2016 BATCH

I B.TECH

I SEMESTER

REGULAR EXAMINATION

DEC-2016/JAN-2017

QUESTION PAPERS

ACADEMIC YEAR

2016-17

Narasaraopeta Engineering College (Autonomous)
Kotappakonda Road, Yellamanda (P.O), Narasaraopet- 522601, Guntur District, AP.

Subject Code: R16CS1110

I B.Tech I Semester Regular Examinations, Dec – 2016/Jan-2017
INTRODUCTION TO COMPUTERS AND PROBLEM SOLVING
(CSE)

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

Question Paper Consists of **Part-A** and **Part-B**
Answering the question in **Part-A** is Compulsory, **Four** Questions should be answered from **Part-B**.
All questions carry equal marks of 12.

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PART-A

1.

a) Who is the father of computer? Why?
b) List different types of memory with full form.
c) What will be the hexadecimal equivalent of decimal number (54977)
d) Define an algorithm?
e) Find the factorial of 8
f) Write the prime numbers between 1 to 50

[2+2+2+2+2+2]

PART-B

4X 12 = 48

2. Explain the various input devices in detail [12]

3. (a) What is the difference between [6+6]
i) Primary memory and secondary memory ii) Volatile and non-volatile memory
(b) Write short notes on mass storage devices

4. (a) Find the octal equivalent of the following binary numbers : [6+6]
i) 1101011 ii) 11010 iii) 10110011
(b) Using 2's complement method represent the following
$(156)_{10}$, $-(99)_{10}$, $(25)_{10}$, $-(16)_{10}$

5. (a) Write short notes on Analysis of algorithms [6+6]
(b) What is the difference between top-down and bottom-up approaches. Explain in detail

6. (a) Draw a flowchart for the summation of a set of numbers [6+6]
(b) Write an algorithm to obtain the first 10 numbers in Fibonacci sequence

7. (a) Write an algorithm for finding the square root of a number [6+6]
(b) Design an algorithm to find the maximum in an array

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Narasaraopeta Engineering College (Autonomous)
Kotappakonda Road, Yellamanda (P.O), Narasaraopet- 522601, Guntur District, AP.

Subject Code: R16CC1109

I B.Tech I Semester Regular Examinations, Dec – 2016/ Jan-2017.

ENVIRONMENTAL STUDIES

(Common to ECE & CSE)

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

Question Paper Consists of **Part-A** and **Part-B**

Answering the question in **Part-A** is Compulsory, **Four** Questions should be answered from **Part-B**

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PART-A

1. (a) What is the importance of food web?

(b)Mention the agents responsible for soil erosion?

(c)Define genetic biodiversity?

(d)Define bio magnification?

(e)What is acid-rain?

(f) Mention any two principles of ecotourism?

[2+2+2+2+2+2]

PART-B

4X 12 = 48

2. (a) Explain multidisciplinary nature of environmental studies? (6+6)
(b) Explain the structure and functions of an ecosystem?

3. (a) Write notes on Environmental effecting of extracting and using mineral resources? (7+5)
(b)What are the causes and consequences of deforestation?

4. (a) Explain conservation techniques taken for bio-diversity? (6+6)
(b)Explain in detail threats to biodiversity with suitable examples?

5. (a) Briefly describe the sources, effects and control of noise pollution. (7+5)
(b) List the major physiological effects of air pollution on plants and human beings?

6. (a) Discuss the problems associated with resettlement and rehabilitation of people? (6+6)
(b)Write the salient features of Forest conservation act?

7. (a) Explain Environment Impact Assessment and its significance in various stages? (7+5)
(b)Explain Environment audit and its importance?

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Narasaraopeta Engineering College (Autonomous)
Kotappakonda Road, Yellamanda (P.O), Narasaraopet- 522601, Guntur District, AP.

Subject Code: R16CC1108

I B.Tech I Semester Regular Examinations, Dec – 2016/Jan-2017.

ENGINEERING PHYSICS

(Common to ECE & CSE)

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

Question Paper Consists of **Part-A** and **Part-B**

Answering the question in **Part-A** is Compulsory, **Four** Questions should be answered from **Part-B**.

All questions carry equal marks of 12.

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PART-A

1. (a) What is polarized light? What is its importance?
   (b) Explain the principle involved in optical fiber.
   (c) What are Miller Indices in crystallographic notations?
   (d) Define absorption coefficient.
   (e) What are the failures of classical free electron theory?
   (f) Draw the Fermi level in intrinsic and extrinsic semiconductors.

[2+2+2+2+2+2]

PART-B

4X12 = 48

2. a) Discuss the theory of interference fringes and obtain an expression for the fringe width.
   b) What is diffraction of light? Discuss the Fraunhofer diffraction due to a single slit.
   c) Calculate the thickness of a mica sheet required for making a quarter wave plate, λ=5460A^0. The indices of refraction for the ordinary and extraordinary rays in mica are 1.586 and 1.592.

[3+7+2]

3. a) Describe the construction and working of He-Ne laser.
   b) Define i) acceptance angle and ii) acceptance cone
   c) Write the applications of optical fibers. **[6+4+2]**

4. a) Obtain expressions for atomic radius and packing fraction for BCC and FCC structures.
   b) Explain Bragg's law of X-ray diffraction. **[8+4]**

5. a) What are the properties of Ultrasonics? Explain any one method for the production of Ultrasonics.
   b) State and explain Sabine's formula for reverberation time. **[8+4]**

6. a) Explain Quantum free electron theory in metals. Derive an expression for the current density based on this theory.
   b) Derive the expression for energy of a particle enclosed in a one-dimensional potential box of infinite height. **[6+6]**

7. a)Explain the formation of energy bands on the basis of Kronig-Penny Model
   b) Write a note on intrinsic and extrinsic semiconductors. **[8+4]**

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Narasaraopeta Engineering College (Autonomous)
Kotappakonda Road, Yellamanda (P.O), Narasaraopet- 522601, Guntur District, AP.

Subject Code: R16CC1107

I B.Tech I Semester Regular Examinations, Dec – 2016/Jan-2017.

ENGINEERING GRAPHICS

(Common to ECE & CSE)

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

Question Paper Consists of **Part-A** and **Part-B**

Answering the question in **Part-A** is Compulsory, Four Questions should be answered from Part-B

All questions carry equal marks of 12

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PART-A

1. (a) Draw a diagonal scale of 1:2.5, showing centimetres and millimetres and long to measure upto 20 centimetres
   (b) Draw the projections of a point R, 50 mm above HP and in the VP
   (c) A square ABCD of 40 mm side has a corner on the HP and 20 mm in front of the VP. All the sides of the square are equally inclined to the HP and parallel to the VP. Draw its projections.
   (d) Draw the projections of a cylinder, base 40 mm diameter and axis 50 mm long resting on the HP on their respective bases
   (e) Draw the isometric view of a cylinder of 40 mm diameter and axis 60 mm, when axis is perpendicular to HP and parallel to VP
   (f) Draw VT of a line AB, 70 mm long parallel to HP and 20 mm above HP, its end A is 25 mm in front and inclined at 30^0 to VP.

[2+2+2+2+2+2]

PART-B

4X 12 = 48

2. (a) Inscribe an ellipse in a parallelogram having sides 150 mm and 100 mm long and an included angle of 120^0
   (b) Construct a regular pentagon of base size 30 mm when one side is vertical.

