**Q.P. Code: 1802205** | **SET - 2**

# K.S.R.M. COLLEGE OF ENGINEERING (AUTONOMOUS), KADAPA

**B. Tech. II Sem. (R18) Supplementary Examinations of February – 2022**

***SUB: Basic Electrical Engineering (CE & ME)***

**Time: 3 Hours** **Max. Marks: 70**

**Answer any FIVE Questions choosing one question from each unit.**
**All questions carry Equal Marks.**

## UNIT - I

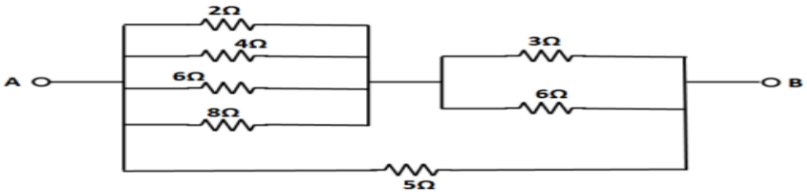
**1. (a)** Derive an expression for determining the equivalent capacitance of two series and parallel connected capacitors C1 and C2. **7M**

**(b)** A 500Ω resistance is directly switched on across a 50V battery. What is the current through the resistor? How much is the power loss? Also find the energy consumed in 5 seconds. **7M**

**(OR)**

**2. (a)** Distinguish between: i) Independent and dependent sources. ii) Ideal and practical sources **7M**

**(b)** If 20 V is applied across the terminals AB, to the circuit shown in Figure. Calculate the total current, the power dissipated in each resistor. **7M**




## UNIT – II

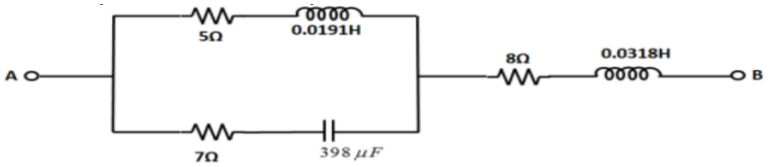
**3. (a)** Explain the concept of Active, Reactive and Apparent power and draw the power triangle **7M**

**(b)** A coil having a resistance of 7 and an inductance of 31.8mH is connected to 230V, 50Hz supply. Calculate the: i) circuit current. ii) phase angle. iii) power factor. iv) power consumed. v) reactive power. vi) apparent power. **7M**

**(OR)**

**4. (a)** Define Average, RMS and form factor of an AC wave form **7M**

**(b)** For the circuit shown in Figure. Determine how much 50Hz voltage must be applied across AB in order that 10A may flow in the capacitor. **7M**




## UNIT – III

**5. (a)** What is back emf? Explain the significance of back emf. **10M**

**(b)** A 4-pole, wave wound generator has 51 slots, each slot containing 20 conductors. The useful flux per pole is 7mwb. What will be the emf induced in the generator if it is driven at a speed of 1500rpm? **4M**

**(OR)**

**6. (a)** Describe working and principle of operation of D.C. generator **10M**

| | | | |
|---|---|---|---|
| | **(b)** | A 4 pole, 1500 rpm D.C generator has a lap wound armature having 24 slots with 10 conductors per slot. If the flux per pole is 0.04Wb, calculate the emf generated in the armature. What would be the generated emf if the winding is wave connected? | **4M** |

**UNIT – IV**

| | | | |
|---|---|---|---|
| **7.** | **(a)** | Explain the principle of operation of three phase Induction Motor. | **7M** |
| | **(b)** | A 230 V, 3KVA single phase transformer has an iron loss of 100 W at 40 Hz and 70W at 30 Hz. Find the hysteresis and eddy current losses at 50 Hz. | **7M** |

**(OR)**

| | | | |
|---|---|---|---|
| **8.** | **(a)** | Define synchronous speed and slip | **4M** |
| | **(b)** | The following results were obtained from tests on 30KVA, 3000/110V, and transformer.<br>O.C. test: 3000V, 0.5A, 350W<br>S.C. test: 150V, 10A, 500W<br>Estimate the efficiency of the transformer at full load with 0.8 lagging power factor. | **10M** |

**UNIT-V**

| | | | |
|---|---|---|---|
| **9.** | **(a)** | Explain the operation of a Fuse at the time of fault/short circuits occurs. | **7M** |
| | **(b)** | Classify the usages between wires and cables at distribution side (Low Voltage Side) | **7M** |

