

DR. BABASAHEB AMBEDKAR TECHNOLOGICAL UNIVERSITY, LONERE

Mid Semester Examination – Oct 2018

Course: B. Tech in Electrical, Electronics and power Engineering

Sem: III

Subject Name: Engineering Economics

Subject Code: BTHS307

Max Marks: 20

Date:-13th OCT 2018

Duration:- 1 Hr.

Instructions to the Students:

1. All questions are compulsory
2. Assume suitable data if necessary

Marks

6

Q. 1 Solve the following

1. Economics is the study of :

- (a) how society manages its unlimited resources
- (b) how to fully satisfy our unlimited wants
- (c) How to avoid having to make trade offs
- (d) None of the above.

2. the law of demand states that an increase in the price of good

- (a) increase the supply of that good
- (b) decreases the quantity demanded for that good along its demand curve
- (c) decreases the demand for that good
- (d) None of the above.

3. The term micro and macro economics were first used by –

- (a) Adam Smith
- (b) Robbins
- (c) Ragner Frisch
- (d) Marshall

4. Perfectly elastic demand curve is

- (a) horizontal to OX axis
- (b) flatter
- (c) steeper
- (d) horizontal to OY axis

5. TRUE OR FALSE: Inward shifts in the production-possibilities curve represent economic growth.

(a) True

(b) False

6. Sam borrowed some money from his friend at simple interest of 6% per annum. He returned his friend Rs. 15600. After how much time did Sam return the money if he borrowed Rs. 12000?

- (a) 8 years
- (b) 2.5 years
- (c) 5 years
- (d) 3.5 years

Q.2 Solve Any Two of the following.

3 X 2

- (A) Explain "time value of money". How is it useful in taking investment related decisions?
- (B) Distinguish between Micro and Macro Economics.
- (C) Define: (a) demand (b) Increase in demand (c) Demand scheduled.

Q.3 Solve Any One of the following.

8

- (A) State and Explain Laws of Economics.
- (B) Explain payback period with its merits and demerits.

the project involves a total initial expenditure of Rs.2,00,000 and it is estimated to generate future cash inflow of Rs.30,000; Rs. 25000; Rs. 22000; Rs. 36000; Rs. 40000; Rs. 40000; Rs.28000; Rs.24000and Rs. 24000 in its last year. Calculate payback period

***** End *****

DR. BABASAHEB AMBEDKAR TECHNOLOGICAL UNIVERSITY, LONERE

Mid Semester Examination – Oct 2018

Course: B. Tech in Electrical, Electronics and Power

Sem: III

Subject Name: Signals and Systems

Subject Code: BTEEOEL305

Max Marks: 20

Date:- 12/10/18

Duration:- 1 Hr.

Instructions to the Students:

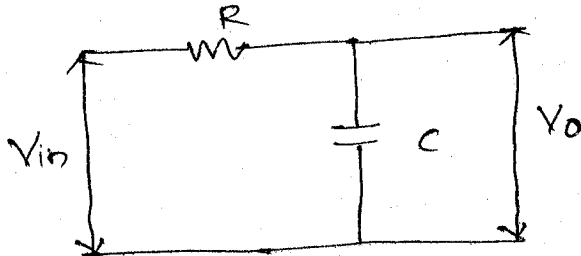
- 1. All Questions are compulsory
- 2. Assume suitable data if necessary

Marks

Q. 1 Attempt all the following

6

- 1. Distinguish between casual & non-casual system?
- 2. Find transfer function of following network:



- 3. The time period of $x(t)=20\cos(10\pi t+\frac{\pi}{6})$ is....
a)1/2 sec b)1/5 sec c)1/3 sec d)1/4 sec
- 4. Sketch the signal $\mu(-n + 2) \cdot \mu(n)$.
- 5. Which of the following system is non-linear?
a) $e^{x(t)}$ b) $x^2(t)$ c) $t^2x(t)$ d) $y(n)=\cos n$
- 6. Find the Laplace transform of $e^{-at}u(t)$?

Q.2 Solve Any Two of the following.

