Code No.: **50H01** | **MR 15**

MALLA REDDY ENGINEERING COLLEGE (AUTONOMOUS)

(Affiliated to JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD)
Gundlapochampally (H), Maisammaguda (V), Medchal (M), Medchal-Malkajgiri (Dist), Hyderabad.

I B.Tech II Sem Supplementary Examinations, DECMBER-2017

SUBJECT: **English**

Branch: **Common to CE & ME**

Time: 3 hours **Max. Marks: 60**

PART – A

Answer All Questions **5x2Mark=10 Marks**

1. **a) Find an adjective of the following word.** **[1M]**
   Maintain
   b) Fill in the following blank with suitable PREFIX to form the antonym. **[1M]**
   _____ (discipline) students shall be sent to the Student counselor.
2. **a) Fill in the blank with suitable word from the bracket.** **[1M]**
   ____ (Its/It's) cap is too tight to remove.
   b) Transfer the following sentence into indirect speech. **[1M]**
   Rama said, "A fine lesson will be taught to the wicked Ravana."
3. **a) Supply a question tag to the following.** **[1M]**
   He finished it, _____ ?
   b) Use the following phrasal verb in your own sentence. **[1M]**
   Take down
4. **a) Transform the following into a passive voice sentence.** **[1M]**
   The class did the presentation well.
   b) Supply a one word substitution. **[1M]**
   The art of hand writing.
5. **a) Join these two sentences.** **[1M]**
   The table looks beautiful.
   It may not fit in this area.
   b) She works efficiently **[1M]**

PART-B

Answer Any 5 Questions **5x10 Marks= 50 Marks**

1. According to Dr.B.R.Ambedkar what are the three things that must be done to maintain democracy in form and in fact?
2. a) Prepare an itinerary details to visit any historical place.
   b) Make out the differences between skimming skills and scanning skills with suitable examples.
3. **a) Rearrange the following six sentences (A),(B),(C),(D),(E) and (F) in the proper sequence to form a meaningful paragraph:**
   i) Nobody likes to practise it, no matter how easy and how beneficial it is.
   ii) An ounce of patience is worth, or at times even better than, a pound of brains.
   iii) Patience, a virtue, is considered to be even better than wisdom.
   iv) This is the worst drawback in us, in our national character.
   v) Every one of us agrees with this fast in principle, without reservation.
   vi) But, unfortunately, when it comes to practising patience, there is a problem

b) **Rearrange the following words/phrases to make a complete and correct sentence**

i) friends/books/our/best/are.

ii) in/this/book/are there/pages/how/many ?

iii) from/the/shop/he/buy/didn't/anything.

iv) for/has/many/the children/he/balloons.

v) have/you/any/pen/do/good ?

4. What sort of discipline did Dr.APJ Abdul Kalam insist on and why?
5. Write an essay on the importance of 'Make in India'- an initiative by the government of India
6. Should university education be considered to get a good job or to gain knowledge and develop skills. Discuss both views and give your opinion.
7. a) Write a letter to the college magazine on suggesting the ways as to how the facilities and resources in your college can be improved.

   b) Write a letter to an English-speaking friend who wants to spend a two-week holiday in your region and has written asking for information and advice.
8. a) Summarize the following passage in 50 – 75 words: **[5M]**

The Road is one of the great fundamental institutions of mankind. Not only is the Road one of the great human institutions because it is fundamental to social existence, but also because its varied effects appear in every department of the State. It is the Road which determines the sites of many cities and the growth and nourishment of all. It is the Road which controls the development of strategies and fixes the sites of battles. It is the Road that gives its framework to all economic development. It is the Road which is the channel of all trade, and, what is more important, of all ideas. In its most humble function it is a necessary guide without which progress from place to place would be a ceaseless experiment; it is a sustenance without which organized society would be impossible, thus the Road moves and controls all history.

b) Summarize the following passage in 50 – 75 words: **[5M]**

A paragraph is a number of sentences grouped together and relating to one topic. Or, a group of related sentences that develop a single point.

This definition shows that the paragraphs of compositions are not mere arbitrary divisions. The division of a chapter into paragraphs must be made according to the changes of ideas introduced.

There is, therefore, no rule as to the length of a paragraph. It may be short or long according to the necessity of the case. A paragraph may consist of a single sentence or of many sentences.

In this aspect, the paragraphs of a piece of prose differ from the stanzas of verses of a poem.

The stanza of a poem are usually of the same length and pattern but paragraphs are long or short according to the amount of matter to be expressed under each.