**(OR)**

| | | | |
|---|---|---|---|
| **10.** | **(a)** | Explain the working principle of Battery. What are the units of it? | **7M** |
| | **(b)** | Explain the operation of Power Inverters | **7M** |

**Q.P. Code: 1802206** | **SET - 2**

# K.S.R.M. COLLEGE OF ENGINEERING (AUTONOMOUS), KADAPA

**B. Tech. II Sem. (R18) Supplementary Examinations of February – 2022**

***SUB: Basic Electrical Engineering (EEE)***

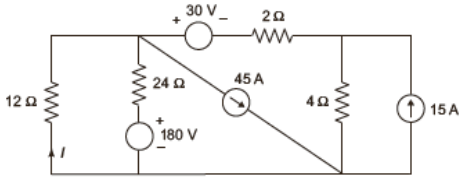
**Time: 3 Hours** **Max. Marks: 70**

**Answer any FIVE Questions choosing one question from each unit.**
**All questions carry Equal Marks.**

## UNIT - I

**1. (a)** Find the response of RC network with DC excitation using time domain analysis method. **7M**

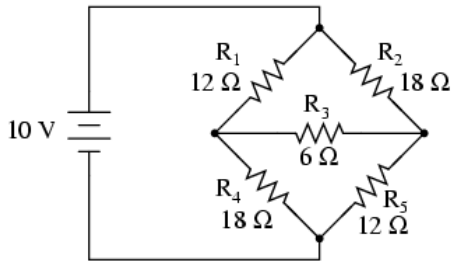
**(b)** For the circuit shown in figure find the current I using mesh analysis **7M**




**(OR)**

**2. (a)** Find the response of RLC network with DC excitation using time domain analysis method. **7M**

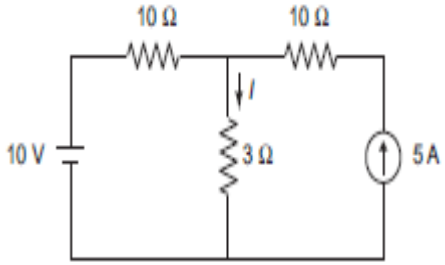
**(b)** Find the equivalent resistance of the circuit shown and find the current produced by 10V source. **7M**




## UNIT – II

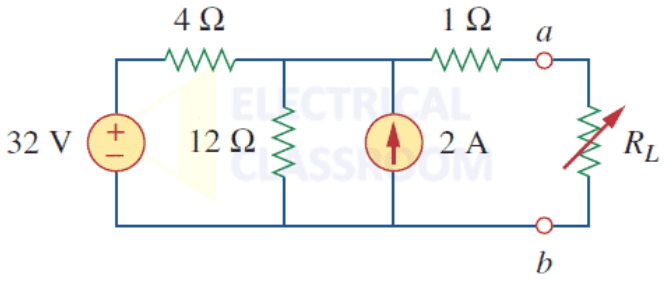
**3. (a)** State and explain maximum power transfer theorem. **7M**

**(b)** Calculate the current through the 3Ωresistor in the circuit shown in figure shown using superposition theorem. Also calculate the power across the 3Ω resistor **7M**




**(OR)**

**4. (a)** Draw the Thevinin's equivalent circuit for the below figure **7M**



**(b)** State and explain super position theorem. **7M**

**UNIT – III**

**5. (a)** Explain the terms (i) real power (ii)reactive power (iii)apparent power (iv)power factor **8M**

**(b)** Derive the expression for RMS value of a sinusoidal waveform**.** **6M**

**(OR)**

**6. (a)** Derive the expression for average value of a sinusoidal waveform**.** **7M**

**(b)** Find the response of RL network with AC excitation using time domain analysis method. **7M**

**UNIT – IV**

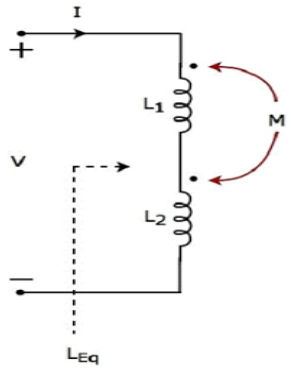
**7. (a)** Define the terms (i) self inductance (ii) mutual inductane **6M**