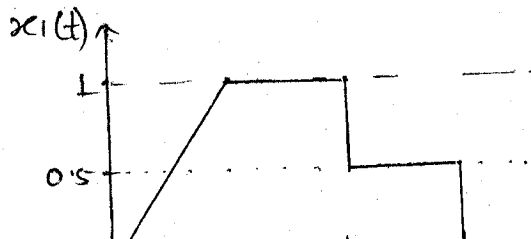
3 X 2

- (A) Find the Laplace transform of the signal $x(t)=e^{-3t}u(t) + e^{-2t}u(t)$ & find ROC.
- (B) Find whether system is stable or not?
 $h(t)e^{-t} \cos 2t u(t), u(t) = te^{-t}u(t)$
- (C) Find time period of given signals
 $x(t)=(\cos 60\pi t + \sin 50\pi t)$
 $x(t)=\cos(\frac{1}{3}t) + \sin(\frac{1}{4}t)$

Q. 3 Solve Any One of the following.

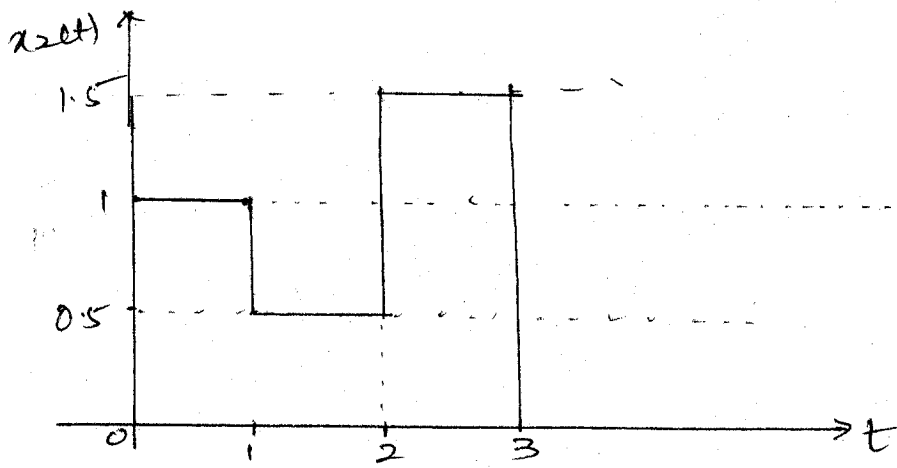
8

- (A) Find the resultant of the following signals using multiplication.



and

P.O.T.O.



(B) Find the convolution of $x(t)$ & $h(t)$

$$x(t) = 1 \quad 0 \leq t \leq 2$$

$$= 0 \quad \text{otherwise}$$

$$h(t) = 1 \quad 0 < t \leq 3$$

$$= 0 \quad \text{otherwise}$$

*** End ***

DR. BABASAHEB AMBEDKAR TECHNOLOGICAL UNIVERSITY, LONERE

Mid Semester Examination – Oct 2018

Course: B. Tech in Electrical Engineering/EE/EEP

Sem: III

Subject Name: Network Analysis and Synthesis

Subject Code: BTEEC302

Max Marks: 20

Date:-9/10/2018

Duration:- 1 Hr.

Instructions to the Students:

1. Assume suitable data if necessary

Marks

Q.1 Solve All Six Questions(Each question carries ONE mark)

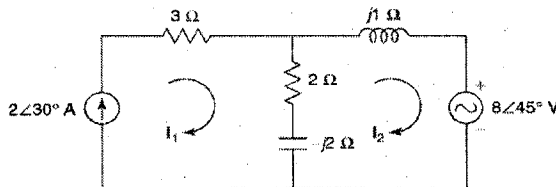
6x1

1. If n is the number of nodes, Number of twigs in a tree are?
a) n b) $n+1$ c) $n-1$ d) $n-2$
2. Resistance of a wire is $y\Omega$. The wire is stretched to triple its length, then the resistance becomes
a) $y/3$ b) $3y$ c) $6y$ d) $y/6$
3. If the voltage-current characteristic is a straight line through the origin, then the element is said to be?
a) Linear element b) Non-linear element c) Unilateral element d) Bilateral element
4. If initially current was flowing through the capacitor, after switching it gets disconnected from source, during transient ($t=0+$) it will act as _____
a) Open Circuit b) Short circuit c) Current Source d) Voltage Source
5. Write the equation for energy stored in inductor.
6. Write real life application of Nortan's Theorem .