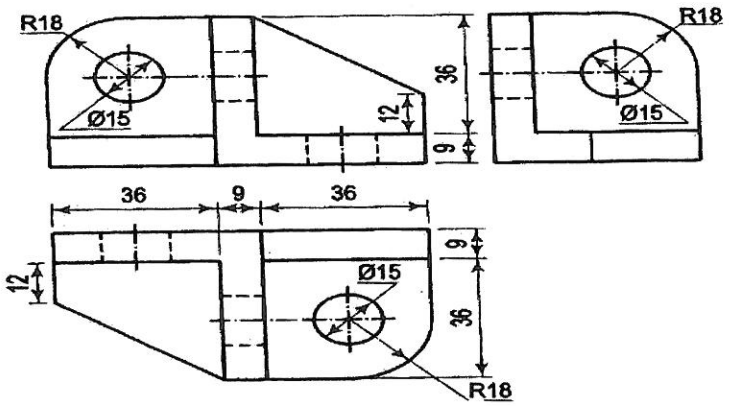
3. (a) A 100 mm long line is parallel to and 30 mm in front of the VP. Its one end is in the HP while the other is 50 mm above the HP. Draw its projection and find its inclination with the HP
   (b) The front view of 80 mm long line measures 50 mm. The line is parallel to the HP and one of its ends is in the VP and 20 mm above the HP. Draw the projections of the line and determine its inclination with the VP

4. The top view of a 75 mm long line DE measures 50 mm. D is 50 mm in front of the VP and 15 mm below the HP. E is 15 mm in front of the VP and is above the HP. Draw the front view of DE and find its inclinations with the HP and the VP

5. Draw the projections of a regular hexagon of 20 mm side, having one of its sides in the HP and inclined at 60^0 to the VP, and its surface making an angle of 45^0 with the HP

6. A square pyramid, base 40 mm side and axis 90 mm long, has a triangular face on the ground and the vertical plane containing the axis makes an angle of 45^0 with the VP. Draw its projections.

7. Draw the isometric view of the casting shown in Fig.



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Narasaraopeta Engineering College (Autonomous)
Kotappakonda Road, Yellamanda (P.O), Narasaraopet- 522601, Guntur District, AP.

Subject Code: R16CC1107

I B.Tech I Semester Regular Examinations, Dec - 2016

ENGINEERING GRAPHICS

(Common to ECE & CSE)

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

Question Paper Consists of Part-A and Part-B

Answering the question in **Part-A** is **Compulsory, Four** Questions should be answered from **Part-B.**

All questions carry equal marks of **12.**

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PART-A

1. (a) Construct a scale of 1:5 cm = 1 dm to read upto 1 metre and show on it a length of 0.6 meter.
   (b) Draw the projections of a point S, 40 mm below the HP and 30 mm behind VP
   (c) Draw the projections of a square of 25 mm side, parallel to the HP and perpendicular to the VP
   (d) The apex of a cone whose base of 50 mm diameter and 60 mm axis is in the HP, axis vertical and 40 mm in front of the VP. Draw the projections of the cone.
   (e) Draw the isometric view of a semicircle of diameter 60 mm when the surface is parallel to the VP
   (f) Draw HT of a line AB, 70 mm long parallel to VP and 20 mm in front of VP, its end A is 25 mm above and inclined at 30^0 to HP.

[2+2+2+2+2+2]

PART-B

4X 12 = 48

2. (a) Construct a regular hexagon of side 28 mm when one side is horizontal.
   (b) The major axis of an ellipse is 150 mm long and the minor axis is 100 mm long. Find the foci and draw the ellipse by 'arcs of circles' method.

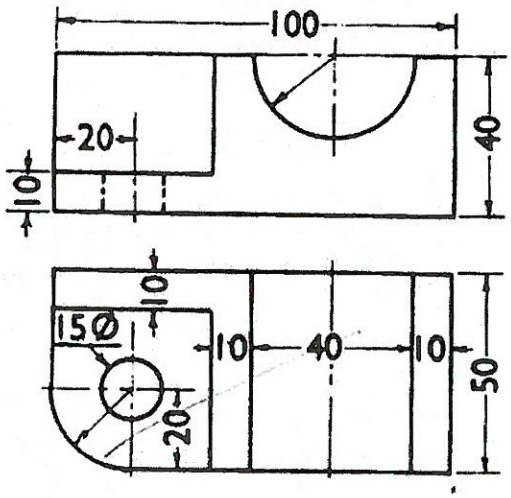
3. (a) Draw the projections of a 70 mm long line CP, perpendicular to the VP, in the HP and one end, C is 30 mm in front of VP
   (b) The length of the top view of a line parallel to the VP and inclined at 45^0 to the HP is 50 mm. One end of the line is 12 mm above the HP and 25 mm in front of the VP. Draw the projections of the line and determine its true length

4. The front view of a line AB measures 65 mm and makes an angle of 45^0 with XY. A is in the HP and the VT of the line is 15 mm below the HP. The line is inclined at 30^0 to the VP. Draw the projections of AB and find its true length and inclination with the HP. Also locate HT

5. A 60^0 set-square of 125 mm longest side is so kept that the longest side is in HP making an angle of 30^0 with the VP and the set-square itself inclined at 45^0 to the HP. Draw the projections of the set-square

6. A square pyramid base 40 mm side and axis 90 mm long has a triangular face on the ground and the vertical plane containing the axis makes an angle of 45° with V.P. Draw its projections.

7. Draw the isometric view of the following sketch. All dimensions are in mm.



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Narasaraopeta Engineering College (Autonomous)
Kotappakonda Road, Yellamanda (P.O), Narasaraopet- 522601, Guntur District, AP.

Subject Code: R16CC1106

I B.Tech I Semester Regular Examinations, Dec – 2016/Jan-2017.

PROFESSIONAL ETHICS, VALUES & PATENTS

(Common to CE, EEE & ME)

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

Question Paper Consists of **Part-A** and **Part-B**

Answering the question in **Part-A** is Compulsory, **Four** Questions should be answered from **Part-B**

All questions carry equal marks of 12.

PART –A

1.
a) What is Empathy?
b) Who is a Consultant?
c) What is whistle blowing?
d) Explain Cyber crime with an example.
e) What is the difference between Copy right and Patency?
f) Discuss the purpose and function of trade mark.

2+2+2+2+2+2=12.

Part-B

2. a) Discuss the relation between spirituality, character and professional achievement. (6 + 6)
b) Explain how respecting others make one to lead a peaceful life.

3. Discuss the different roles of an engineer as an Engineer, Manager, Consultant and as a Leader with two examples. (12)

4. a) Discuss the professional rights and responsibilities of an engineer. (6 + 6)

b) Define Industrial Espionage. Discuss whether it pays or not?

5. a) Define IPR and discuss it's importance. (6 + 6)

b) Discuss patent registration process.

6.a) What are the new developments in Trade mark law? (6 + 6)

b) What is Employee confidentiality agreement?

7. a) Discuss the rationale for protecting Intellectual property ? (6+6)

b) Mention in brief about the agencies responsible for Intellectual property registration.

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Narasaraopeta Engineering College (Autonomous)
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Subject Code: R16CC1105

I B.Tech I Semester Regular Examinations, Dec – 2016/ Jan-2017.

ENGINEERING CHEMISTRY

(Common to CE, EEE & ME)

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

Question Paper Consists of Part-A and Part-B

Answering the question in **Part-A** is Compulsory, **Four** Questions should be answered from **Part-B**.
All questions carry equal marks of 12.

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PART-A

1. (a) What is meant by calgon conditioning?
   (b) Write short notes on vulcanization of natural rubber
   (c) Write any four principles of green chemistry.
   (d) What is fuel cell? How fuel cell is different from primary cell.
   (e) Calculate the weight of air required for complete combustion of 5 Kg of coal
   (f) What is meant by quantum yield?