**(b)** Derive the expression for coefficient of coupling **8M**

**(OR)**

**8. (a)** Briefly explain the concept of duality with an example **7M**

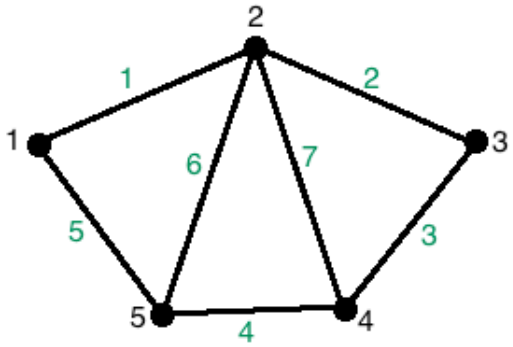
**(b)** Find Equivalent inductance value for the below figure if $L_1$ =7H , $L_2$=5H and M=2H. **7M**




**UNIT-V**

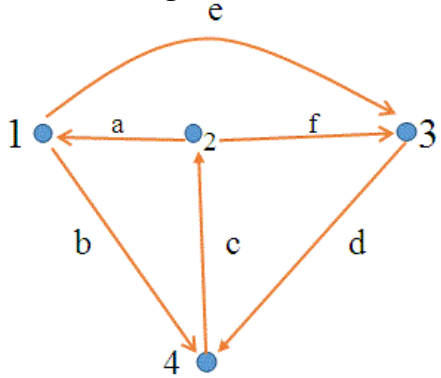
**9. (a)** Explain the terms (i) tree (ii) co-tree (iii) node **6M**

**(b)** Draw the incidence matrix for the below figure **8M**




**(OR)**

**10. (a)** Draw the cutest matrix for the below figure. **8M**




**(b)** Define the term (i) incidence matrix (ii) tie-set matrix. **6M**

**Q.P. Code: 1805204** | **SET - 2**

# K.S.R.M. COLLEGE OF ENGINEERING (AUTONOMOUS), KADAPA

**B. Tech. II Sem. (R18) Supplementary Examinations of February – 2022**

***SUB: Programming for Problem Solving (ECE & CSE)***

**Time: 3 Hours** **Max. Marks: 70**

**Answer any FIVE Questions choosing one question from each unit.**
**All questions carry Equal Marks.**

**UNIT – I**

| | | | |
|---|---|---|---|
| **1.** | (a) | Define algorithm. Explain characteristics of an algorithm and write an algorithm to compute factorial of a number where n>0. | 10M |
| | (b) | Write a short notes on primitive data types in C. | 4M |
| | | **(OR)** | |
| **2.** | (a) | Explain the structure of C program with an example program. | 7M |
| | (b) | Explain the process of creating and running a C program. | 7M |
| | | **UNIT – II** | |
| **3.** | (a) | Explain syntax of while loop. Write a C program to find whether a given number is palindrome or not using while loop. | 7M |
| | (b) | Write a short notes on switch() statement with an example program. | 7M |
| | | **(OR)** | |
| **4.** | (a) | Discuss about type conversion with an example program. | 10M |
| | (b) | * <br> * * <br> * * * <br> * * * * <br> Write a program to print the pattern shown using for loops. | 4M |
| | | **UNIT – III** | |
| **5.** | (a) | Define array and explain the various types of arrays with an example for each. | 7M |
| | (b) | Explain Binary search and write a c program to search an element in an array of size N. assume that elements in array are stored in ascending order. | 7M |
| | | **(OR)** | |
| **6.** | (a) | List and explain various string handling functions. | 7M |
| | (b) | Sort the following elements using Selection sort. <br> 4,6,7,5,9,3,1,8,2 | 7M |
| | | **UNIT – IV** | |
| **7.** | (a) | List and explain storage classes with example programs. | 7M |
| | (b) | Define pointer. Give a detailed note on pointer declaration and initialization. | 7M |
| | | **(OR)** | |
| **8.** | (a) | Write a c program to exchange the value of two integers using call by reference. | 7M |
| | (b) | Define function. Explain the significance of function prototype with an example program. | 7M |
| | | **UNIT-V** | |
| **9.** | (a) | Define union. Differentiate between union and structures. | 7M |
| | (b) | With an example program, explain structure within structure. | 7M |
| | | **(OR)** | |
| **10.** | (a) | Write a C program to accept the roll number, name and marks obtained in three subjects of a student in a class and display the roll number, name, marks of three subjects and their average using structure. | 7M |
| | (b) | Explain the concept of copying structure variables. | 7M |

