K.S.R.M CO LLEGE OF ENGINEERING,KADAPA
(AUTONOMOUS)
MODEL QUESTION PAPER
FOUR YEAR B. TECH (R15) DEGREE EXAMINATIONS
I B.TECH II SEM EXAMINATION
SUB : ENVIRONMENTAL STUDIES-1501206
(Civil & Mecanical)

Time : 3hrs **Max marks :70**

Answer any Five questions choosing one question from each unit.

UNIT- I

1. (a) Define Environment and explain multidisciplinary nature of environmental studies. 06M
   (b).Discuss in detail about scope and importance of environmental studies 08M

(or)

2. (a) Write notes on environmental effects of extracting and using mineral resources. 06M
   (b) Write notes on (i) Effects of deforestration
   (ii) Effects of modern agriculture on environment. 08M

UNIT-II

3. (a) Write notes on foodchains& foodwebs 07M
   (b) Discuss structure and functions of ecosystem. 07M

(or)

4. (a) Write short notes on (i) energy flow in ecosystem
   (ii) food chain 08M
   (b) Write notes on characteristic features of grassland ecosystem. 06M

UNIT-III

5. (a) Discuss the hot spots of biodiversity 07M
   (b) Discuss Insitu and Exsitu conservation of biodiversity. 07M

(or)

6. (a) Write short notes on biodiversity at Global, National and Local level. 07M
   (b) Describe different types of threats to biodiversity. 07M

UNIT-IV

7. (a) Define Water pollution and discuss its control measures 07M
   (b) Write about solid waste management. 07M

(or)

8. (a) Define thermal pollution and discuss its causes, effects and control measures. 06M
   (b) Write notes on (i) Cyclones (ii) Floods 08M

UNIT-V

9. (a) Write about water shed management leading to water conservation. 07M
   (b) Write short notes on causes and effects of Global Warming 07M

(or)

10. (a) Write about role of Information Technology in Environment and Human health. 05M

    (b) Write notes on a) family welfare programme. 09M
    b) HIV/AIDS
    c) Urbanisation

K.S.R.M. College of Engineering,(Autonomous), Kadapa

B.Tech II sem, EEE, Model paper -2016-2017

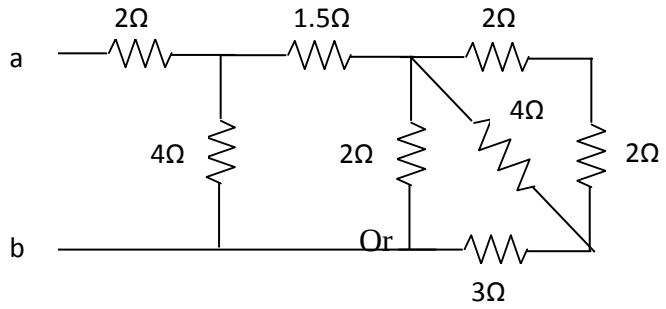
Sub: Electrical Circuits

Time: 3Hrs Max.Marks: 70

Unit-I

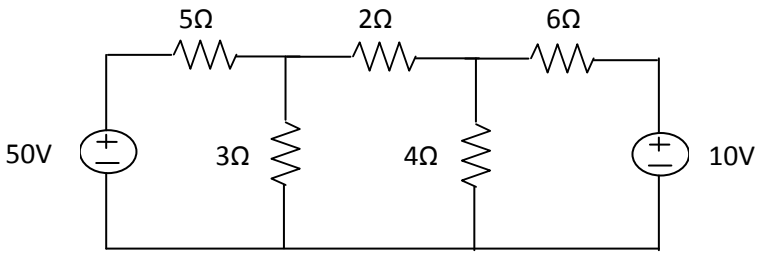
1. (a) Explain about independent and dependent sources. (6M)

   (b) Find the equivalent resistance across a and b terminals in the circuit shown.(8M)



2. (a) State and explain Kirchoff's laws. (7M)

   (b) Determine the current in the 4Ω resistor of the circuit shown using mesh analysis. (7M)

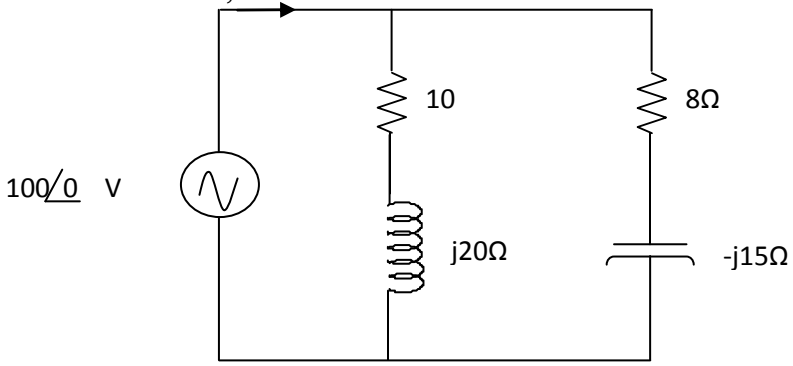


Unit-II

3. (a) Define the following terms.