[2+2+2+2+2+2]

PART-B

4X 12 = 48

2. (a) Explain estimation of hardness of water by EDTA method.
   (b) How does lime – soda soften water? Calculate the quantity of lime required to soften 10, 000 litres of water containing the salts: $CaCl_2$ = 11.1 mg/L, $MgSO_4$ = 6.0 mg/L and SiO_2 = 1.2 mg/L. Assuming the purity of lime as 90%. [5+7]

3. (a) What is tacticity? Explain significance of stereo regular polymers.
   (b) Explain the preparation and any two applications of Bakelite.
   (c) Write notes on p-doped conducting polymers. [4+4+4]

4. (a) Explain the preparation of CNTs by arc-discharge method.
   (b) What are liquid crystals? Discuss their applications.
   (c) Write brief notes on hardening of cement. [4+4+4]

5. (a) What is meant by reference electrodes? Explain construction of hydrogen electrode.
   (b) Write the half cell reactions of CH_3-OH fuel cell.
   (c) What is corrosion? Discuss the factors affecting the rate of corrosion. [4+2+6]

6. (a) What is cracking? Explain fluid bed catalytic cracking.
   (b) Write short notes on rocket fuels. [6+6]

7. (a) Derive Beer-Lambert law.
   (b) Discuss the applications of photochemistry. [5+7]

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Narasaraopeta Engineering College (Autonomous)
Kotappakonda Road, Yellamanda (P.O), Narasaraopet- 522601, Guntur District, AP.

Subject Code: R16CC1104

I B.Tech I Semester Regular Examinations, Dec - 2016

PROGRAMMING WITH C

(Common to CE, EEE & ME)

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

Question Paper Consists of **Part-A** and **Part-B**

Answering the question in **Part-A** is Compulsory, **Four** Questions should be answered from **Part-B.**

All questions carry equal marks of 12.

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PART-A

1) (a) How do variables and symbolic names differ?

(b) Difference between do-while and while-do constructs.

(c) What are bitwise operators available in C?

(d) What is the difference between malloc ( ) and calloc ( )?

(e) How do you pass parameters to main() function?

(f) Write short notes on bit fields [2+2+2+2+2+2]

PART-B

2) (a) Write the structure of the C Program.

(b) What are the various steps involved in the problem solving?

[6+6]

3) (a) Explain in detail about loop controlled statements with example.

(b) Write a c program for matrix multiplication with sufficient conditions.

[6+6]

4) (a) Define function? Explain about the types of functions in C?.

(b) Explain about different storage classes with examples along with scope rules.

[6+6]

5) (a) Write a programs to add Two number using Pointers ?

. (b) Explain dynamic memory allocation in detail

[6+6]

6) (a) How to differentiate a structure and union? Explain with examples?

(b) Write a program to display student details using pointers to structure.

[6+6]

7) (a) Define File? What are different file operations in C?

(b) Write a program to copy contents of one file to another file.

[6+6]

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Narasaraopeta Engineering College (Autonomous)
Kotappakonda Road, Yellamanda (P.O), Narasaraopet- 522601, Guntur District, AP.

Subject Code: R16CC1103

I B.Tech I Semester Regular Examinations, Dec – 2016/Jan-2017.

MATHEMATICAL METHODS

(Common to CE, EEE, ME & ECE)

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

Question Paper Consists of **Part-A** and **Part-B.**
Answering the question in **Part-A** is Compulsory, **Four** Questions should be answered from **Part-B.**
All questions carry equal marks of 12.

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PART-A

1. (a) Find the value of the determinant of the matrix $A = \begin{bmatrix} 1 & 2 & -1 \\ 2 & 3 & 1 \\ 0 & 1 & 2 \end{bmatrix}$

   (b) If λ is an Eigen value of A. Then λ^{-1} is an Eigen value of A^{-1}, if it exists.

   (c) Evaluate $\int_0^1 \int_0^2 (x^2 + y^2)\, dx\, dy$.

   (d) Write merits and demerits of Iteration method.

   (e) Prove that $\Delta \nabla = \Delta - \nabla$

   (f) State Trapezoidal rule and Simpson's $(1/3)^{rd}$ rule.

[2+2+2+2+2+2]

PART-B

4X 12 = 48

2. (a) Find the rank of the matrix by reducing it into normal form where $A = \begin{bmatrix} 1 & 2 & 3 & 0 \\ 2 & 4 & 3 & 2 \\ 3 & 2 & 1 & 3 \\ 6 & 8 & 7 & 5 \end{bmatrix}$

   (b) Find the values of a and b for which the equations x+y+z =3, x+2y+2z =b, x+ay+3z =6 Have (i) no solution (ii) infinite number of solutions, (iii) unique solution.

3. (a) Reduce the quadratic form $3x_1^2 + 5x_2^2 + 3x_3^2 - 2x_1x_2 - 2x_1x_3 + 2x_2x_3$ into canonical form and identify its nature, rank, signature and index.

   (b) Find the characteristic roots of the matrix $A = \begin{bmatrix} 2 & 2 & 1 \\ 1 & 3 & 1 \\ 1 & 2 & 2 \end{bmatrix}$

4. (a) Find the surface of the solid formed by revolving the cardioids r = a (1 + cosθ) about the initial line

   (b) Change the order of integration in $I = \int_0^{4a} \int_{x^2/4a}^{2\sqrt{ax}} dxdy$ and hence evaluate.

5. (a) Find a root of $f(x) = x^3 - x - 2$ correct up to three decimal places by Bisection method.

   (b) Find a root of $f(x) = x + \log x - 2 = 0$ using Newton Raphson method. Take $x_0 = 1.0$.

6. (a) For the following data extrapolate the value of y at 1.2 by using Newton Backward Difference Formula

x	0.2	0.4	0.6	0.8	1.0
Y(x)	3.1224	3.2499	3.3825	3.5205	3.6642

   (b) Find the Lagrange's polynomial for the following data and using it find the value of I(t) when t = 1.6.

t	1.2	2.	2.5	3.
I(t)	1.36	0.58	0.34	0.2

7. (a) Solve $y^1 = 3x + y^2, y(0) = 1$, using Taylor series method and compute $y(0.1)$.

   (b) Using Runge-Kutta method of fourth order, solve for y at x = 1.2, 1.4 from $\frac{dy}{dx} = \frac{2xy + e^x}{x^2 + xe^x}$ given $x_0 = 1, y_0 = 0$.

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Narasaraopeta Engineering College (Autonomous)
Kotappakonda Road, Yellamanda (P.O), Narasaraopet- 522601, Guntur District, AP.

Subject Code: R16CC1102

I B.Tech I Semester Regular Examinations, Dec – 2016/Jan-2017

ENGINEERING MATHEMATICS

(Common to CE, EEE, ME, ECE & CSE)

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

Question Paper Consists of **Part-A** and **Part-B**

Answering the question in **Part-A** is Compulsory & Four Questions should be answered from Part-B

All questions carry equal marks of 12.

*****

PART-A

1. (a) Solve $e^y\left(\frac{dy}{dx}+1\right)=e^x$.

   (b) Find the particular integral of $(D + 2)(D - 1)^2y = e^x$.

   (c) Evaluate $\lim_{s\to\infty}\left\{\log\left(\frac{s}{s-1}\right)\right\}-\log\left(\frac{s}{s-1}\right)$.

   (d) If $z = u^2 + v^2$ and $u = at^2$, $v = 2at$, find the value of $\frac{dz}{dt}$.

   (e) Solve $\frac{\partial^2 z}{\partial x^2}+z=0$, given that when $x = 0$, $z = e^y$ and $\frac{\partial z}{\partial x}=1$.