Code No.: **50B03** | **MR 15**

MALLA REDDY ENGINEERING COLLEGE (AUTONOMOUS)

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Gundlapochampally (H), Maisammaguda (V), Medchal (M), Medchal-Malkajgiri (Dist), Hyderabad.

I B.Tech II Sem Supplementary Examinations, DECMBER-2017

SUBJECT: **APPLIED CHEMISTRY**

Branch: **Common to CSE, EEE & ECE**

Time: 3 hours **Max. Marks: 60**

PART – A

Answer All Questions **5x2Mark=10 Marks**

1. What are the differences between hard water and soft water?
2. What is Nernst equation? Mention the terms present in Nernst equation.
3. Write the differences between thermoplastics and thermosetting polymers.
4. What is meant by calorific value of a fuel?
5. What are composites? Write the characteristics of composites.

PART-B

Answer Any 5 Questions **5x10 Marks= 50 Marks**

1. a) Write the estimation of temporary & permanent hardness of water by EDTA method?
   b) Write any four WHO specification of drinking water?

2. a) Explain Alkalinity of water.
   b) What are the causes and disadvantages of hardness of water? Mention the types of hardness .

3. a) Describe the working principal of Hydrogen – Oxygen fuel cell and its applications.
   b) How does corrosion is controlled by sacrificial anodic methods?

4. a)Write a short notes on Cementation
   b) What is Conductance? Explain specific and equivalent conductances. Give their units.

5. What are bio degradable polymers? How do you prepare poly lactic acid and poly vinyl acetate polymer? Write their application?

6. a) Write the preparation, properties and applications of Poly Vinyl Chloride.
   b) Explain the following terms:
      a) Monomer b) Polymer c) Polymerization
      d) Degree of polymerization e) Tacticity

7. Explain the ultimate analysis of coal. Give its significance.

8. a) Write a short note on nanocomposites.
   b) Explain the concept of Bisurfactants.

Code No.: **50B06**

MR 15

MALLA REDDY ENGINEERING COLLEGE (AUTONOMOUS)

(Affiliated to JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD)

Gundlapochampally (H), Maisammaguda (V), Medchal (M), Medchal-Malkajgiri (Dist), Hyderabad.

I B.Tech II Semester Supplementary Examinations, DECEMBER-2017

SUBJECT: **Computational Mathematics**

Branch: **Common to CE, ME, CSE & Mining**

Time: 3 hours **Max. Marks: 60**

PART – A

Answer All Questions **5x2Mark=10 Marks**

1. Derive a Newton Raphson formula to find the reciprocal of a given number
2. Prove that $\Delta + \nabla = \frac{\Delta}{\nabla} - \frac{\nabla}{\Delta}$
3. Using trapezoidal rule evaluate $\int_0^{\pi} sinx\ dx$ by dividing the range into six equal parts.
4. Write the Milne's Predictor –corrector formulae
5. Classify the partial differential equation

   $u_{xx} + 8u_{yy} + 4u_{xy} + u_x + 2u_y = 0$.

PART-B

Answer any five of the following questions **5x10 Marks= 50 Marks**

1. Find a real root of the equation $x^3 + x^2 - 1 = 0$ by using Rugula-Falsi method upto 4 decimal accuracy.
2. Prove that the Newton Raphson formula for the $\sqrt[k]{N}$ is $x_{n+1} = \frac{1}{k}\left[(k-1)x_n + \frac{N}{x_n^{k-1}}.\right]$. Hence deduce the value of $\sqrt[3]{24}$.
3. From the following data find y(42) and y(88)

x	40	50	60	70	80	90
y	184	204	226	250	276	304

4. From the following table estimate the number of students who obtained marks between 40 and 45

Marks	30 - 40	40 - 50	50 - 60	60 - 70	70 - 80
Number of students	31	42	51	35	31

5. a) For the following values of x and y find the 2 nd derivative of at x = 4.

x	1	2	4	8	10
y	0	1	5	21	27

b) Evaluate $\int_1^7 f(t)dt$, using Simpson's 1/3- rule.

t	1	2	3	4	5	6	7
f(t)	81	75	80	83	78	70	60

6. Fit a parabola of the form $y = a + bx + cx^2$ to the following data

x	1	2	3	4	5	6	7
y	23	5.2	9.7	16.5	29.4	35.5	54.4

7. Given that y $\frac{dy}{dx} = y^2 - 2x$, y(0)=1, compute y(0.2) and y(0.4) using Runge Kutta method of fourth order with h=0.2.
8. Compute u for 4 time steps with h=1 ,given that $u_{tt} = 4u_{xx}$,u(0,t)=0,u(4,t)=0,u_t(x,0)=0 and u(x,0)=x(4-x).