**Q.P. Code: 1821201** | **SET - 2**

# K.S.R.M. COLLEGE OF ENGINEERING (AUTONOMOUS), KADAPA

**B. Tech. II Sem. (R18) Supplementary Examinations of February – 2022**

***SUB: Mathematics-II (Common to all branches)***

**Time: 3 Hours** **Max. Marks: 70**

**Answer any FIVE Questions choosing one question from each unit.**
**All questions carry Equal Marks.**

**UNIT - I**

**1. (a)** Solve $\frac{dy}{dx} + y\tan x = y^3 \cos x$ **7 M**

**(b)** Solve $(xy^3 + y)dx + 2(x^2y^2 + x + y^4)dy = 0$ **7 M**

**(OR)**

**2. (a)** Find the orthogonal trajectory of the family of the curve $y = ax$ **6 M**

**(b)** A body originally at $80^0$ C cools down to $60^0$ C in 20 minutes, the temperature of the air being $40^0$ C. What will be the temperature of the body after 40 minutes from the original **8 M**

**UNIT – II**

**3. (a)** Solve the differential equation $(D-2)^2 y = 8(x^2 + e^{2x} + \sin 2x)$ **10 M**

**(b)** Solve $(D^4 - 2D^3 - 3D^2 + 4D + 4)y = 0$ **4 M**

**(OR)**

**4. (a)** Solve $(D^2 + 1)y = \cos x$ **4 M**

**(b)** Apply the Method of variation of parameters to solve $\frac{d^2y}{dx^2} + 4y = 4\sec^2 2x$ **10 M**

**UNIT – III**

**5. (a)** Find the Laplace Transform of the function $f(t) = e^{-3t}(2\cos 5t - 3\sin 5t)$ **6 M**

**(b)** Apply Convolution theorem, find $L^{-1}\left(\frac{s^2}{(s^2+4)^2}\right)$ **8 M**

**(OR)**

**6.** Solve the differential equation $\frac{d^2x}{dt^2} + 9x = \cos 2t$ ,if $x(0) = 1, x\left(\frac{\pi}{2}\right) = -1$ by using Laplace Transform Method **14 M**

**UNIT – IV**

**7. (a)** Find $\iint_R (x+y)^2 dxdy$ over the region bounded by the ellipse $\frac{x^2}{a^2} + \frac{y^2}{b^2} = 1$ **8 M**

**(b)** Evaluate $\int_0^{\pi} \int_0^{a\sin\theta} r\, dr\, d\theta$ **6 M**

**(OR)**

**8. (a)** Evaluate $\int_1^e \int_1^{\log y} \int_1^{e^x} \log z\, dz\, dx\, dy$ **10 M**

**(b)** Calculate $\int_0^1 \int_0^{\sqrt{1-x^2}} \int_0^{\sqrt{1-x^2-y^2}} \frac{dzdydx}{\sqrt{1-x^2-y^2-z^2}}$ by changing to spherical polar coordinates **4 M**

## UNIT-V

**9. (a)** Show that $div(gradr^n) = n(n+1)r^{n-2}$ **8 M**

**(b)** If $\bar{f} = (2x+3y)i + (4y-2z)j + (x+pz)k$ is Solenoidal, find p **6 M**

**(OR)**

**10.** Evaluate by Green's theorem $\int_C (y - \sin x)dx + \cos x dy$ Where C is the triangle enclosed by the lines $y = 0, x = \frac{\pi}{2}, \pi y = 2x$ **14 M**

**Q.P. Code: 1822202** | **SET - 2**

# K.S.R.M. COLLEGE OF ENGINEERING (AUTONOMOUS), KADAPA

**B. Tech. II Sem. (R18) Supplementary Examinations of February – 2022**

***SUB: Engineering Physics (CE)***

**Time: 3 Hours** **Max. Marks: 70**

**Answer any FIVE Questions choosing one question from each unit.**
**All questions carry Equal Marks.**

**UNIT - I**

| | | | |
|---|---|---|---|
| **1.** | **(a)** | Describe the formation of Newton's rings with necessary theory? | 9M |
| | **(b)** | In a Newton's ring experiment, the diameter of the $5^{th}$ dark ring is 0.3 cm and the diameter of the $25^{th}$ ring is 0.8 cm. If the radius of curvature of the planoconvex lens is 100cm, find the wavelength of the light used? | 5 M |
| | | (OR) | |
| **2.** | **(a)** | Describe Fraunhofer diffraction due to grating? | 9 M |
| | **(b)** | A parallel beam of sodium light is normally incident on a grating having 4250 lines/cm on a second order at $30^0$, calculate $\lambda$? | 5 M |