   (f) While solving $\frac{\partial u}{\partial x}=4\frac{\partial u}{\partial y}$ satisfying boundary condition $u(0, y) = 8e^{-3y}$ by the method of separation of variables, if we arrive at $u(x, y) = c_1e^{ax}c_2e^{ay/4}$, find the complete solution of the problem. **[2+2+2+2+2+2]**

PART-B

4X 12 = 48

2. (a) Solve the equation $2x\frac{dy}{dx}=10x^3y^5+y$

   (b) If the air is maintained at 30^0C and the temperature of the body cools from 80^0C to 60^0C in 12 minutes, find the temperature of the body after 24 minutes.

3. (a) Solve $x\frac{d^2y}{dx^2}-\frac{2y}{x}=x+\frac{1}{x^2}$.

   (b) By the method of variation of parameters, solve $y''-2y'+y=e^x\log x$.

4. (a) Prove that $\frac{b-a}{b}<\log\left(\frac{b}{a}\right)<\frac{b-a}{a}$, *for* $0<a<b$. Hence show that $\frac{1}{4}<\log\frac{4}{3}<\frac{1}{3}$.

   (b) Show that $\sin x(1 + \cos x)$ has a maximum when $x=\frac{\pi}{3}$.

5. (a) If $u = f(2x-3y,\ 3y-4z,\ 4z-2x)$, prove that $\frac{1}{2}\frac{\partial u}{\partial x}+\frac{1}{3}\frac{\partial u}{\partial y}+\frac{1}{4}\frac{\partial u}{\partial z}=0$.

(b) If $xyz = 8$, find the values of x, y for which $u = \frac{5xyz}{x+2y+4z}$ is a maximum.

6.(a) Form the partial differential equation by eliminating arbitrary functions from $f(x^2+y^2,\ z-xy)=0$.

(b) Solve $(x^2-yz)p+(y^2-zx)q = z^2-xy$.

7. A string is stretched and fastened to two points l apart. Motion is started by displacing the string in the form $y = a\sin\left(\frac{\pi x}{l}\right)$, from which it is released at time $t = 0$. Show that the displacement of any point at a distance x from one end at time t is given by $y(x,t) = a\sin\left(\frac{\pi x}{l}\right)\cos\left(\frac{\pi ct}{l}\right)$.

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Narasaraopeta Engineering College (Autonomous)
Kotappakonda Road, Yellamanda (P.O), Narasaraopet- 522601, Guntur District, AP.

Subject Code: R16CC1102

I B.Tech I Semester Regular Examinations, Dec – 2016/Jan-2017

ENGINEERING MATHEMATICS

(Common to CE, EEE, ME, ECE & CSE)

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

Question Paper Consists of **Part-A** and **Part-B**

Answering the question in **Part-A** is Compulsory & Four Questions should be answered from Part-B

All questions carry equal marks of 12.

*****

PART-A

1. (a) Solve $e^y\left(\frac{dy}{dx}+1\right)=e^x$.

   (b) Find the particular integral of $(D + 2)(D - 1)^2y = e^x$.

   (c) Evaluate $\lim_{s\to\infty}\left\{\log\left(\frac{s}{s-1}\right)\right\}-\log\left(\frac{s}{s-1}\right)$.

   (d) If $z = u^2 + v^2$ and $u = at^2$, $v = 2at$, find the value of $\frac{dz}{dt}$.

   (e) Solve $\frac{\partial^2 z}{\partial x^2}+z=0$, given that when $x = 0$, $z = e^y$ and $\frac{\partial z}{\partial x}=1$.

   (f) While solving $\frac{\partial u}{\partial x}=4\frac{\partial u}{\partial y}$ satisfying boundary condition $u(0, y) = 8e^{-3y}$ by the method of separation of variables, if we arrive at $u(x, y) = c_1e^{ax}c_2e^{ay/4}$, find the complete solution of the problem. **[2+2+2+2+2+2]**

PART-B

4X 12 = 48

2. (a) Solve the equation $2x\frac{dy}{dx}=10x^3y^5+y$

   (b) If the air is maintained at 30^0C and the temperature of the body cools from 80^0C to 60^0C in 12 minutes, find the temperature of the body after 24 minutes.

3. (a) Solve $x\frac{d^2y}{dx^2}-\frac{2y}{x}=x+\frac{1}{x^2}$.

   (b) By the method of variation of parameters, solve $y''-2y'+y=e^x\log x$.

4. (a) Prove that $\frac{b-a}{b}<\log\left(\frac{b}{a}\right)<\frac{b-a}{a}$, *for* $0 < a < b$. Hence show that $\frac{1}{4}<\log\frac{4}{3}<\frac{1}{3}$.

   (b) Show that $\sin x(1 + \cos x)$ has a maximum when $x=\frac{\pi}{3}$.

5. (a) If $u = f(2x-3y, 3y-4z, 4z-2x)$, prove that $\frac{1}{2}\frac{\partial u}{\partial x}+\frac{1}{3}\frac{\partial u}{\partial y}+\frac{1}{4}\frac{\partial u}{\partial z}=0$.

(b) If $xyz = 8$, find the values of x, y for which $u=\frac{5xyz}{x+2y+4z}$ is a maximum.

6.(a) Form the partial differential equation by eliminating arbitrary functions from $f(x^2+y^2, z-xy)=0$.

(b) Solve $(x^2-yz)p+(y^2-zx)q=z^2-xy$.

7. A string is stretched and fastened to two points l apart. Motion is started by displacing the string in the form $y=a\sin\left(\frac{\pi x}{l}\right)$, from which it is released at time $t = 0$. Show that the displacement of any point at a distance x from one end at time t is given by $y(x,t)=a\sin\left(\frac{\pi x}{l}\right)\cos\left(\frac{\pi ct}{l}\right)$.

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Narasaraopeta Engineering College (Autonomous)

Kotappakonda Road, Yellamanda (P.O), Narasaraopet- 522601, Guntur District, AP.

Subject Code: R16CC1101

I.B. Tech I Semester Regular Examinations, Dec-2016/Jan-2017

FUNCTIONAL ENGLISH

(Common to CE,EEE,ME,ECE&CSE)

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

Question Paper Consists of Part –A and Part- B.

Answering the question in **Part-A** is Compulsory & Four Questions should be answered from **Part-B**

All questions carry equal marks of 12.

PART-A

1.(a) What is 'value addition' in India, according to Kalam?
(b) Why is water 'the most wonderful' thing on earth?
(c) What techniques did the astrologer adapt to satisfy his customers?
(d) What does Mrs. Meldon tell about Eddie's death?
(e) Why does the narrator at first dislike the idea of planting wood rose?
(f) What is intensive reading ? **[2+2+2+2+2+2]**

PART-B

2.(a) Bring out the element of humour in *'An Astrologer's Day.'*
(b) Chose the right article in the following sentences.
(i) Have you seen ..... movie playing at Satyam?
(ii) Is that..... book you gave last week?
(iii) ..... good leader leads the country to prosperity.
(iv) The people of America are more liberal than.....people of Europe.
(C) Write the prefixes to the following words.
(i) ...power
(ii) ....independence
(iii) ....lingual
(iv)....weekly

[8+2+2]

3.(a) How to build a nation according to Abdul Kalam?
(b) Expand the proverb 'Failures are stepping stones to success".
(c) Fill in the blanks with suitable words.
(i) The company's .....(premises/premise) is shown to us.
(ii) The government has the right to (sees/seas/seize) the stolen property.
(iii) Kavitha sits.....(besides/beside) the window.
(iv) The train .....(fare/fair) is low. **[7+3+2]**

4. (a) The investigation of the nature and properties of water is, therefore, of highest scientific interest. Discuss.
(b) Write one word substitutes
(i) One who eats everything
(ii) One who is present everywhere.
(iii) Government by the nobles
(iv) One who is skilled in languages.
(c) Write a covering letter to an MNC seeking a job in soft ware profession. **[7+2+3]**

5.(a) "I never thought old age would be so boring." What makes narrator feel so?
(b) Write the meanings for following idioms and use in your own sentences.
(i) A storm in a tea cup
(ii) Feather in a cap
(iii) Once in a blue moon

(iv) Snake in the grass
(v) Fish out of water [7+5]

6.(a) How are the consequences of war presented in the one act play *Progress*?
(b) Correct errors, if any, in the following sentences and rewrite them.