Code No.: **50582** MR 15

MALLA REDDY ENGINEERING COLLEGE (AUTONOMOUS)

(Affiliated to JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD)
Gundlapochampally (H), Maisammaguda (V), Medchal (M), Medchal-Malkajgiri (Dist), Hyderabad.

I B.Tech II Semester Supplementary Examinations, DECEMBER-2017

SUBJECT: **Data Structures Through C**

Branch: **Common to EEE & ECE**

Time: 3 hours **Max. Marks: 60**

PART – A

Answer All Questions **5x2Mark=10 Marks**

1. Define Time Complexity and Space complexity.
2. How many pre-processor directives are there?
3. Write any two differences between Double Linked List and Circular Linked List.
4. What do you understand by Stack overflow and Queue underflow?
5. Define Skewed Binary Tree and Complete Binary Tree.

PART-B

Answer any five of the following questions **5x10 Marks= 50 Marks**

1. a) Discuss the various asymptotic notations used for best case average case and worst case analysis of algorithms
   b) Explain design methodology and implementation of an algorithm

2. a) Explain recursion with suitable example. Discuss the advantages and disadvantages of recursion.
   b) Write a C program to implement linear search using recursion.

3. a) Explain about insertion sort with an example
   b) List out file status functions

4. a) Explain bubble sort and write C program for bubble sort.
   b) What is command line argument? Explain command line argument with example.

5. What is Double Linked List? Write a C Program to perform Insertion and Deletion operations in Double Linked List.

6. a) Write a C program for concatenation of two linked lists. (6M)
   b) List out the applications of linked lists. (4M)

7. Write a C program to implement Stack operations using linked list.

8. a) Explain the different methods to represent a binary tree and compare them
   b) What is meant by tree traversal? Explain the different traversal techniques with examples.

Code No.: **50B07** MR 15

MALLA REDDY ENGINEERING COLLEGE (AUTONOMOUS)

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Gundlapochampally (H), Maisammaguda (V), Medchal (M), Medchal-Malkajgiri (Dist), Hyderabad.

I B.Tech II Semester Supplementary Examinations, DECEMBER-2017

SUBJECT: **Applied Physics – II**

Branch: **Common to CE, EEE, ME, ECE, CSE & Mining**

Time: 3 hours **Max. Marks: 60**

PART – A

Answer All Questions **5x2Mark=10 Marks**

1. What is Meissner effect?
2. Explain wave and particle duality.
3. Define Hall effect and mention its any two applications.
4. What is quantum confinement effect?
5. State Faraday's law of electromagnetic induction.

PART-B

Answer any five of the following questions **5x10 Marks= 50 Marks**

1. a) Define magnetization and show that $B = \mu_0(H+M)$. **(3M+4M+3M)**
   b) Explain paramagnetisam in Transition and Rale earth elements.
   c) A magnetizing field of 600 A/m, produces a magnetic flux of 2.4×10^{-5} weber, in an iron bar of 0.2 cm^2 cross sectional area. Calculate permeability and susceptibility of the bar.

2. a) Explain in detail about anti Ferro magnetism and write their properties.
   b) Define i) super conductivity
   ii) critical temperature
   iii) critical magnetic field

3. a) State Heisenberg uncertainty principle. Show that electrons cannot exist within the nucleus on the basis of the above principle.
   b) Describe the experimental verification of matter waves using Davisson Germer's experiment.

4. a) Derive de-Broglie's wavelength associated with an electron? **[7m+3m]**
   b) Calculate the velocity and kinetic energy of an electron having wavelength of 0.22 nm.

5. a) Explain direct bandgap and indirect bandgap semiconductors
   b) Explain the origin of energy bands in solids

6. a) Briefly discuss about LCD – characteristics, action of LCD display devices.
   b) Explain about drift and diffusion currents in semiconductors

7. a) Explain the fabrication of nanomaterials by Sol-Gel technique.
   b) How thermal and mechanical properties of Nanomaterials vary with their size?

8. a) Explain about divergence and curl of a vector field with an example.
   b) What is displacement current? How does it differs from conduction current?
   c) Write four Maxwell's equation and outline their physical meaning. **(4M+4M+2M)**

Code No.: **50303** MR 15

MALLA REDDY ENGINEERING COLLEGE (AUTONOMOUS)

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Gundlapochampally (H), Maisammaguda (V), Medchal (M), Medchal-Malkajgiri (Dist), Hyderabad.

