:	KVA
Q22.	The maximum efficiency of full wave rectification is
Option A:	40.6%
Option B:	100%
Option C:	81.2%
Option D:	85.6%
Q23.	A Zener diode has a
Option A:	High forward voltage rating
Option B:	Negative resistance
Option C:	High amplification
Option D:	sharp breakdown voltage at low reverse voltage
Q24.	In full wave rectification if the input frequency is 50Hz then the output frequency will be
Option A:	50Hz
Option B:	75Hz
Option C:	100Hz
Option D:	200Hz
Q25.	Avalanche breakdown in a crystal diode occur when
Option A:	The potential barrier reduced to zero
Option B:	Forward current exceeds certain value
Option C:	Reverse current exceeds certain value
Option D:	Zero barrier

Question	Correct Option
Q1.	B
Q2.	D

Q3.	B
Q4	C
Q5	A
Q6	A
Q7	D
Q8.	A
Q9.	A
Q10.	C
Q11.	C
Q12.	B
Q13.	A
Q14.	A
Q15.	A
Q16.	C
Q17.	C
Q18.	D
Q19.	B
Q20.	B
Q21.	D
Q22.	C
Q23.	D
Q24.	C
Q25.	C