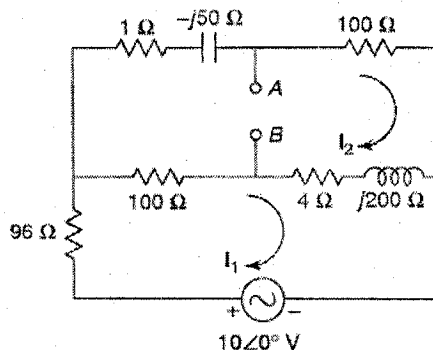
Q.2 Solve Any Two of the following. (Each Question carries THREE marks)

3 X 2

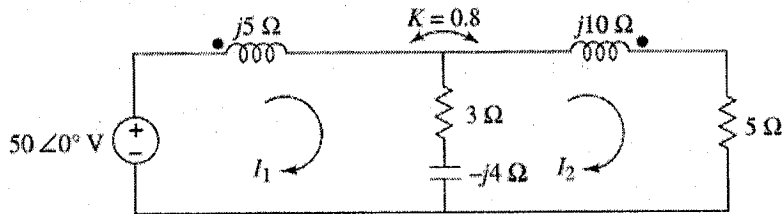
- (A) Determine the voltage across $(2-2j)\Omega$ impedance.**



- (B) Find The V_{AB}**



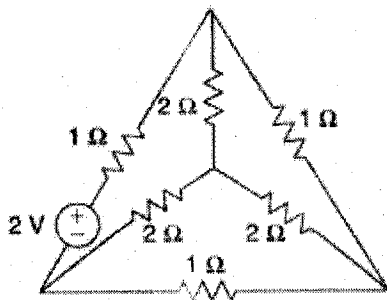
(C) Find voltage across 5Ω .



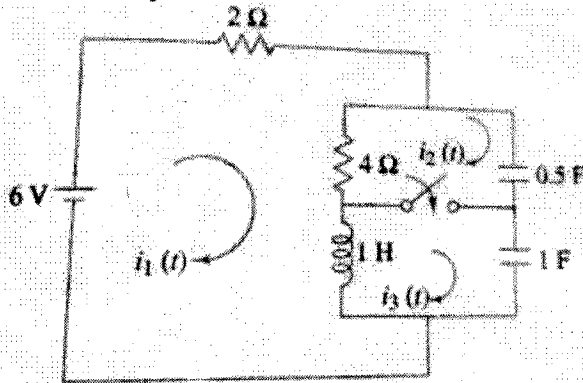
Q. 3 Solve Any One of the following. (Each Question carries EIGHT marks)

8

(A) For Following circuit write down tie set matrix and obtain the network equilibrium equation in matrix form using KVL. Find The Loop Current



(B) In given network a steady state is reached with switch is open, at $t=0$ switch is closed. Find three loop current at $t=(0^-)$ & $t=(0^+)$



*** End ***

SR.

DR. BABASAHEB AMBEDKAR TECHNOLOGICAL UNIVERSITY, LONERE

Mid Semester Examination – Oct 2018

Course: B. Tech in Electrical Electronics & Power

Sem: III

Subject Name: M&I

Subject Code: BTEEC304

Max Marks: 20

Date: -11 Oct. 2018

Duration: - 1 Hr.

Instructions to the Students:

1. All questions are compulsory
2. Assume suitable data if necessary

Marks

Q. 1 Fill in the blanks by selecting appropriate answer from the list given below.

6

1. The value of very low resistance can be measured by.....(Maxwell Bridge, Schering bridge, Kelvin bridge, Wheatstone bridge)
2. The value of medium resistance is.....(0.1Ω to 1 Ω, 1 Ω to 100K Ω, 100K Ω and above)
3. The PMMC instrument has.....(linear scale, squared scale, non-linear scale, none of these)
4. Raleigh current balance meter is an example of(Secondary instrument, primary instrument, indicating instrument, none of these)
5. Internal resistance of ammeter is.....(Zero Ω, Infinity Ω, 100Ω, none of these)
6. Most popular connection in wattmeter is.....(L-C short, M-C short, M-L short, C-V short)

3 X 2

Q. 2 Solve Any Two of the following.

- (A) List the different types of errors in measuring instruments. Define Gross error.
- (B) Draw the schematic diagram of energymeter. Define what is meter constant.
- (C) A 0-25 A ammeter has a guaranteed accuracy error of 1 percent of full scale reading. The current measured by this instrument is 10 A. Determine the limiting error in percentage.

8

Q. 3 Solve Any One of the following.

- (A) Derive the balance condition for Schering bridge with the help of schematic diagram and list its applications.
- (B) List the different types of torque required in measuring instruments? Give the mechanism to produce the damping torque in PMMC instrument.