(i) The children have been sent to bed
(ii) I didn't got the cake on your birthday
(iii) He is feeling better after taking medicine
(iv) I packed my luggage's

(c) Write an email to your friend inviting him for Tech Fest in your college. **[7+2+3]**

7 (a). Read the following paragraph to answer the following questions .

There is a place forty kilometers north-east of Portland, Victoria, which makes for an unusual visit. It is Lake Condah. Here are to be found remains of aboriginal settlements: the circular stone bases of several hundred huts, rock-lined water channels, and stone tools chipped from rock not normally found in the area. One of the attractions of Lake Condah long ago was its fish and the most startling evidence of aboriginal technology and engineering to be found there are the systems built to trap fish. Water courses had been constructed by redirecting streams, building stone sides and even scraping out new channels. At strategic spots, they piled rocks across the water courses to create weirs and build funnels to channel eels and fish into conical baskets. This is an eel-fishing technique which has hardly changed to the present day. Beside some of the larger traps, there are the outlines of rectangular, stone-lined ponds, probably to hold fish and keep them fresh. On the bluffs overlooking the lake, stone circles are all that remain of ancient dwellings. Not all of the stones were quarried locally. The huts vary in size, but all have gaps for doorways located on the lee side, away from the prevailing wind. One theory is that the stone walls were only waist to shoulder high, with the top roofed by branches and possibly packed with mud. The site presents a picture of a semi-settled people quite different from the stereotype of nomadic hunter-gatherers of the desert.

1. What does the word 'stereotype', used in the above passage, mean?
2. Why is Lake Condah seen as unusual?
3. A bird in the hand is worth two in the bush. What does this sentence suggest?
4. Who are nomadic hunter-gatherers?
5. Write a synonym for the word "aboriginals"

(b). Read the following points and write a short essay.
(i) Importance of technology
(ii) Types and development of technology
(iii) Advantages of technology
(iv) Disadvantages of technology
(v) Conclusion **[5+7]**

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2016 BATCH

I B.TECH

II SEMESTER

REGULAR EXAMINATION

MAY-2017

QUESTION PAPERS

ACADEMIC YEAR

2016-17

Narasaraopeta Engineering College (Autonomous)
Kotappakonda Road, Yellamanda (P.O), Narasaraopet- 522601, Guntur District, AP.

Subject Code: R16CC1103, R16CS1213

I B.Tech II Semester Regular Examinations, May - 2017

MATHEMATICAL METHODS

(Common to CSE, ME & Re-admitted CSE)

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

Question Paper Consists of **Part-A** and **Part-B**

Answering the question in **Part-A** is Compulsory, Four Questions should be answered from Part-B

All questions carry equal marks of 12.

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PART-A

1. (a) For what value of x, the matrix A = $\begin{bmatrix} x & 0 & 9 \\ 2 & 1 & x \\ 1 & 2 & x \end{bmatrix}$ is singular?

(b) If λ is an Eigen value of A. Then k λ is an Eigen value of kA for any non-zero scalar k.

(c) Evaluate $\int_0^1\int_0^1\int_0^1 xyzdzdydx.$

(d) Write merits and demerits of Newton Raphson method.

(e) Evaluate $\Delta^2 (3e^x)$.

(f) State Simpson's $(1/3)^{rd}$ rule and Simpson's $(1/8)^{th}$ rule.

[2+2+2+2+2+2]

PART-B

4X 12 = 48

1. (a) Reduce the matrix A = $\begin{bmatrix} 8 & 1 & 3 & 6 \\ 0 & 3 & 2 & 2 \\ -8 & -1 & -3 & 4 \end{bmatrix}$ into its normal form and hence find its rank.

(b) Test for consistency and solve

$5x+3y+7z=4, 3x+26y+2z=9, 7x+2y+10z=5$

3. (a) Reduce the quadratic form $x_1^2+4x_2^2+x_3^2-4x_1x_2+2x_1x_3-4x_2x_3$ to canonical form also find the nature, rank, signature and index.

(b) Verify Cayley Hamilton theorem and hence find A^{-1} of the matrix A = $\begin{bmatrix} 7 & 2 & -1 \\ -6 & -1 & 2 \\ 6 & 2 & -1 \end{bmatrix}$

4. (a) Find the length of the arc of the parabola $x^2 = 4ay$ measured form the vertex to one extremity of the latus-rectum.

(b) Change the order of integration in I = $\int_0^1\int_{x^2}^{2-x} xydxdy$ and hence evaluate the same.

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

   (b) Find a root of $xe^x - 2 = 0$ using Newton Raphson method correct to the three decimal places.

6. (a) Given $\sin 45^0 = 0.7071, \sin 50^0 = 0.7660, \sin 55^0 = 0.8192, \sin 60^0 = 0.8660$, find $\sin 52^0$, using Newton's forward formula.

   (b) Find the Lagrange's polynomial for the following data and using it find the value of I(t) when t = 1.6.

T	1.2	2.	2.5	3.
I(t)	1.36	0.58	0.34	0.2

7. (a) Use the Trapezoidal rule to estimate the integral $\int_0^2 e^{x^2} dx$ taking 10 intervals.

   (b) Find $y(0.2)$ using Euler modified formula given that $\frac{dy}{dx} = x - y^2, y(0) = 1$.

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Narasaraopeta Engineering College (Autonomous)
Kotappakonda Road, Yellamanda (P.O), Narasaraopet- 522601, Guntur District, AP.

Subject Code: R16CC1106. R16EC1212.

I BTECH II SEMESTER REGULAR EXAMINATIONS, MAY 2017.

PROFESSIONAL ETHICS, VALUES AND PATENTS.

(Common TO ECE, Re-Admitted ME)

TIME-3 HOURS Max. marks-60

Question paper consists of Part-A and part-B

Answering the questions in part-A is compulsory, Four questions should be answered from part-B

All questions carry equal marks of 12.

PART –A

1.a) What do you mean by Ethics?

b) Define Leadership with 2 examples from engineering profession.

c) Write about occupational crime.

d) Discuss the types of I.P.R.

e) Explain TRIPS.

f) How to maintain trade secrets?

2+2+2+2+2+2+2.

Part-B

2. a) Present your view point whether an ethical person can succeed professionally. (6 + 6)
b) People say that "Sharing and Caring" are missing in our society now a days. Discuss your view point.

3. Discuss the likely difficulties faced by an Engineer to balance ethics, occupational and personal pressures and also to succeed. (12)

4. a) Explain the concept of whistle blowing in detail. (6 + 6)
b) What are the different cross cultural issues involved in engineering?

5. Write about Cyber law and discuss it's implications in the present day explosion of on-line financial transactions. (12)

6.a) What is copy right? Discuss it's fundamentals. (6 + 6)
b) Discuss copy right ownership issues.

7. a) What is trade secret liability? Explain with 2 examples.(6+6)
b) Explain trade mark registration process.

Narasaraopeta Engineering College (Autonomous)

Kotappakonda Road, Yellamanda (P.O), Narasaraopet- 522601, Guntur District, AP.

Subject Code: R16CC1106. R16EC1212.