**UNIT – II**

| | | | |
|---|---|---|---|
| **3.** | **(a)** | Explain the construction and working of He-Ne laser with the help of energy level diagram? | 8 M |
| | **(b)** | Write in detail about population inversion and optical cavity? | 6 M |
| | | **(OR)** | |
| **4.** | **(a)** | Explain absorption, spontaneous emission, and stimulated emission of radiation? | 5 M |
| | **(b)** | Describe the construction and working of Nd-YAG laser? | 9 M |

**UNIT – III**

| | | | |
|---|---|---|---|
| **5.** | **(a)** | What are the Newton's laws and explain their applications? | 8 M |
| | **(b)** | Explain motion of the particle in one dimension and several dimensions? | 6 M |
| | | **(OR)** | |
| **6.** | **(a)** | Derive the formal solution of kinematical equations? | 8 M |
| | **(b)** | Explain the conservative and non-conservative forces? | 6 M |

**UNIT – IV**

| | | | |
|---|---|---|---|
| **7.** | **(a)** | Explain motion of a rigid body rotation in the plane? | 7 M |
| | **(b)** | Explain angular momentum about a point of a rigid body in planar motion? | 7 M |
| | | **(OR)** | |
| **8.** | **(a)** | Explain the Euler's laws of motion? | 7 M |
| | **(b)** | Describe the impedance from Newton's laws and their necessity in describing rigid body motion? | 7 M |

**UNIT-V**

| | | | |
|---|---|---|---|
| **9.** | **(a)** | Derive the expressions for intrinsic carrier concentration and Fermi level of intrinsic semiconductor? | 9 M |
| | **(b)** | Explain in detail about drift and diffusion current in a semiconductor? | 5 M |
| | | **(OR)** | |
| **10.** | **(a)** | Describe the possible extrinsic semiconductors with its Fermi energy levels? | 9 M |
| | **(b)** | Explain the dependence of Fermi energy level on temperature? | 5 M |

**Q.P. Code: 1822203** **SET - 2**

# K.S.R.M. COLLEGE OF ENGINEERING (AUTONOMOUS), KADAPA

## B. Tech. II Sem. (R18) Supplementary Examinations of February – 2022

## *SUB: Engineering Physics (EEE)*

**Time: 3 Hours** **Max. Marks: 70**

**Answer any FIVE Questions choosing one question from each unit.**
**All questions carry Equal Marks.**

**UNIT - I**

| | | | |
|---|---|---|---|
| **1.** | (a) | What is simple harmonic motion and mention its characteristics | 6M |
| | (b) | Derive the energy equations and power dissipation equations of a damped harmonic oscillator. | 8M |
| | | **(OR)** | |
| **2.** | (a) | What is the principle of superposition of waves? Describe the superposition of two waves of same frequency. | 6M |
| | (b) | Differentiate damped and forced harmonic oscillations? Explain the principle of forced harmonic oscillator with an example. Discuss the variation of amplitude of a harmonic oscillator as a function of the frequency of the driving force. | 8M |
| | | **UNIT – II** | |
| **3.** | (a) | What is wavefront? Define Huygen's principle of propagation of light. Mention the advantages and drawbacks of the Huygen's principle. | 6M |
| | (b) | Describe the Fraunhofer diffraction at a single slit. Obtain the conditions for principal maxima and explain the intensity distribution graph. | 8M |
| | | **(OR)** | |
| **4.** | (a) | What is diffraction grating and how it is used for diffraction experiments. Determine the conditions for maxima and minima in diffraction grating? Find the angle of the third-order maximum for 580-nm wavelength of yellow light falling on a diffraction grating having 1500 lines per centimeter. | 8M |
| | (b) | Explain the interference in thin films based on division of amplitude. | 6M |
| | | **UNIT – III** | |
| **5.** | (a) | Differentiate spontaneous and stimulated emission of radiation using energy level diagram. | 6M |
| | (b) | Explain the construction and working of Nd-YAG lasers. Mention the advantages and drawbacks of the laser system. | 8M |
| | | **(OR)** | |
| **6.** | (a) | What is the importance of population inversion in lasers and explain in detail about it using an energy level diagram. | 6M |
| | (b) | Discuss the construction and working of He-Ne lasers using a neat sketch of energy level diagram. | 8M |
| | | **UNIT – IV** | |
| **7.** | (a) | Explain the concept of dual nature of matter. Discuss the importance of uncertainty principle in quantum mechanics. | 6M |
| | (b) | Derive Schrodinger time dependent and independent wave equations. | 8M |
| | | **(OR)** | |
| **8.** | (a) | Assume a particle in a one dimensional potential well, using quantum mechanics principles derive the probability of finding particle and energy of the particle for ground, first and second excited states of the particle. | 10M |
| | (b) | Discuss the physical significance of wave function. | 4M |
| | | **UNIT-V** | |
| **9.** | (a) | What is the importance of Fermi energy in semiconductors? Discuss the dependence of Fermi energy level on temperature and carrier concentration. | 8M |
| | (b) | Mention the postulates of classical free electron theory of metals. Discuss the advantages and drawbacks of it. | 6M |
| | | **(OR)** | |