   (i) Frequency (ii) Time period (iii) Form Factor (iv) Peak factor (7M)

   (b) For the circuit shown, find the current I drawn from the source. (7M)



Or

4. (a) Show that the average power consumed in a pure inductive circuit when alternating voltage is applied to it, is equal to zero over a complete cycle. (7M)

(b) In a R-C series circuit R-5Ω, C=50μF and applied voltage is 50 0° volts at 50Hz frequency. Find (i) total impedance (ii) total current (iii) power factor of the circuit. (7M)

Unit-III

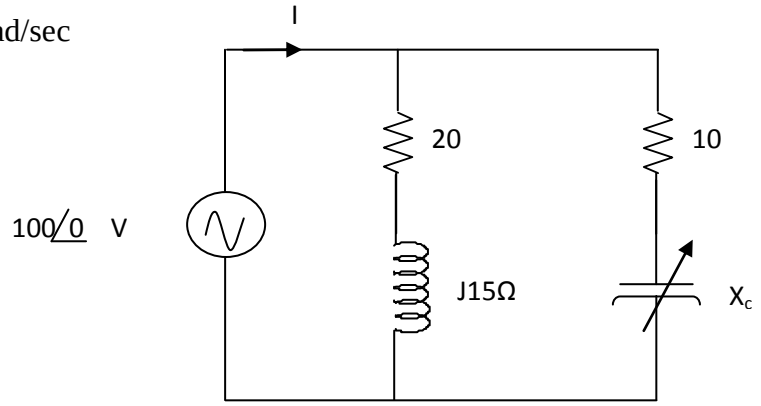
5. (a) Obtain the relationship between lower and upper half power frequencies and resonant frequency (7M) (b) A series RLC circuit has R=10 Ω, L=0.5H and C=40μF. The applied voltage is 100V. Find (i) Resonant frequency (b) Quality factor of coil and (c) Band width (7M)

Or

6. (a). Derive the current locus for the serioes R-L Circuit for variable resister and fixed inductive reactance. (7M)

(b). Determine the value of variable capacitor when the circuit will resonates at (7M)

w = 2000 rad/sec



Unit-IV

7 (a).Derive the relationship between self, mutual inductances and coefficient of coupling. (7M)

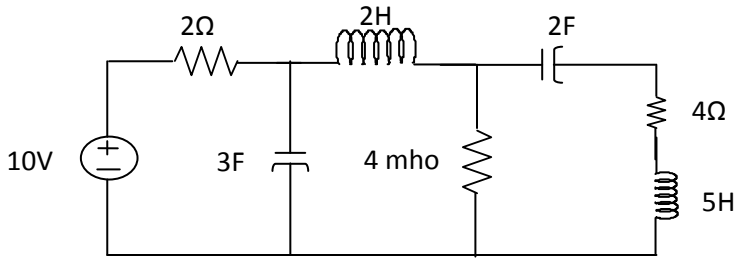
(b) Two coils have self inductances of 0.5 H and 0.8 H when connected in series aiding and coefficient of coupling is 0.8.Caluculate mutual inductance and also determine equivalent inductance. (7M)

Or

8 (a).Explain the concept of dot convention in magnetic circuits

(6M)

(b) Draw the dual network for the given figure (8M)

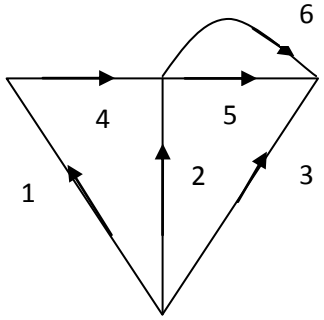


Unit-V

9 (a) Define the following terms.