I BTECH II SEMESTER REGULAR EXAMINATIONS, MAY 2017.

PROFESSIONAL ETHICS, VALUES AND PATENTS.

(Common TO ECE, Re-Admitted ME)

TIME-3 HOURS Max. marks-60

Question paper consists of Part-A and part-B

Answering the questions in part-A is compulsory, Four questions should be answered from part-B

All questions carry equal marks of 12.

PART –A

1.a) What do you mean by Ethics?

b) Define Leadership with 2 examples from engineering profession.

c) Write about occupational crime.

d) Discuss the types of I.P.R.

e) Explain TRIPS.

f) How to maintain trade secrets?

2+2+2+2+2+2+2.

Part-B

2. a) Present your view point whether an ethical person can succeed professionally. (6 + 6) Unit I
b) People say that "Sharing and Caring" are missing in our society now a days. Discuss your view point.

3. Discuss the likely difficulties faced by an Engineer to balance ethics, occupational and personal pressures and also to succeed. (12) Unit II

4. a) Explain the concept of whistle blowing in detail. (6 + 6) Unit III
b) What are the different cross cultural issues involved in engineering?

5. Write about Cyber law and discuss it's implications in the present day explosion of on-line financial transactions. (12) Unit IV

6.a) What is copy right? Discuss it's fundamentals. (6 + 6) Unit V
b) Discuss copy right ownership issues.

7. a) What is trade secret liability? Explain with 2 examples.(6+6) Unit VI
b) Explain trade mark registration process.

Proceed to Printing

1. [redacted] (BoS Chairman)

2. [redacted] (Senior Faculty)

3. KVB. Ganesh (Subject Expert)

arasaraopeta Engineering College (Autonomous)
appakonda Road, Yellamanda (P.O), Narasaraopet- 522601, Guntur District, AP.

Subject Code: R16EC1211

I B.Tech II Semester Regular Examinations, May-2017.

NETWORK ANALYSIS

(ECE)

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

Question Paper Consists of **Part-A** and **Part-B.**

Answering the question in **Part-A** is Compulsory & Four Questions should be answered from Part-B

All questions carry equal marks of 12.

PART-A

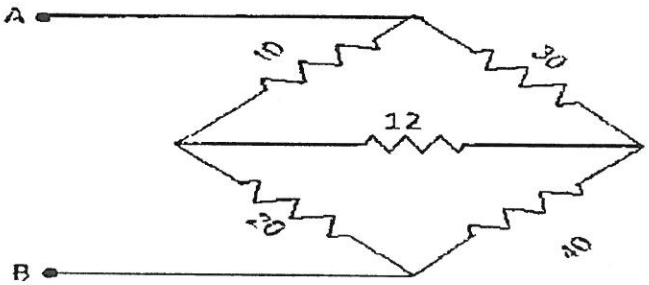
1. (a) Explain voltage division rule
(b) What is form factor?
(c) Give relation between line current, phase current and line voltage, phase voltage for a balance star connected three phase network.
(d) Write the statement of Norton's theorem
(e) With an example explain dot rule for coupled circuits.
(f) How the RL circuit behaves for a step input.

[2+2+2+2+2+2]

PART-B

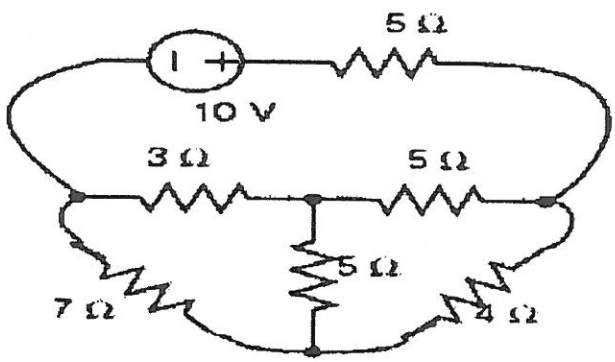
4 X 12 = 48

2. (a) Determine equivalent resistance between terminals A & B. All resistance values are in ohms.



(b) What are the various types of dependent or controlled sources? Discuss.

3. (a) Find the cut set and tie set matrix for the circuit shown below.

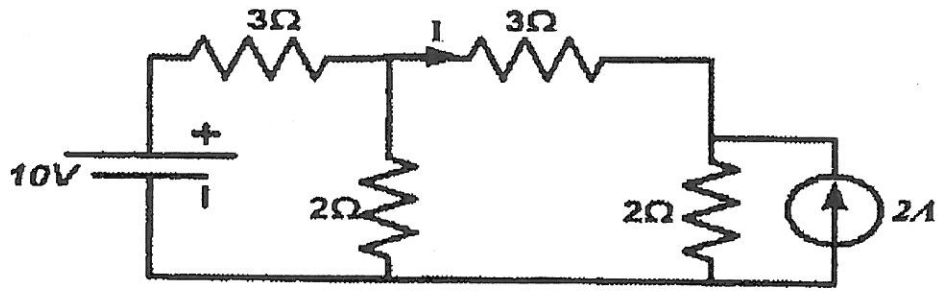


(b) What is duality and dual network.

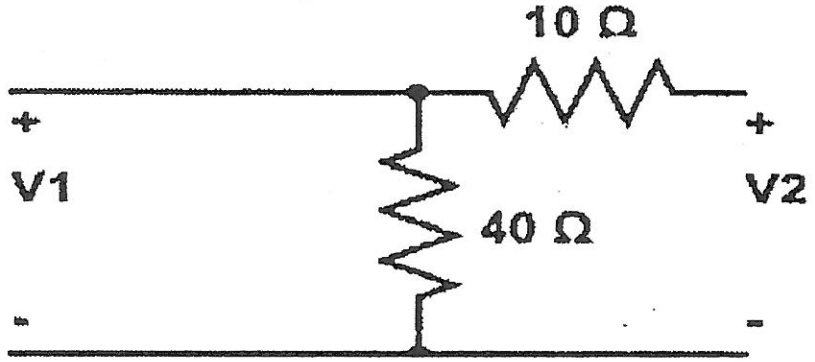
4. (a) In a parallel RLC circuit, derive the expression for resonant frequency and quality factor.

(b) For a series RL circuit, draw phasor diagram after deriving necessary equations.

5. (a) State and explain Thevenin's theorem with an example
(b) Find the current I by using Norton's theorem for the circuit shown below.



6. (a) For the two port network shown in figure below, find h-parameters.



(b) Show that $Y_{12} = Y_{21}$ if a two port network is reciprocal.

7. (a) Define time constant for a series RC circuit.
(b) In a series RLC circuit with R=50 ohm, L=0.1H and C=50μF has a constant voltage V= 100V applied at t=0. Find the current transient assuming zero initial charge on capacitor.

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Narasaraopeta Engineering College (Autonomous)
Kotappakonda Road, Yellamanda (P.O), Narasaraopet- 522601, Guntur District, AP.

Subject Code: R16CC1104, R16EC1210

I B.Tech II Semester Regular Examinations, May - 2017

PROGRAMMING WITH C

(Common to ECE, Re-admitted EEE, ECE)

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

Question Paper Consists of **Part-A** and **Part-B**
Answering the question in **Part-A** is Compulsory, Four Questions should be answered from Part-B
All questions carry equal marks of 12.