| | | | |
|---|---|---|---|
| **10.** | (a) | Using the Kronig-Penney model, explain the electron motion in a periodic potential. How this model helps to classify the types of solids. | 8M |
| | (b) | Differentiate direct and indirect bandgap semiconductors using E-k diagram. | 6M |

**Q.P. Code: 1822204** | **SET - 2**

# K.S.R.M. COLLEGE OF ENGINEERING (AUTONOMOUS), KADAPA

**B. Tech. II Sem. (R18) Supplementary Examinations of February – 2022**

***SUB: Engineering Physics (ME)***

**Time: 3 Hours** **Max. Marks: 70**

**Answer any FIVE Questions choosing one question from each unit.**
**All questions carry Equal Marks.**

**UNIT - I**

| | | | |
|---|---|---|---|
| **1.** | (a) | Write the conditions to form interference. Describe the Newton's rings experiment. Write the use of it. | 10M |
| | (b) | Calculate the thickness of airfilm at 10th dark ring whose diameter is 2mm in Newton's rings system viewed in the light of wavelength 500nm. | 4M |
| | | **(OR)** | |
| **2.** | (a) | What is diffraction? Write any three differences between diffraction and interference. Explain single slit diffraction. | 10M |
| | (b) | Light from a sodium vapor lamp is normally on a grating of 2cm width having 10000 lines. Find the angular separation of the two lines of wavelengths 5890 and 5896 A in the I order spectrum. | 4M |

**UNIT – II**

| | | | |
|---|---|---|---|
| **3.** | (a) | Derive the relation between Einstein's coefficients. | 8M |
| | (b) | Explain p-n junction diode laser. | 6M |
| | | **(OR)** | |
| **4.** | (a) | Write any six medical and six industrial applications of lasers. | 6M |
| | (b) | Describe Nd-YAG laser. Write any two applications of it. Give two differences between Nd-YAG and He-Ne lasers. | 8M |

**UNIT – III**

| | | | |
|---|---|---|---|
| **5.** | (a) | Set the equation of motion of damped Oscillations and derive the solution. Write the different damping conditions and discuss critical damping. | 8M |
| | (b) | Write any four differences between free oscillations and forced oscillations. Discuss the sharpness of resonance . | 6M |
| | | **(OR)** | |
| **6.** | (a) | Derive the differential equation for damped oscillations in series and parallelLCR circuits. Write the different damping conditions. | 9M |
| | (b) | A series circuit having inductance 220micro henry, capacitor of 400pf and resistance 5 ohm. Determine Q factor. How will the Bandwidth and Q factor change if the resistance value is doubled. | 5M |

**UNIT – IV**

| | | | |
|---|---|---|---|
| **7.** | (a) | Show that the velocity of transverse waves in a string depends on the tension and mass per unit length of the string. | 10M |
| | (b) | What is impedance matching,Why is it necessary and how can you get it? | 4M |
| | | **(OR)** | |
| **8.** | (a) | How are the stationary waves formed? Write the characteristics of them. Discuss maxima and minima conditions. | 10M |
| | (b) | A wire of 37cm long is clamped at both the ends. The wave speed along the wire is 325.6m/s. Find i) the standing wave with the longest wavelength ii) the lowestanding wave frequency. | 4M |