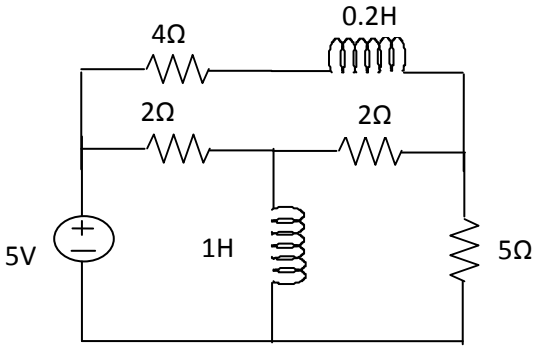
(i) Graph (ii) Tree (iii) Co-tree (iv) Oriented Graph (8M)

(b).Determine the basic Cut-set matrix for the oriented graph given in figure where the elements 1,2 and 3 are tree branches. (6M)



Or

10. Draw the oriented graph and write the incidence matrix and determine the number of possible trees for the network given below. (10M)



(MODEL PAPER)

Code:1503205

B.Tech I Year II Semester (R15) Regular Examinations, 2016
SUBJECT: ENGINEERING DRAWING-2
(Common to CE & ME Branches)

Time: 3 Hrs. **Maximum Marks: 70**

Answer any FIVE questions, choosing ONE question from each unit
All questions carry equal marks

Unit-I

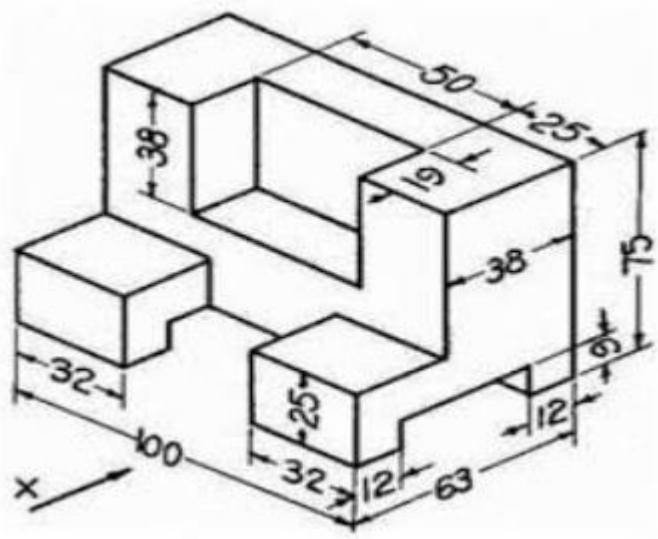
1. A cylinder of diameter of base 40 and axis 55 long, is resting on its base on H.P. It is cut by a section plane ,perpendicular to V.P and inclined at 45^0 to H.P. The section plane is passing through the top end of an extreme generator of the cylinder. Draw the development of the lateral surfaces of the cut cylinder

(OR)

2. A cone of base 50 diameter and axis 60 long, is resting on its base on H.P. It is cut by a section plane perpendicular to V.P and parallel to an extreme generator and passing through a point on the axis at a distance of 20 from the apex. Draw the development of the retained solid.