*** End ***

DR. BABASAHEB AMBEDKAR TECHNOLOGICAL UNIVERSITY, LONERE

Mid Semester Examination – Oct 2018

Course: B. Tech in Electrical, Electronics and Power

Sem: III

Subject Name: Electrical Engineering Materials

Subject Code: BTEEOEL305(A)

Max Marks: 20

Date: -12/10/2018

Duration: - 1 Hr.

Instructions to the Students:

1. All Questions are compulsory.
2. Assume suitable data if necessary.

Q. 1 Attempt following Questions (6marks)

1. Edge dislocation Imperfection is a sub type of:
a) Point Imperfections b) Line Imperfections c) Volume Imperfection d) Surface Imperfection
2. Which one of the following are not zero dimensional defects?
a) Vacancy defect b) Substitution Imperfection c) Point defect d) Screw dislocation
3. Example for ferri-magnetic materials
(a) salts of transition elements (b) rare earth elements (c) transition metals (d) Ferrites
4. Magnetic susceptibility para-magnetic materials is
(a) $+10^{-5}$ (b) -10^{-5} (c) 10^5 (d) 10^{-5} to 10^{-2}
5. The magnetic lines of force cannot penetrate the body of a superconductor, a phenomenon is known as
a. Isotopic effect b. BCS theory c. Meissner effect d. London theory
6. Which of the following are the properties of superconductors?
a. They are diamagnetic in nature b. They have zero resistivity
c. They have infinite conductivity d. All of the above

Q.2 Solve Any Two of the following.(6marks)

- (A) Explain types magnetic materials with diagrams of domain structure.
- (B) Explain structure determination by X-ray diffraction.
- (C) Explain a. Meissner effect b. Josephson effect

Q. 3 Solve Any One of the following.(8 marks)

- (A) Explain type-I and type-II superconductors and draw their B-H curve
- (B) Explain with diagram types of defects in a crystal.

*** End ***

DR. BABASAHEB AMBEDKAR TECHNOLOGICAL UNIVERSITY, LONERE

Mid Semester Examination – Oct 2018

Course: B. Tech in Electrical, Electronics and Power

Sem: III

Subject Name: Fluid Mechanics and Thermal Engineering

Subject Code: BTEEC303

Max Marks: 20

Date:- 10/10/18

Duration:- 1 Hr.

Instructions to the Students:

1. All questions are compulsory
2. Assume suitable data if necessary
3. Draw neat and clean diagrams

Q.1 Attempt following Questions.

Marks

6

1. Bulk modulus is the ratio of _____

(shear stress to volumetric strain/volumetric strain to shear stress/compressive stress to volumetric strain/volumetric strain to compressive stress)

2. One litre of a certain fluid weighs 8N. The specific volume in m^3/kg is _____

(2.03×10^{-3} / 20.3×10^{-3} / 12.3×10^{-3} / 1.23×10^{-3})

3. The friction factor in fluid flowing through pipe depends upon _____

(Reynold's number/relative roughness of pipe surface/both of the above/none of the above)

4. Kinematic eddy viscosity (ϵ) is the ratio of _____

{eddy viscosity (ν) to dynamic viscosity (μ)/eddy viscosity (η) to kinematic viscosity (ν)/kinematic viscosity to eddy viscosity (η)/eddy viscosity (η) to mass density (ρ)}

5. Viscous forces are not present in _____

(rotational flow/irrotational flow/laminar flow/none of the above)

6. An ideal fluid is _____

(fluid which has no viscosity/fluid which is incompressible/fluid which has no surface tension/All of the above)

Q.2 Solve Any Two of the following.

3 X 2

(A) Explain the working of barometer.

(B) Evaluate the change in specific volume and specific weight w.r.t. the surface, if at a certain depth of a liquid where the pressure is $850 N/cm^2$. Given that the specific weight of that liquid at the surface is $1025 N/cm^3$ and the bulk modulus of elasticity is $24 \times 10^3 N/cm^3$.

(C) Draw the centrifugal pump characteristics and discuss in detail.

Q.3 Solve Any One of the following.

8

(A) Derive the expression for head loss in pipes due to friction : Darcy Weisbach Equation.

(B) Explain the working principle of Four Stroke I.C. Engine in detail with neat and clean diagram.

*** End ***