**UNIT-V**

| | | | |
|---|---|---|---|
| **9.** | (a) | What is the need of Kronig -Penney model? Draw the model . Write the potential value and Schrodinger wave equation in different regions. | 8M |
| | (b) | Differentiate metals, semiconductors and insulators. | 6M |
| | | **(OR)** | |
| **10.** | (a) | Explain the drift and diffusion currents in a semiconductor. Derive their expressions. | 8M |
| | (b) | Derive Einstein's relation connecting diffusion constant, mobility of charge carriers ànd temperature. | 6M |

**Q.P. Code: 1823202** **SET - 2**

# K.S.R.M. COLLEGE OF ENGINEERING (AUTONOMOUS), KADAPA

**B. Tech. II Sem. (R18) Supplementary Examinations of February – 2022**

***SUB: Engineering Chemistry (ECE & CSE)***

**Time: 3 Hours** **Max. Marks: 70**

**Answer any FIVE Questions choosing one question from each unit.**
**All questions carry Equal Marks.**

**UNIT - I**

| | | | |
|---|---|---|---|
| **1.** | | Apply the Schrodinger wave equation to a particle in one dimensional box | **14M** |
| | | **(OR)** | |
| **2.** | **(a)** | Write the main postulates of Crystal field Theory. | **7M** |
| | **(b)** | Write a short note on LCAO method and explain with suitable example. | **7M** |

**UNIT – II**

| | | | |
|---|---|---|---|
| **3.** | **(a)** | Define the following and explain how they vary in period and group<br>i) electro negativity ii) atomic size iii) ionization energies | **9M** |
| | **(b)** | Explain the variations of s, p, d and f orbital energies of atoms in the periodic table | **5M** |
| | | **(OR)** | |
| **4.** | **(a)** | What is Polarizability? Why does it increase down the group? | **4M** |
| | **(b)** | Outline your understanding on hard and soft acids and bases. | **10M** |

**UNIT – III**

| | | | |
|---|---|---|---|
| **5.** | | Illustrate ionic, dipolar and Van der Waals interactions. | **14M** |
| | | **(OR)** | |
| **6.** | **(a)** | A boiler has been filed with water containing excess of $CO_2$ and $Na_2CO_3$. Describe the challenges that will be faced by the boiler and provide the solutions to these challenges. | **8M** |
| | **(b)** | Summarize your understating about equations of state of real gases | **6M** |

**UNIT – IV**

| | | | |
|---|---|---|---|
| **7.** | | Discuss vibrational and rotational spectroscopy of diatomic molecules | **14M** |
| | | **(OR)** | |
| **8.** | **(a)** | Discuss the selection rules in spectroscopy. | **7M** |
| | **(b)** | List the applications of electronic spectroscopy. | **7M** |

**UNIT-V**

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|---|---|---|---|
| **9.** | **(a)** | Explain the reaction of Grignard reagent with carbonyl compounds. | **6M** |
| | **(b)** | Discuss the conformational analysis of cyclohexane. | **8M** |
| | | **(OR)** | |
| **10.** | **(a)** | Outline the structural isomers and stereoisomers. | **8M** |
| | **(b)** | Explain Clemmensen reduction with example. | **6M** |

**Q.P. Code: 1824203** | **SET - 2**

# K.S.R.M. COLLEGE OF ENGINEERING (AUTONOMOUS), KADAPA

**B. Tech. II Sem. (R18) Supplementary Examinations of February – 2022**

***SUB: English (ECE & CSE)***

**Time: 3 Hours** **Max. Marks: 70**

**Answer any FIVE Questions from the following.**
**All questions carry Equal Marks.**

1. (a) Fill in the blanks with suitable **prepositions** **5M**
   (i) The world is _____ war.
   (ii) Soldiers die _____ their country.
   (iii) The patient died _____ cancer.
   (iv) Deeksha congratulated Krishna _____ his success.
   (v) The father gave a gift _____his daughter.

   (b) Identify and delete the redundant words/phrases and rewrite each of the following sentences. **4M**
   (i) The scientists are constantly working on new innovations in research.
   (ii) She was the younger of the two twins.
   (iii)In a moment of hopeful optimism, the minister made that decision.
   (iv)Please combine the two departments into one.