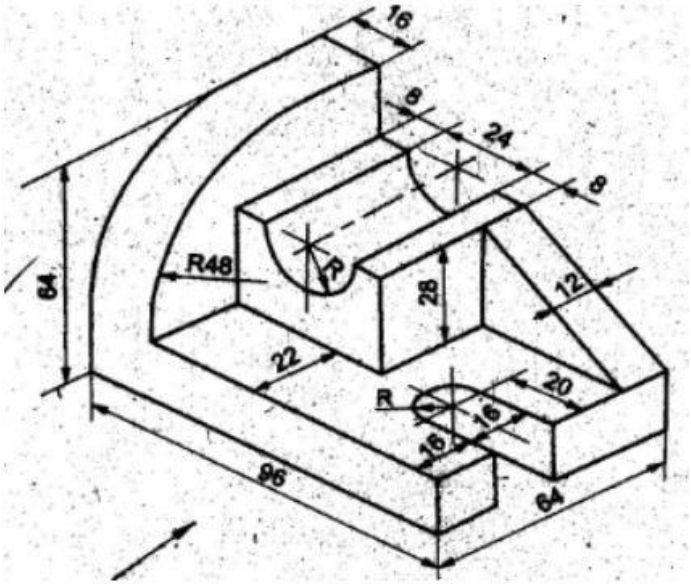
Unit-II

3. Draw front view, top view and side view of the following figure.



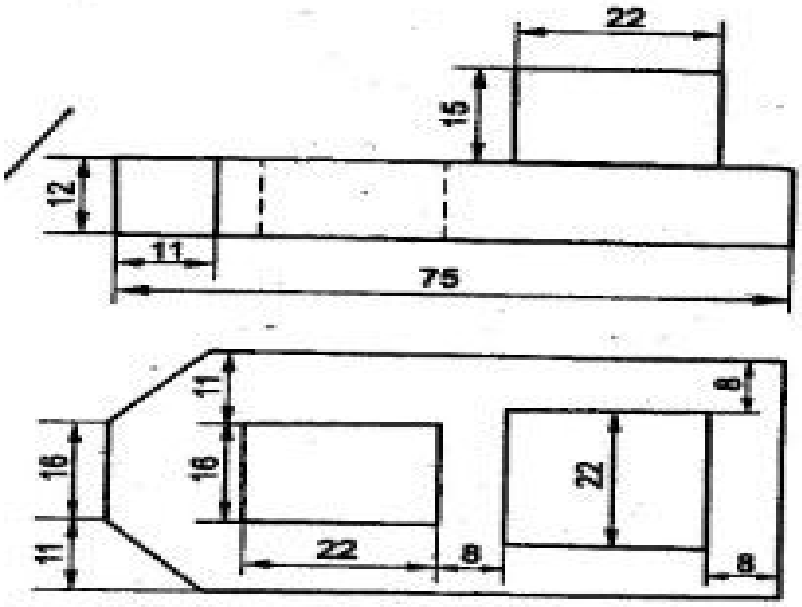
(OR)

4. Draw front view, top view and right side view of the following figure.



Unit-III

5. Draw the isometric projections of the block ,two views of which are shown in the following fig.



(OR)

6. A hemi-sphere is resting on the top of a hexagonal prism of 35 side and axis 100 long .Draw the isometric projection of the set-up ,when the hemi-sphere is touching all the edges of the top base

Unit-IV

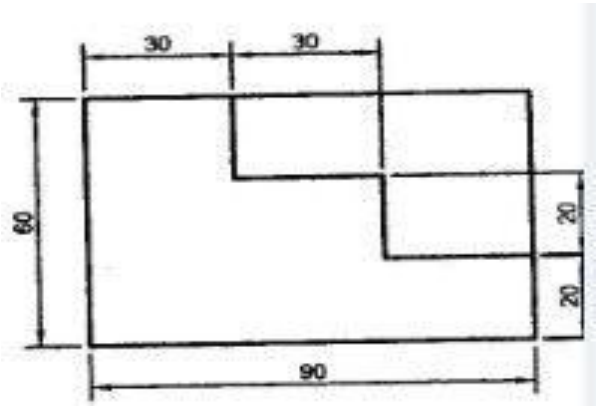
7. A vertical square prism of base 50 side ,is penetrated by a horizontal square prism of base 40 side such that the axes intersect . The axis of the horizontal prism is parallel to V.P and the faces of both the prisms are equally inclined to V.P. Draw the projections of the two Prisms,showing the lines of intersection.

(OR)

8. A vertical cylinder of 60 diameter ,is penetrated by another cylinder of 45 diameter . The axes of the two cylinders are intersecting at right angle. Draw the projections of the two cylinders ,showing the lines(curves) of intersection.

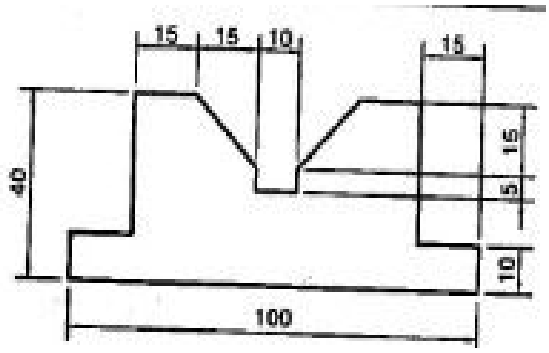
Unit-V

9. State a series of command steps required to reproduce the following fig with the help of LINE command using absolute coordinate system.



(O.R)

10. State a series of command steps required to reproduce the following fig with the help of LINE command using relative rectangular coordinate system.



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

B.TECH II SEM (R15) DEGREE EXAMINATION

(1505203) Programming in C

Model Question Paper

Time: 3Hours (Common to CE and ME)

Max.Marks:70

Note: Answer any **FIVE** questions choosing **ONE** question from each unit.
All questions carry **Equal** marks.