I B.Tech II Semester Supplementary Examinations, DECEMBER-2017

SUBJECT: **Engineering Mechanics**

Branch: **Common to CE, ME & Mining**

Time: 3 hours **Max. Marks: 60**

PART – A

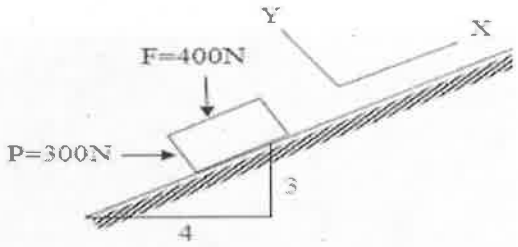
Answer All Questions **5x2Mark=10 Marks**

1. State the polygon law to determine the resultant of concurrent forces
2. Write the necessary and sufficient conditions required for a system of coplanar forces acting on a rigid body to keep it in equilibrium.
3. Differentiate centre of gravity and centroid.
4. Establish the relation between angular motion and linear motion.
5. State the principle of conservation of momentum.

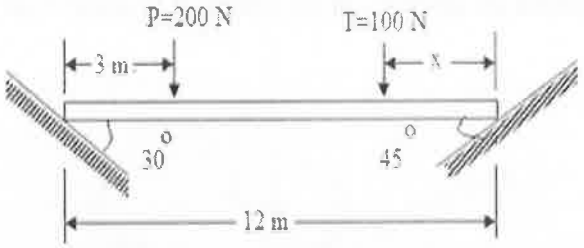
PART-B

Answer any five of the following questions **5x10 Marks= 50 Marks**

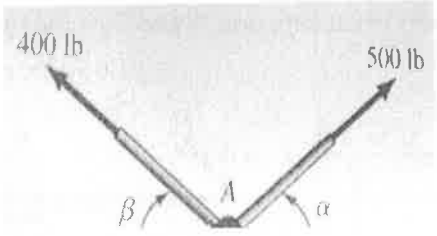
1. a) The body on the incline shown in fig. is subjected to the vertical and horizontal forces as shown. Find the components of each force along X-Y axes parallel and perpendicular to the incline. **[5M]**



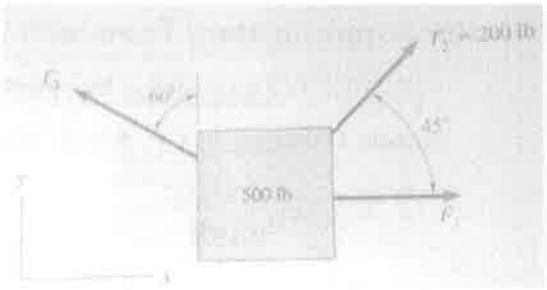
b) A 12 m bar of negligible weight rests in a horizontal position on the smooth inclines as shown in fig. . Compute the distance at which load T =100 N should be placed from point B to keep the bar horizontal. **[5M]**



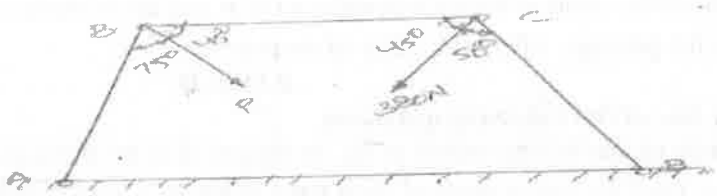
2. a) Forces are transmitted by two members to pin A. If the sum of these forces is 700 lb directed vertically, what are the angles α and β? **[5M]**



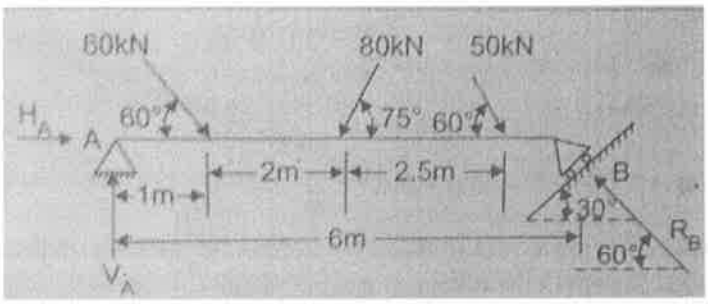
b) A 500-lb crate is held up by three forces. Clearly the three forces should add up to a force of 500 lb going upward. What should forces F_1 and F_3 be for this condition? All forces are coplanar (in this same plane). **[5M]**



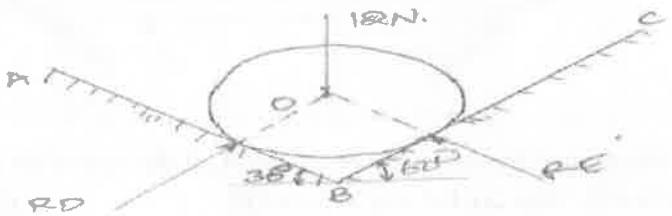
3. a) In the floor bar mechanism ABCD as shown in Fig. below Determine the force P For equilibrium **[5M]**