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PART-A

1) (a) What is keyword? State two keywords of C.
(b) What is the purpose of break statement?
(c) What are the limitations of Array?
(d) Compare Structure and Union.
(e) What are primitive data types in C?
(f) Write a short note on files. [2+2+2+2+2+2]

PART-B

2) What is an operator? Explain in detail about different types of operators with examples. [12]

3) (a) Explain the different types of loops statements in C with suitable examples
(b) What is an array? Explain the declaration and initialization of one and two dimensional arrays with example. [6+6]

4) (a) How will you pass parameters to a function? Briefly describe two mechanisms of parameter passing in 'C' language. .
(b) Explain about different storage classes with examples along with scope rules. [6+6]

5) a) What is a pointer? Explain how the pointer variable declared and initialized.
b) What is dynamic memory allocation? Write and explain the different dynamic memory allocation functions in C. [6+6]

6) (a) Define, declare and initialize structures? How to access structure elements with suitable example?
(b) What are bit fields? What are advantages? What is its syntax?. [7+5]

7) (a) Explain the operations that can be performed in files. Explain with an example.
(b) Write a program to copy contents of one file to another file. [8+4]

***

Proceed to printing.

O. Gandhi

Ramalakshana

S. Dharani

ırasaraopeta Engineering College (Autonomous)
ıppakonda Road, Yellamanda (P.O), Narasaraopet- 522601, Guntur District, AP.

Subject Code: R16EE1209

I B.Tech II Semester Regular Examinations, May-2017.

ELECTRIC CIRCUIT ANALYSIS - I

(EEE)

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

Question Paper Consists of **Part-A** and **Part-B.**

Answering the question in **Part-A** is Compulsory & Four Questions should be answered from Part-B

All questions carry equal marks of 12.

PART-A

1. (a) What is an independent voltage source?

(b) Define cycle of an alternating quantity.

(c) Write the expression for resonance frequency and current at resonance for a series RLC network.

(d) What is a tie set.

(e) State maximum power transfer theorem.

(f) Mention any two differences between self and mutual inductances.

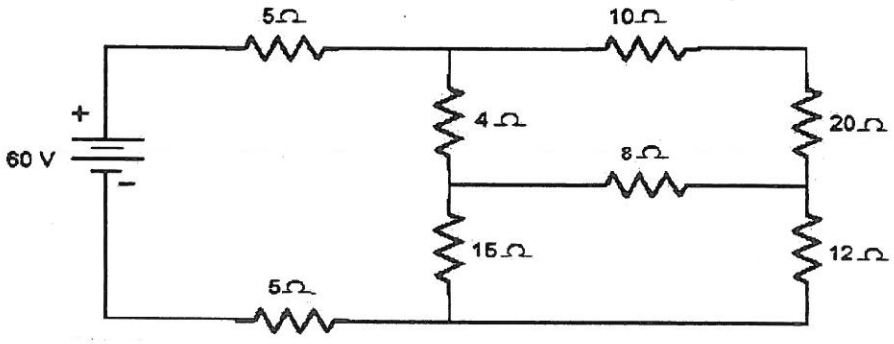
[2+2+2+2+2+2]

PART-B

4 X 12 = 48

2. (a) Explain with relevant diagrams (i) Kirchhoff's laws (ii) Source transformation

(b) In the network shown below, find the current delivered by the battery.

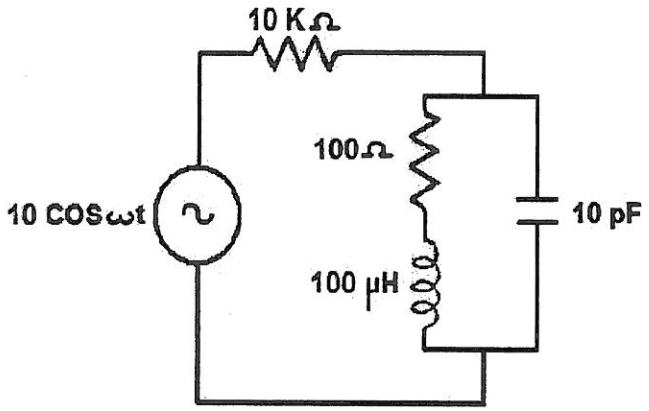


3. (a) State the advantages of sinusoidal alternating quantities.

(b) Derive the relation between voltage and current for resistance, inductance and capacitance with sinusoidal excitation.

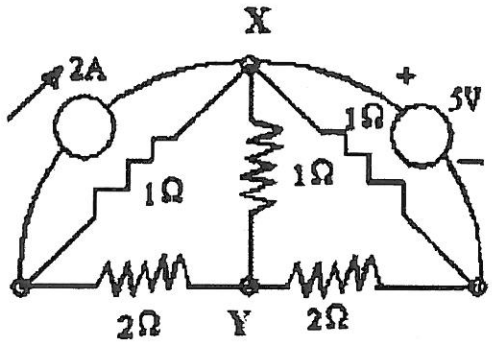
4. (a) Derive bandwidth for a series RLC circuit as a function of resonant frequency.

(b) For the circuit shown below, find the value of ω so that the current and source emf are in phase. Also find the current at this frequency.

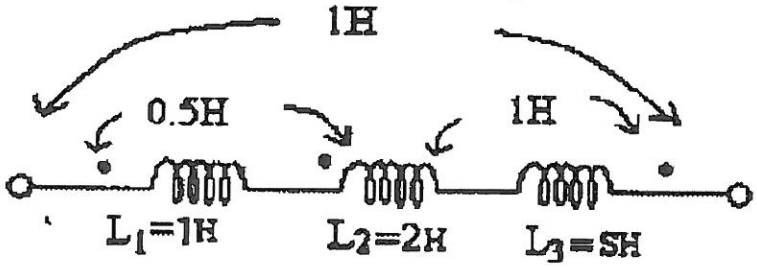


5. (a) Explain how cut set of a network is framed with suitable example.
(b) Distinguish between planar graph and non planar graph.

6. (a) State and explain Tellegen's theorem
(b) Determine the currents in the branch XY using Thevenin's theorem.



7. (a) Find the total inductance of three series connected coupled coils as shown in figure below.



(b) Explain practical applications of Faraday's laws of electromagnetic induction.

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Narasaraopeta Engineering College (Autonomous)
Kotappakonda Road, Yellamanda (P.O), Narasaraopet- 522601, Guntur District, AP.

Subject Code: R16CC1107, R16EE1208

I B.Tech II Semester Regular Examinations, May - 2017

ENGINEERING GRAPHICS

(Common to EEE, Re-admitted CSE)

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

Question Paper Consists of **Part-A** and **Part-B**
Answering the question in **Part-A** is Compulsory, Four Questions should be answered from Part-B
All questions carry equal marks of 12.

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PART-A

1. (a) A line 125 mm long, divide this line in the ratio **1: 3: 4**

   (b) Draw the front view and top view of a point A lies in the V.P and 22 mm below the H.P.

   (c) A Line PQ 90 mm long is in the H.P and makes an angle of 30^0 to the V.P. Its end P is 25 mm in front of V.P. Draw its projections.

   (d) A Hexagonal lamina of side length 30mm, its surface is perpendicular to V.P and parallel to H.P .Draw its projections.

   (e) Draw the projections of a cylinder base diameter 40 mm, axis 80 mm long, its base is resting on V.P.

   (f) Draw isometric view of a circle of diameter 50mm.

[2+2+2+2+2+2]

PART-B

4X 12 = 48

2. (a) The foci of an ellipse are 90 mm apart and the minor axis is 65 mm long. Find the Major axis and draw the ellipse by concentric circles method.

   (b) Construct a plane scale of RF=1:40 to show meters and decimetres and long enough to measure up to 5meters. Mark on the scale, a dimension representing 3.7meters.

3. (a) A point R is 25mm below the HP and its top view is 50mm below XY line. Draw its projections and state in which quadrant the point is situated.