UNIT -I

1. a) Explain about computer system. (7M)
   b) What is flowchart? Explain different symbols in flowchart (7M)

OR

2. a) Explain the steps involved in creating and running programs in C. (7M)
   b) What is variable? Explain how to declare and initialize variables with an example. (7M)

UNIT-II

3. a) Explain with syntax, the two-way selection(if, if-else, nested if-else) in C language. (7M)
   b) Explain about assignment operator,sizeof operator, conditional operator and relational operators in C. (7M)

OR

4. a) Explain the multi way selection (Switch and else if ladder) in C language with syntax and example. (7M)
   b) Write a C program to check whether a given year is leap year or not. (7M)

UNIT-III

5. a) Explain with syntax and example, while, for and do-while loops in C. (7M)
   b) Write a C program to generate all the prime numbers within agiven range. (7M)

OR

6. a) What is recursive function? Write a C program to find factorialof given number using recursive function. (7M)
   b) Explain the following categories of functions
      i) function without parameters
      ii) function with parameters. (7M)

UNIT-IV

7. a) Define array. Explain declaration and initialization of one and two dimensional arrays with an example. (7M)
   b) Write a C program to sort given list of numbers using bubblesort. (7M)

OR

8. a) Define string. Explain any three strings manipulation functions with examples. (7M)

b) Write a C program to check whether a given string is palindromeor not. (7M)

UNIT-V

9. a) Explain about typedef and enum with examples. (7M)
   b) Explain the various logical, bitwise and shift operators with examples. (7M)

OR

10. a) Define structure and union with an example each and also write differences between them. (7M)
    b) Define pointer. Explain declaration and initialization of pointer with an example. (7M)

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

B.TECH II SEM (CSE) (R15) DEGREE EXAMINATION

(1505205) Introduction to Data Structures

Model Question Paper

Time: 3 Hrs Marks: 70

Note: Answer any **FIVE** questions choosing **ONE** question from each unit.
All questions carry **Equal** marks.

UNIT I

1. a) What is a pointer? How is a pointer initialized? How to access a variable through its pointer? (7 M)
   b) Explain about how to pass 1-D array of elements to a function using pointers. (7 M)

OR

2. a) Explain pointer to pointer concept with an example. (7 M)
   b) Explain about rules of pointer operations. (7 M)

UNIT II

3. a) What is a file? Explain input/output operations on files. (14 M)

OR

4. Explain different memory management functions. . (14 M)

UNIT III

5. a) What is a data structure? What are the various types of data structures? (7 M)
   b) Explain storage structure and file structures. . (7 M)

OR

6. What are the operations performed on linear lists? Differentiate between using arrays and linked implementation of linear lists. (14M)

UNIT IV

7. a) Explain the following operations that are preformed on double linked lists.
   i) Insertion ii) Deletion (10 M)
   b) Write the applications of double linked lists. (4M)

OR

8. a) Explain Sparse matrices? (7 M)
   b) Explain the following operations that are performed on single linked lists.
   i) Insertion ii) Deletion (7M)

UNIT V

9. Explain about merge and quick sort with suitable examples. (14 M)

OR

10. Explain about linear search and binary search with suitable examples? (14 M)

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

B.Tech II Sem (R15) Model Question paper

Mathematics – II

(Common to CE & ME Branches)

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

Note : Answer any **FIVE** questions by choosing one from each unit.
All questions carry equal marks.

UNIT - I

1. (a) Prove that $\nabla r^n = nr^{n-r}\bar{r}$, where $\bar{r} = x\bar{\imath} + y\bar{\jmath} + z\bar{k}$. (7M)

   (b) Show that the vector $(y+z)\bar{\imath} + (z+x)\bar{\jmath} + (x+y)\bar{k}$ is irrotational and find its scalar potential. (7M)

(OR)

2. Verify Green's theorem for $\int_c [(xy+y^2)dx + x^2dy]$, where C is bounded by $y = x$ $and\ y = x^2$ (14M)

UNIT – II

3. (a) Find the Laplace transform of $t\,e^{-t}sin3t$ (7M)

   (b) Evaluate $\int_0^\infty t\,e^{-3t}\sin t\,dt$ (7M)

(OR)

4. Find the Laplace transform of the function $f(t) = \begin{cases} sinwt, & 0 < t < \frac{\pi}{w} \\ 0, & \frac{\pi}{w} < t < \frac{2\pi}{w} \end{cases}$ (14M)