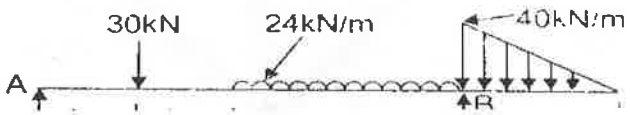
b) Find the reactions at supports A and B in the beam. **[5M]**



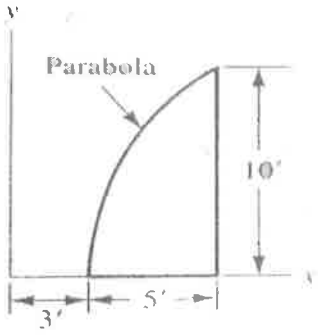
4. a) A ball of weight Q=12N rests in a right angled through as shown in Figure .Determine the forces excreted on the sides of the trough at D and E if all surfaces are perfectly smooth. **[5M]**



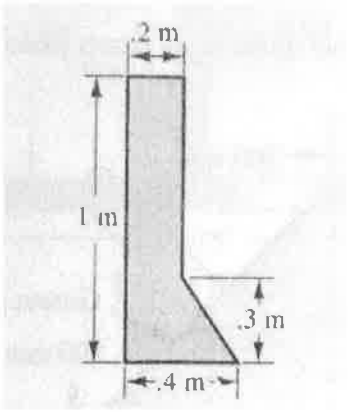
b) Determine the reactions at supports A and B of the overhanging shown in the figure. **[5M]**



5. a) What are the first moments of the area about the x and y axes? The curved boundary is that of a parabola. **[5M]**

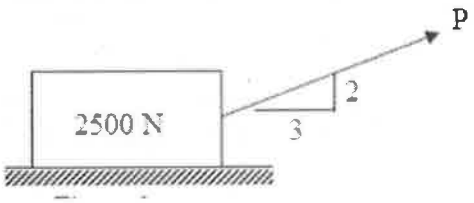


b) Find the centroid of the end shield of a bulldozer blade. **[5M]**



6. a) Determine the coordinates of centriod of a semi circular Area of radius R. **[5M]**
   b) A bullet is fired from a height of 120m at a velocity of 360 Kmph at an angle of 30^0 up wards. Neglecting air resistance, find
      i) total time of flight,
      ii) horizontal range of the bullet,
      iii) maximum height reached by the bullet, and
      iv) find velocity of the bullet just before touching the ground. **[5M]**

7. a) A particle moves in the x-y plane so that its x coordinate is defined by $x=5t^3-105t$, where x is in cm and t in seconds. When t=2 s, the total acceleration is 75 m/s^2. If the y component of acceleration is constant and the particle starts from rest at the origin when t=0, determine its velocity when t=4s. **[7M]**
   b) Determine the force P that will give the body shown in fig. an acceleration of 0.02g m/s^2, the coefficient of kinetic friction is 0.2. **[3M]**



8. a) A Pile hammer weighing 15 KN drops from a height of 600 mm on a pile of 7.5 KN. How deep does a single blow of hammer drive the pile if the resistance of the ground to pile is 140 KN? **[5M]**
   b) A ball of 50 g mass is dropped from a height of 10 m, and after striking the floor, it rebounds to a height of 7 m. Determine (i) the impulse of the force, and (ii) the average force exerted by the floor on the ball, if the force acts for a fraction $1/60^{th}$ of a second. **[5M]**

Code No.: **50503**

MR 15

MALLA REDDY ENGINEERING COLLEGE (AUTONOMOUS)

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Gundlapochampally (H), Maisammaguda (V), Medchal (M), Medchal-Malkajgiri (Dist), Hyderabad.

I B.Tech II Semester Supplementary Examinations, DECEMBER-2017

SUBJECT: **Data Structures**

Branch: **CSE**

Time: 3 hours **Max. Marks: 60**

PART – A

Answer All Questions **5x2Mark=10 Marks**

1. Define data structure.
2. Write brief notes on Single linked list
3. Write the difference between pop & peek operation in stack.
4. Explain about binary tree traversal.
5. What is balancing factor in AVL tree?

PART-B

Answer any five of the following questions **5x10 Marks= 50 Marks**

1. a) Differentiate base case and general case in Recursive function.
   b) Differentiate primitive and non-primitive data structures.