   (c) Fill in the blanks with appropriate phrasal verbs **5M**
   (i) Charan _____ (gave up/gave into) smoking following the doctor's advice.
   (ii) Mokshita found it difficult to _____ (cope up/cope with) the situation.
   (iii)Arnav's request for transfer was _____ (turned in/ turned down) by his boss.
   (iv)We _____ (deal with/ deal in) leather goods.
   (v) Please stand by me, do not _____ (back up/ back out) now.

2. (a) Supply appropriate **article** for the following: **4M**
   (i) _____ stitch in time saves nine. (The/A/An)
   (ii) _____ Bible is a sacred book. (The/A/An)
   (iii) _____ father in him forgave the son. (The/A/An)
   (iv) He is _____ M.B.A degree holder. (The/A/An)

   (b) Add prefix to form antonymous meaning for the words given below. **4M**
   (i) Necessary (ii) Honour (iii) Polite (iv) Characteristic

   (c) Use proper **suffix** to change the part of speech of the words given below. **6M**
   (i) Identity (change to Adjective) (ii) Serious (change to Adverb)
   (iii) Repeat (change to Noun) (iv) House (change to Verb)
   (v) Kind (change to noun) (vi) Philosophy (change to adjective)

3. (i) 'Please grant me leave for two days', the teacher said to the headmaster. **14M**
   (Change to **indirect** speech)
   (ii) "Shall I succeed in my test?' (Change to **indirect** speech)
   (iii) 'Take this cat out." (Change to **indirect** speech)
   (iv) Sagar declared that he preferred death to dishonour. (Change to **direct** speech)
   (v) Syam said that he had to leave then. (Change to **direct** speech)
   (vi) The conductor told us that we mustn't smoke in the bus. (Change to **direct** speech)
   (vii) My brother asked me why I had not eaten anything. (Change to **direct** speech)

4. (a) Enumerate the list of techniques used for writing precisely. **7M**

   (b) Write a short note on (i) phrase (ii) clause **7M**

5. Write a paragraph on any **TWO** of the topics given below: **14M**
   (i) My favorite politician (ii) A holiday that you don't celebrate (iii) COVID-19

6. Write an essay on 'Preservation of wildlife in India.' **14M**

7. Write the meanings of the following idioms and use them in your own words. **14M**

(i) Rule the roost (ii) Beat around the bush (iii) Add insult to injury
(iv) Bolt from the blue (v) Bite the dust (vi) Break the ice
(vii) Kick the bucket

8. **Reading comprehension:** **14M**

**Read the following passage carefully and answer the questions below it:**

The supervisor would have to change his attitude towards people first. This staff under him must be perceived as human beings with feelings and needs. They are not automations within a complex work machinery. One of the greatest needs of today's worker is to have a feeling that he is in control of his workplace and not vice versa. The best way is to satisfy this need as far as possible. He must feel firstly that his work is meaningful. To do this the supervisor must delegate responsibility and limited authority for the man to execute his job well. The subordinate must be properly trained to assume responsibility and authority. Once he is ready to assume these, he can be made accountable for his job. Very often supervisors assume all responsibility and accountability for fear of losing control of the workplace. This makes workers under him pawns in a vast chess board. Delegating accountability gives the worker a purpose in life and the need to do a job well. Most important is to sit with each worker and chalk-out common objectives and agreed norms to achieve them. This gives workers a security as to what is expected of them. When he has met his objectives, he certainly has a feeling of achievement. This feeling of achievement is the greatest motivator.

(i) A humane attitude on the part of the supervisor towards his staff is necessary to
(a) get them to work (b) keep them happy
(c) have a congenial atmosphere at workplace (d) get the best out of them

(ii) Responsibility and accountability make a worker
(a) shirk his duties (b) do his job properly
(c) tense and frightened (d) vulnerable before his supervisors

(iii) Supervisors do not delegate responsibility and authority to their subordinates because
a. subordinates are not capable enough
b. they cannot trust their subordinates
c. they are apprehensive of losing their hold on the place of work
d. final responsibility is theirs

(iv) Orientation of subordinates of common objectives and how to achieve them is
(a) not very important (b) a must
(c) not at all necessary (d) optional

(v) The greatest motivator is
(a) a good supervisor (b) a good environment
(c) a sense of security (d) fulfillment of purpose

(vi) The synonym of the word 'perceive' is
(a) distract (b) divert (c) deviate (d) see

(vii) The antonym of the word 'complex' is
(a) difficult (b) ambiguous (c) simple (d) concrete