UNIT – III

5. a) Find the inverse Laplace transform of $\frac{s+2}{s^2-4s+13}$ (7M)

   b) Apply convolution theorem to evaluate $L^{-1}\left[\frac{s^2}{(s^2+a^2)(s^2+b^2)}\right]$ (7M)

(OR)

6. Solve $(D^3-3D^2+3D-1)y = t^2e^t$ given that $y(0)=1, y^1(0)=0, y^{11}(0) = -2$. (14M)

UNIT – IV

7. Find a Fourier series to represent $x - x^2$ from $x = -\pi\ to\ x = \pi$. (14M)

(OR)

8. a) Express $f(x) = x$ as half range sine series in 0<x<2,

(7M)

b) Obtain the Fourier expansion of $x \sin x$ as a cosine in $(0, \pi)$.

(7M)

UNIT – V

9. a) Form the partial differential equation by eliminating the arbitrary functions from $z = f(x + at) + g(x - at)$

(7M)

b) Using the method of separation of the variables, solve $\frac{\partial u}{\partial x} = 2\frac{\partial u}{\partial t} + u$, where $u(x, 0) = 6\, e^{-3x}$

(7M)

(OR)

10. A tightly stretched string with fixed end points $x = 0$ and $x = l$ is initially in a position given by $y = y_0 \sin^3(\frac{\pi x}{l})$. If it is released from rest from this position, find the displacement $y(x, t)$.

(14M)

K.S.R.M. COLLGE OF ENGINEERING (Autonomous), KADAPA

I B.Tech II Sem (R15) Model Question Paper

Mathematics – III

(Common to all Branches)

Time: 3 Hrs. Max Marks: 70

Note: Answer any **Five** questions by choosing one from each unit.

All questions carry equal marks.

Unit - I

1. Reduce the following matrix into its normal form and hence find its rank. (14M)

$$\begin{bmatrix} 2 & 3 & -1 & -1 \\ 1 & -1 & -2 & -4 \\ 3 & 1 & 3 & -2 \\ 6 & 3 & 0 & -7 \end{bmatrix}$$

OR

2. Find A^{-1} *and* A^4 for the matrix $A = \begin{bmatrix} 7 & 2 & -2 \\ -6 & -1 & 2 \\ 6 & 2 & -1 \end{bmatrix}$ by using Cayley - Hamilton theorem.

(14M)

Unit - II

3. (a) Find a real root of the equation $x^3 - 2x - 5 = 0$ by the method of false position correct to three decimal places. (7M)

   (b) Find the real root of the equation $3x = \cos x + 1$ by using Newton- Raphson method. (7M)

OR

4. Solve the equations $28x + 4y - z = 32, x + 3y + 10z = 24, 2x + 17y + 4z = 35$ by using Gauss-Seidel iteration method. (14M)

Unit - III

5. (a) Construct Newton's forward interpolation polynomial for the following data and hence find the value of y *for* $x = 5$. (7M)

x	4	6	8	10
y	1	3	8	16

   (b) Use Lagrange's interpolation formula to find the value of y when $x = 10,$ if the following values of x *and* y are given. (7M)

x	5	6	9	11
y	12	13	14	16

OR

6. Find the parabola of the form $y = a + bx + cx^2$ which fits most closely with the observations. (14M)

x	1.0	1.5	2.0	2.5	3.0	3.5	4.0
y	1.1	1.3	1.6	2.0	2.7	3.4	4.1

Unit – IV

7. Find $\frac{dy}{dx}$ and $\frac{d^2y}{dx^2}$ at $(i) x = 1.5$ and (ii) $x = 4.0$ for the following data: (14M)

x	1.5	2.0	2.5	3.0	3.5	4.0
y	3.375	7.000	13.625	24.000	38.875	59.000

OR

8. Evaluate $\int_0^6 \frac{dx}{1+x^2}$ by using (i) Trapezoidal rule (ii) Simpson's $\frac{1}{3}$ rule and (iii) Simpson's $\frac{3}{8}$ rule. (14M)

Unit – V

9. Using modified Euler's method find an approximate value of y when $x = 0.4$ $in\ step\ of$ 0.2, given that $\frac{dy}{dx} = y + e^x$ and $y = 0$ $when$ $x = 0$. (14M)

OR

10. Given $\frac{dy}{dx} = x + y,\ y(0) = 1,$ find y at $x = 0.1, 0.2$ and 0.3 by Taylor's series method and compute $y(0.4)$ by Milne's method. (14M)

Model Question Paper (R15)

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

B.Tech II Semester

SUB: **ENGINEERING PHYSICS**

Time: 3 Hours **(Common to EEE, ECE & CSE)**

Max.Marks:70

Note: Answer any **FIVE** of the following, Each Question carries **equal** marks.