2. a) Write a C program to generate the Fibonacci Sequence up to N using recursion, where N is value supplied by the user.
   b) Differentiate between recursive and iterative algorithms with suitable examples.

3. a) Write a subroutine to concatenate two singly linked lists.
   b) Explain the creation of circular linked list.

4. a) Write an algorithm for creating a Double linked list.
   b) Write the representations of Sparse matrix.

5. a) Explain Round Robin algorithm with an example.
   b) Write a C program to illustrate stack operations.

6. Write a C program to implement output-restricted deque.

7. a) Define graph. How to represent graph using linked list.
   b) Construct a binary tree with the following data elements:
   10, 12, 9, 20, 15, 8, 2, 5, 25, 39, 1

8. a) Write short notes on B-Trees
   b) Explain LR Rotation in AVL tree with an example.

Code No.: **50203**

MR 15

MALLA REDDY ENGINEERING COLLEGE (AUTONOMOUS)

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I B.Tech II Semester Supplementary Examinations, DECEMBER-2017

SUBJECT: **Electrical Circuit Analysis And Synthesis**

Branch: **EEE**

Time: 3 hours **Max. Marks: 60**

PART – A

Answer All Questions **5x2Mark=10 Marks**

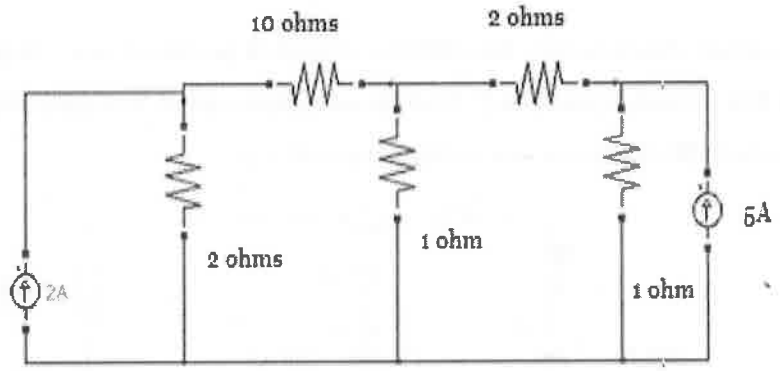
1. Write the statement of Tellegen's theorem.
2. List out the phase and line quantity relations in both star and delta connections.
3. Define ABCD-parameters; also write its symmetry conditions.
4. Write expression for current in impulse response of series RL network.
5. Define Hurwitz polynomial.

PART-B

Answer any five of the following questions **5x10 Marks= 50 Marks**

1. a) State and explain reciprocity theorem with an example. **[5]**

   b) Determine the power loss in the 10 ohms resistor using Thevenin's theorem **[5]**



2. a) Define balanced and unbalanced loads with examples. Explain Millman's method of solving unbalanced load **[5]**

   b) State and explain Maximum Power Transfer Theorem, with DC excitation. **[5]**

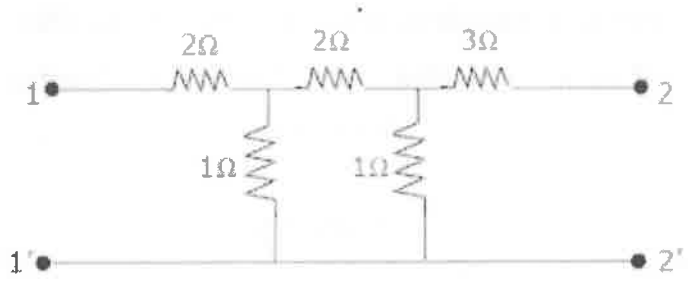
3. a) Draw the different types of connections used in 3-ϕcircuits. **[5]**

   b) In a 3-phase balanced power measurement the two wattmeter readings are 400 W and - 200 W. Determine 1) Real power 2) Reactive power 3) Power factor **[5]**

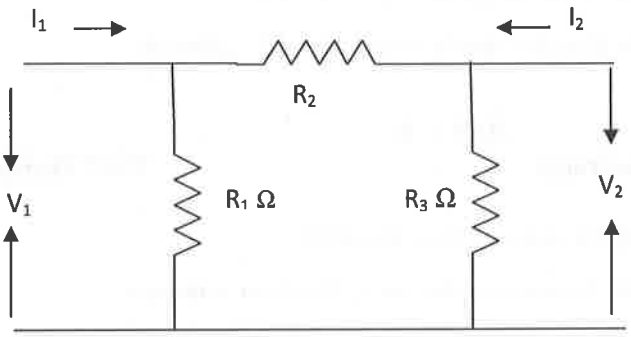
4. a) Explain how to measure power and power factor of a balanced three phase load? **[5]**

   b) RMS voltages in a three phase star circuit is given by 231V(ph-n). Write the instantaneous voltage expressions. If the current in each phase lag the corresponding

