CODE	COURSE NAME	CATEGORY	L	T	P	CREDIT
EET308	COMPREHENSIVE COURSE WORK	PCC	1	0	0	1

Preamble: The objective of this Course work is to ensure the comprehensive knowledge of each student in the most fundamental Program core courses in the curriculum. Five core courses credited from Semesters 3, 4 and 5 are chosen for the detailed study in this course work. This course has an End Semester Objective Test conducted by the University for 50 marks. One hour is assigned per week for this course for conducting mock tests of objective nature in all the listed five courses.

Prerequisite: 1.EET 201 Circuits and Networks
2. EET 202 DC Machines and Transformers
3. EET 206 Digital Electronics
4. EET 301 Power Systems I
5. EET 305 Signals and Systems

Course Outcomes: After the completion of the course the student will be able to

CO 1	Apply the knowledge of circuit theorems to solve the problems in electrical networks
CO 2	Evaluate the performance of DC machines and Transformers under different loading conditions
CO 3	Identify appropriate digital components to realise any combinational or sequential logic.
CO 4	Apply the knowledge of Power generation, transmission and distribution to select appropriate components for power system operation.
CO 5	Apply appropriate mathematical concepts to analyse continuous time and discrete time signals and systems

Mapping of course outcomes with program outcomes

	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12
CO1	3	3										2
CO2	3	2										2
CO3	3	3	1		1							2
CO4	3	3				1	1	1			1	2
CO5	3	3	1		1							2

Assessment Pattern

Bloom's Category	End Semester Examination
Remember	10
Understand	20
Apply	20
Analyse	
Evaluate	
Create	

Mark distribution

Total Marks	CIE	ESE	ESE Duration
50	0	50	1 hour

End Semester Examination Pattern: Objective Questions with multiple choice (Four). Question paper include Fifty Questions of One mark each covering the five identified courses.

Course Level Assessment Questions

Course Outcome 1 (CO1):

1. A circuit with resistor, inductor and capacitor in series is resonant at f_0 Hz. If all the component values are now doubled, the new resonant frequency is

   a) $2 f_0$
   b) Still f_0
   c) $f_0 /2$
   d) $f_0 /4$

2. The line A to neutral voltage is $10<15^0$ V for a balance three phase star connected load with phase sequence ABC. The voltage of line B with respect to line C is given by

   a) $10\sqrt{3}<105^0$ V
   b) $10<105^0$ V
   c) $10\sqrt{3}<75^0$ V
   d) $-10\sqrt{3}<90^0$ V

3. The average power delivered to an impedance $(4-j3)\Omega$ by a current $5\cos(100\pi t+100)$A is

a) 44.2 W
b) 50 W
c) 62.5 W
d) 125 W

Course Outcome 2 (CO2)

1. The DC motor which can provide zero speed regulation at full load without any controller is

a) Series
b) Shunt
c) Cumulatively compound
d) Differentially compound

2. For a single phase, two winding transformer, the supply frequency and voltage are both increased by 10%. The percentage changes in the hysteresis and eddy current loss, respectively are

a) 10 and 21
b) -10 and 21
c) 21 and 10
d) -21 and 10

3. Match the following

List I-Performance Variables	List II-Proportional to
A. Armature emf (E)	1. Flux (ϕ), speed (ω), Armature
B. Developed Torque (T)	2. ϕ and ω only
C. Developed Power (P)	3. ϕ and Ia only
	4. Ia and ω only
	5. Ia only

Choices:

	A	B	C
a)	3	3	1
b)	2	5	4
c)	3	5	4
d)	2	3	1

Course Outcome 3(CO3):

1. The SOP (sum of products) form of a Boolean function is $\sum(0, 1, 3, 7, 11)$, where inputs are A, B, C, D (A is MSB and D is LSB). The equivalent minimized expression of the function is

    a) (B'+C)(A'+C)(A'+B')(C'+D)
    b) (B'+C)(A'+C)(A'+C')(C'+D)
    c) (B'+C)(A'+C)(A'+C')(C'+D')
    d) (B'+C)(A+B')(A'+B')(C'+D)

2. A cascade of three identical modulo-5 counters has an overall modulus of

    a) 5
    b) 25
    c) 125
    d) 625

3. The octal equivalent of the HEX number AB.CD is

    a) 253.314
    b) 253.632
    c) 526.314
    d) 526.632

Course Outcome 4 (CO4):

1. Corona losses are minimized when

    a) Conductor size is reduced
    b) Smoothness of the conductor is reduced
    c) Sharp points are provided in the line hardware
    d) Current density in the conductors is reduced

2. Keeping in view the cost and overall effectiveness, the following Circuit Breaker is best suited for capacitor bank switching

    a) Vacuum
    b) Air Blast
    c) SF_6
    d) Oil

3. The horizontally placed conductors of a single phase line operating at 50Hz are having outside diameter of 1.6cm and the spacing between centres of the conductors is 6m. The permittivity of free space is 8.854×10^{-12} F/m. The capacitance to ground per kilometre of each line is

    a) 4.2×10^{-9} F

b) 4.2×10^{-12} F

c) 8.4×10^{-9} F

d) 8.4×10^{-12} F

Course Outcome 5 (CO5):

1. Consider a continuous time system with input x(t) and output y(t) given by y(t)=x(t)cos(t). This system is

    a) Linear and time invariant
    b) Non-linear and time invariant
    c) Linear and time varying
    d) Non-linear time varying

2. Signal Flow Graph is used to obtain

    a) Stability of the system
    b) Transfer Function of a system
    c) Controllability of a system
    d) Observability of a system

3. The steady state error due to a step input for Type 1 system is

    a) Zero
    b) Infinity
    c) 1
    d) 0.5

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Syllabus

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Full Syllabus of all Five selected Courses.

Course Contents and Lecture Schedule

No	Topic	No. of Lectures
1	**Circuits and Networks**	
1.1	Mock Test on Module 1 and Module 2	1
1.2	Mock Test on Module 3, Module 4 and Module 5	1
1.3	Feedback and Remedial	1
2	**DC Machines and Transformers**	
2.1	Mock Test on Module 1, Module 2 and Module 3	1
2.2	Mock Test on Module 4 and Module 5	1
2.3	Feedback and Remedial	1
3	**Digital Electronics**	
3.1	Mock Test on Module 1 and Module 2	1
3.2	Mock Test on Module 3, Module 4 and Module 5	1

3.3	Feedback and Remedial	1
4	**Power Systems I**	
4.1	Mock Test on Module 1, Module 2 and Module 3	1
4.2	Mock Test on Module 4 and Module 5	1
4.3	Mock Test on Module 1, Module 2 and Module 3	1
5	**Signals and Systems**	
5.1	Mock Test on Module 1, Module 2 and Module 3	1
5.2	Mock Test on Module 4 and Module 5	1
5.3	Feedback and Remedial	1