UNIT - I

1. Determine the refractive index of transparent liquid by using Newton's ring method? 14 M

(or)

2. a) Explain the construction and working of He-Ne Laser? 8 M

b) Describe Optical fiber communication systems with block diagram? 6 M

UNIT – II

3. a) Define packing fraction. Find the packing fractions of SCC, BCC & FCC. Which structure is more closely packed. 10 M

b) Calculate the Inter planer spacing of (231) plans of an FCC structure whose atomic radius is 0.175 nm? 4 M

(or)

1. 4.) Write any four properties of Ultrasonics. Explain the production of ultrosonics by piezoelectric method. 14 M

UNIT – III

5. a) Derive one-dimensional time independent Schrödinger wave equation for an electron? 10 M

b) An electron is bound in a one-dimensional box having size of $4x10^{-10}$m. What will be its minimum energy? 4 M

(or)

6. Describe Kronig-Penny model to understand the behavior of electrons in a varying periodic potential field of a crystal? 14 M

UNIT – IV

7. a) Describe the classification of magnetic materials? 8 M

b) Explain the Hysteresis of Ferromagnetic materials? 6 M

(or)

8. a) Explain Type-I & Type-II superconductors with neat diagram? 10 M

b) What is the frequency of the electromagnetic waves radiated from a Josephson junction, if the voltage drop at the junction is 8.5 μV? 4 M

UNIT – V

9. Describe drift and diffusion currents in a Semi-conductor with the help of relevant expressions? 14 M

(or)

10. a) Describe the properties of nanomaterials? 8 M

b) Describe the synthesis of nanomaterials by Ball-Milling method? 6 M

K.S.R.M COLLEGE OF ENGINEERING,KADAPA
(AUTONOMOUS)
MODEL QUESTION PAPER
FOUR YEAR B. TECH (R15) DEGREE EXAMINATIONS
I B.TECH II SEM EXAMINATION
SUB : ENGINEERING CHEMISTRY-1523103
(ECE,EEE & CSE)

Time : 3hrs **Max marks :70**

Answer any Five questions choosing one question from each unit.

UNIT- I

1. (a) Define hardness of water.Calculate temporary,permanent and total hardness of water containing the following in ppm $CaSO_4$= 7.8, $MgSO_4$= 9.4, $Ca(HCO_3)_2$= 5.86. 08M
   (b) Write notes on conversion of hard water to soft water by Ion exchange process. 06M

(or)

2. (a) Write notes on (a)Priming & Foaming (b) scale and sludge. 08M
   (b) Estimate the amount of Dissolved Oxygen present in given water sample by Winkler's method. 06M

UNIT-II

3. (a) i. Vulcanization of Rubber
   ii. Classification of Polymers. 08M
   (b) Compounding of plastics 06M

(or)

4. (a) Define addition polymerization?Explain the free radical polymerization reaction with mechanism. 05M
   (b) Write short notes on preparation, properties & applications of
   (a) Silicone rubber
   (b) Bakelite 09M

UNIT-III

5. (a) Write in detail about Concentration cells. 07M
   (b) Explain various factors influencing corrosion of metal. 07M

(or)

6. (a) Write notes on (a) Dry cell (b) Fuel cell. 08M
   (b) Discuss the mechanism of Dry corrosion. 06M

UNIT-IV

7. (a) Define calorific value & determine the calorific value of solid fuels by bomb Calorimetry. 07M
   (b) Describe the method employed for refining of crude oil with suitable diagram. 07M

(or)

8. (a) Describe the method employed for manufacture of Synthetic Petrol. 07M
   (b) Define lubricant and explain the properties of lubricants in detail. 07M

UNIT-V

9. (a) Write 12 principles of green chemistry and its applications. 07M
   (b) Write short notes on fluorescence and phosphorescence. 07M

(or)

10. (a) Define catalyst. Explain types of catalysis and its applications. 06M

    (b) (i) Laws of Photochemistry (ii) solar cells 08M

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

B.Tech II Semester Model Question Paper (R15) February, 2018

SUB: **English-II**

Time: 3 Hours Max.Marks:70

Note: Answer any **FIVE** of the following, Each Question carries **equal** marks.