5. Determine the Z-parameters for the following network and hence find Y-parameters.

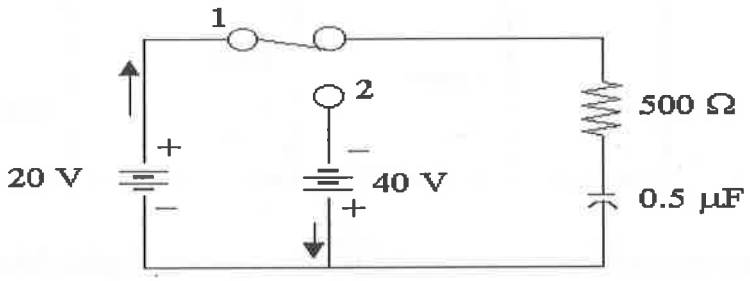


6. a) Find the Z parameters of the given network [5]



b) Obtain ABCD parameters in terms of Z-parameters [5]

7. In the RC circuit shown below, the switch is closed on position 1 at $t = 0$ and after time t =500 ms it is moved to position 2. Find the complete current transient. Also find the voltage across 500 Ω resistor and voltage across 0.5 μF.



8. a) Write short notes on Properties of LC Immittance functions. [5]

b) Write short notes on Properties of Hurwitz polynomial. [5]

Code No.: **50401** MR 15

MALLA REDDY ENGINEERING COLLEGE (AUTONOMOUS)

(Affiliated to JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD)
Gundlapochampally (H), Maisammaguda (V), Medchal (M), Medchal-Malkajgiri (Dist), Hyderabad.

I B.Tech II Semester Supplementary Examinations, DECEMBER-2017

SUBJECT: **Electronic Devices And Circuits**

Branch: **ECE**

Time: 3 hours **Max. Marks: 60**

PART – A

Answer All Questions **5x2Mark=10 Marks**

1. Describe the differences between Diffusion and Transition capacitances.
2. Why is bleeder resistance employed in a filter circuit?
3. The following quantities are measured in a transistor.
   I_C=5mA,I_B=100μA.Determine α,β and I_E.
4. What are the advantages of MOSFET over JFET
5. What is the need for biasing a transistor?

PART-B

Answer any five of the following questions **5x10 Marks= 50 Marks**

1. a) Write short notes on Ideal versus practical diodes. **(5)**
   b) Explain how Barrier is formed. **(5)**

2. a) Write short notes on Zener Breakdown mechanism. **(5)**
   b) Mention different Diode Current Components. **(5)**

3. a) Write short notes on Tunnel Diode **(5)**
   b) Explain the V-I characteristics of a zener diode and explain its working as a voltage regulator. **(5)**

4. An ac supply of 230V is applied to a half-wave rectifier circuit through transformer of turns ratio 5:1. Assume the diode is an ideal one. The load resistance is 300Ω.
   Find
   a) dc output voltage b) PIV
   c) maximum d) average values of power delivered to the load?

5. a) Write different current Amplification Factors. **(5)**
   b) In a CB Transistor circuit, I_B = 10mA and I_C = 9.8mA. Find value of I_E. **(5)**

6. a) Explain the construction and operation of NPN transistor. **7M**
   b) Write different types of Transistor Configuration. **3M**

7. a) Write short notes on Voltage divider bias for FET **(5)**
   b) How does the constructional feature of a MOSFET differ from that of a JFET? **(5)**

8. Explain Thermistor and Sensistor Compensation Techniques with diagram.

Code No.: **50202** MR 15

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I B.Tech II Semester Supplementary Examinations, DECEMBER-2017

SUBJECT: **Basic Electrical & Electronics Engineering**

Branch: **Common to CE, ME & Mining**

Time: 3 hours **Max. Marks: 60**

PART – A

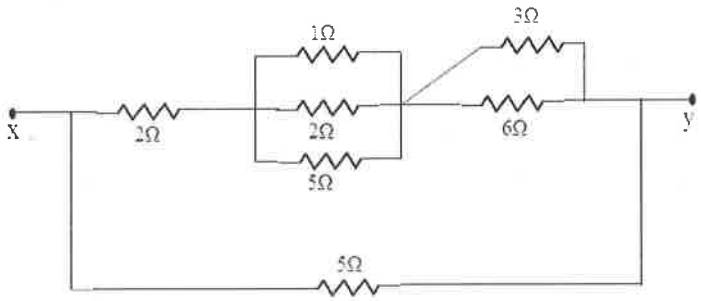
Answer All Questions **5x2Mark=10 Marks**

1. Find the equivalent inductance when L1 & L2 are connected in series.
2. Define i) Active power ii) Apparent Power.
3. Define the following for single phase transformer
   i) Efficiency ii) Regulation
4. a) Draw the V-I Characteristics of PN Junction Diode.
   b) Define Rectifier.
5. a) Define Feedback Amplifier.
   b) List out the various types of Flipflops

PART-B

Answer any five of the following questions **5x10 Marks= 50 Marks**

1. a) Derive the expressions for Self & mutual inductances.
   b) Illustrate Superposition Theorem with an example
2. a) State and explain Faraday's laws. **4M**
   b) Find the equivalent resistance across x-y for the given network. **6M**



3. a) A circuit consists of resistance R, and capacitive reactance of 60 Ω connected in series. Determine the value of R for which p.f. of the circuit is 0.8 and also draw its phasor diagram.
   b) A choke coil of inductance 0.08 H and resistance of 10 Ω are connected in series with a 125 μF capacitor to a 230 V, 50 Hz supply. Determine the current taken from the supply and phase angle.
4. a) Draw the Phasor diagram representation of R-L Series circuit?
   b) Explain the generation of sinusoidal voltage wave form in detail.
5. a) Explain the constructional details of core and shell type transformer with a neat sketch.
   b) Draw the Slip-Torque characteristics of 3 phase induction motors and explain.
6. a) An alternator with 10 conductors produces a flux of 1wb with a frequency of 50Hz. Determine emf in an alternator.
   b) A 3-phase, 4-pole 50Hz induction motor has a slip of 1% at no-load and 3% at full load. Find. (i) Synchronous speed (ii) Full-load speed (iii) No-load speed.
7. a) Explain the working of PNP and NPN Transistor.
   b) Distinguish between half wave rectifier and full wave rectifier.
8. a) Briefly Analyse the performance measures of negative feedback amplifiers.
   b) Distinguish between SR and JK flipflops.

Code No.: **50301** | MR 15

MALLA REDDY ENGINEERING COLLEGE (AUTONOMOUS)

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I B.Tech II Semester Supplementary Examinations, DECEMBER-2017

SUBJECT: **Engineering Graphics**

Branch: **Common to EEE, ECE &CSE**

Time: 3 hours **Max. Marks: 60**

Answer any five of the following questions. **5×12=60M**

1. a) Draw a parabola if the distance of the focus from the directrix is 60mm.
   b) Construct a hyperbola, when the distance of the focus-directrix is 65mm and eccentricity is 3/2.
2. a) Draw a vernier scale of R.F. = 1/25 to read centimeters upto 4 meters and on it, show lengths representing 2.39 m and 0.91m.
   b) Draw an involute of a pentagon of side 35 mm.
3. a) The front view of a line, inclined at 30 to the VP is 65mm long. Draw then projections of the line, when it is parallel to and 40mm above the HP., its one end being 30 mm in front of the VP.
   b) Draw the projections of the following points, keeping the distance between the projectors 30 mm on the same reference line:
      (i) 25 mm above H.P. and 45 mm in front of V.P.
      (ii) 35 mm above H.P. and 50 mm behind V.P.
      (iii) 40 mm below H.P. and 45 mm in front of V.P.
      (iv) 30 mm below H.P. and 40 mm in front of V.P.
4. a) A point 30mm above xy line is the plan view of two points P and Q. the elevation of P is 45mm above the H.P. while that of the point Q is 35mm below the H.P. Draw the projections of the points and state their position with reference to the principal planes and the quadrant in which they lie.
   b) Two pegs fixed on a wall are 4.5 m apart. The distance between the pegs measured parallel to the floor is 3.6m. If one peg is 1.5 m above the floor, find the height of the second peg and the inclination of the line joining the two pegs, with the floor.
5. A circular plate of negligible thickness and 50mm diameter appears an ellipse in the front view, having its major axis 50mm long and minor axis 30mm long. Draw its top view when the major axis of the ellipse is horizontal.
6. A regular pentagon of 30 side, is resting on one of its edges on H.P, which is inclined at 45^0 to V.P. Its surface is inclined at 30^0 to H.P. Draw its projections.
7. A hexagonal prism, side of base 25 mm and axis 50 mm long rests on its base in H.P. Its axis is parallel to V.P. Draw the orthographic projections and provide the isometric projection of the solid. Show the isometric scale.
8. Figure shows the Isometric view of the object. Draw the front view, Top view, and side view.