1. Correct any 14 of the following.

   14×1=14M

   a) He has lost a hundred rupee note.
   b) The law will take her own course.
   c) She does not know playing chess.
   d) According to my opinion he is a gentleman.
   e) One should be loyal to his country.
   f) Their discoveries are compared to Einstein.
   g) The boy was sunk in the river.
   h) Both of the two brothers did not speak ill of each other.
   i) To the best of my knowledge his character and conduct have been satisfactory.
   j) I look forward to receive your letter.
   k) I will complete the work by next week.
   l) No one in the family likes him behaving miserly.
   m) He found that he was expelled from the college.
   n) He came there after his parents went.
   o) He is planning to put off his family in the town.
   p) I don't see a fun in your joke.
   q) The police dispersed the mob, isn't it?

2. Answer **either** of the two in about 300 words.

   14×1=14M

   a) Swatch Bharath b) Role of an Engineer in the development of nation.

3. a) Prepare and draft a speech to be delivered on the occasion of being elected student as

   Secretary for student club in your college.

   7×1=7M

   b) Draft a dialogue between a student and a teacher about improving communication skills.

7×1=7
M

4. a) Convert the following data into a comparative bar graph.
   7×1=7M

   The ministry of tourism got 78 crores of rupees as profit in 2011 and it spent 23 crores for publicity in that year. The profit was 90 crores in 2012 and an amount of 35 crores was spent for publicity in the same year. In the year 2013 the profit was huge reaching 118 crores. The department spent 46 crores towards publicity for the same year. The profit was 130 crores in 2014 and an amount of 56 crores was spent on publicity. The department earned a profit of 152 crores in 2015 where in an amount of70 crores was spent on publicity.

   b) (i) Mark the stress for the following words
   4×½=2M

   i) Solidarity ii) Corruption iii) Industrial iv) Newspaper.

   c) Identify the number of syllables in the following words.
   6×½=3M

   i) Participation ii) Recollect iii) Weather iv) Through v) Civilization vi) Engineer

   d) What is intonation and mention the various tones of intonation with an example for each.
   2M

5. a) What is the purpose of a Group discussion and Categorize the participants of Group Discussion
   7M

   b) Draft a Debate on Love marriages Vs Arranged marriages.
7M

6. a) What is an interview and what are the guidelines for an interviewee to succeed in interviews. 7M

   b) what is curriculum vitae? Write the curriculum vitae of B.Tech graduate applying for a software job.
   7M

7. a) Write a letter to the Director, Technical Education on the urgent need to improve facilities
   in Engineering Colleges.
   7M
   b) Prepare and Draft a paragraph to be sent through E-mail to your teacher on the advantages of E-mail communication.
   7M

8. Answer **either** of the two.
   14×1=14M
   a) Write a technical report on the sudden decline of sales in the Spencer's shop and suggest
   measures to improve the sales.

   OR

   b) Write a technical report on establishing a cotton mill in the vicinity of your town.

K.S.R.M. COLLEGE OF ENGINEERING : KADAPA

(AUTONOMOUS)

B.Tech II Sem (R15) Model Question paper February, 2018

HUMAN VALUES AND PROFESSIONAL ETHICS

Time : 3 Hrs.

Max.Marks : 70

Answer any **FIVE** of the following questions. Each question carries equal marks

1 . Answer the following 7X2 = 14 M

a) Define Engineering Ethics.
b) state three types of Inquiry.
c) State any two examples of improved safety.
d) Define Collegiality.
e) Name any four "employee rights"
f) What is 'patent'?
g) Hired guns

2. Write an essay on "Challenger Disaster was totally not only a technical disaster but also a financial disaster".
1X14 =14 M

3. Explain Carol Gilligan's theory on moral autonomy. 1X14 =14 M

4. a) What are the limitations of codes of ethics 7X2 = 14 M

b) Write short note on 'Industrial Standards'.

5. a) Write a short note on Regulated society 7X2 = 14 M

b) What are the general features of morally responsible engineers? Explain briefly any two.

6. a) Discuss various methods of reducing risks. 7X2 = 14 M

b) Explain the concept of Risk – Benefit Analysis.

7. What is Indian scenario in accordance with ‘Intellectual Property Rights, IPR’? 1X14 = 14 M

8. Write an essay on Computer Ethics 1X14 = 14 M