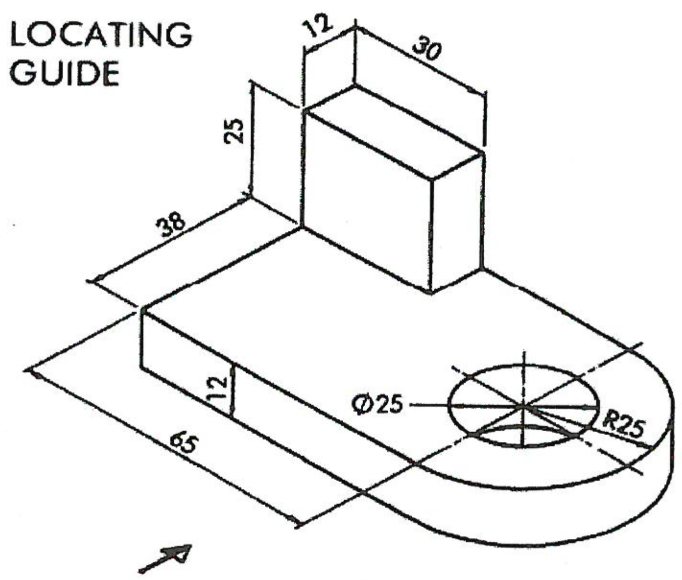
   (b) A line AB 40 mm length is Positioned in such a way that it is perpendicular to V.P and the end B is 10mm in front of V.P and 30mm above H.P. Draw its projections.

4. The front view of a 125mm long line PQ measures 75mm and its top view measures 100mm. its end Q and the mid-point M are in the first quadrant, M being 20mm from both the planes. Draw the projections of the line, find the true inclinations and locate its traces.

5. A $30^0 - 60^0$ set square of longest side100 mm long is in VP and its surface 45^0 inclined to V.P. One end of longest side is 10 mm and other end is 35 mm above H.P. Draw it's projections.

6. Draw the projections of a cylinder 50mm diameter and 80mm long, lying on the ground with a generator inclined at 30^0 to V.P.

7. Draw the (i) Front view (ii) Top view and (iii) Side view from right for the following figure.



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24/5

Narasaraopeta Engineering College (Autonomous)

Kotappakonda Road, Yellamanda (P.O), Narasaraopet- 522601, Guntur District, AP.

Subject Code: R16CS1214

I B.Tech II Semester Regular Examinations, May-2017.

C PROGRAMMING

(CSE)

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

Question Paper Consists of **Part-A** and **Part-B.**

Answering the question in **Part-A** is Compulsory & Four Questions should be answered from Part-B

All questions carry equal marks of 12.

PART-A

1. (a) Write about sizeof() and comma operators?
   (b) Define an Array. Write 2-dimensional and multi-dimensional arrays with its syntax.
   (c) Write the concept of pre-processor directives and list at-least 2 pre-processor directives in C.
   (d) Write about void pointers.
   (e) What are bit fields? What are its advantages? What is its syntax?
   (f) What is a file? How do you declare a file? Explain different modes of operations on files

[2+2+2+2+2+2]

PART-B

4 X 12 = 48

2. (a) Write the Structure of C program?
   (b) Write a flow chart to check weather the given number is prime or not? **[6 + 6]**

3. (a) What is a string? Write a C program to check whether the given string is palindrome or not ?
   (b) Explain break and continue statements with suitable examples? **[6 + 6]**

4. (a) Explain about formal and actual parameters with suitable example.
   (b) Describe pass-by-value parameter passing mechanism with at-least 2 example functions. Show with example how pass-by-value is not a right mechanism in certain situations. **[6 + 6]**

5. (a) Explain the process of declaring and initializing pointers. Give an example.
   (b) Write a C program that uses a pointer as a function argument. **[6 + 6]**

6. (a) Demonstrate how to declare and use a single dimensional array of structure with an example program.
   (b) Differentiate structures and unions. **[6 + 6]**

7. (a) Why is it important to close the file opened in a C program? Explain.
   (b) Compare and contrast between text files and binary files and give at-least 3 examples each of text files and binary files. **[6 + 6]**

***

Proceed to print

1. T. Sukkareddy

2. Khad

3. S. Tiruni

Narasaraopeta Engineering College (Autonomous)

Kotappakonda Road, Yellamanda (P.O), Narasaraopet- 522601, Guntur District, AP.

Subject Code: R16CC1207

I B.Tech II Semester Regular Examinations, May 2017.

ENGINEERING DRAWING

(Common to CE & ME, Re-admitted ME)

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

Question Paper Consists of **Part-A** and **Part-B.**

Answering the question in **Part-A** is Compulsory & Four Questions should be answered from Part-B

All questions carry equal marks of 12.

PART-A

1. (a) In a drawing, an area of 144cm^2 represents 36m^2.What is its RF?
   (b) Differentiate between the first and third angle of projection.
   (c) What is a trace of a line?
   (d) Draw the projections of a pentagonal plane lying on the H.P. with one side touching theV.P.
   (e) Draw the projections of a cylinder of base diameter 50 mm and axis 70 mm, when its axis is parallel to both the reference planes
   (f) Write the applications of Development of surfaces. **[2+2+2+2+2+2]**

PART-B

4 X 12 = 48

2. An area of 40 sq.km of a field is represented by an area of 160 sq.cm on a map. Determine the R.F. of the scale used in the map. Also construct a diagonal scale to show kilometres, hectometres and decametres. The maximum length on the scale is 10 km. Show a distance of 6.48 km on the scale. (12)

3. (a)A point P is 40mm above H.P. and 30mm in front of V.P. Draw its projections. Also find its shortest distance from the intersection of both the reference planes. (6)
   (b)The top view of a 70mm long line which is parallel to and 40mm in front of V.P. and one end being30mm above H.P, is 3cm.Draw its projections. (6)

4. A line AB of 80mm long is inclined at an angle of 30^0 to the V.P and 45^0 to the H.P. Its one end A is 20mm above H.P. and 50 mm in front of V.P.Draw its projections. Also mark its traces.(12)

5. One edge of a hexagonal plate of side 25 mm is on H.P and inclined at 60^0 to the V.P. while its surface is making an angle of 45^{0}to the H.P. Draw its projections. (12)

6. A hexagonal pyramid of base 25mm side and axis 50mm long is lying on the V.P with one of its triangular faces and its axis is parallel to and 50mm above the H.P. Draw its projections. (12)

7. A cylinder of base diameter 60mm and axis 70mm long is resting on the ground with its base. A hexagonal pyramid of base side 20mm and axis 50mm long is placed centrally on the top of cylinder with two sides of its base parallel to V.P. Draw the isometric view of the combination of solids. (12)

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Proceed to printing

24/5/2017

P. Sreenivasa Rao
24/5/17

Narasaraopeta Engineering College (Autonomous)

Kotappakonda Road, Yellamanda (P.O), Narasaraopet- 522601, Guntur District, AP.

Subject Code: R16CC1206

I B.Tech II Semester Regular Examinations, May-2017.

ENGINEERING MECHANICS

(Common to CE & ME)

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

Question Paper Consists of **Part-A** and **Part-B.**

Answering the question in **Part-A** is Compulsory & Four Questions should be answered from Part-B

All questions carry equal marks of 12.

PART-A

1. (a) What is a couple?
(b) State the laws of dry friction.
(c) What is the difference between centroid and centre of gravity?
(d) Explain perpendicular axis theorem.
(e) What are the expressions for the mass moment of inertia of a cylinder about its base and geometrical axis?
(f) State the principle of impulse-momentum.

[2+2+2+2+2+2]

PART-B

4 X 12 = 48

2. (a)Explain Parallelogram law of forces. (4)
(b) Two identical rollers, each of weight 100 N, are supported by an inclined plane and a vertical wall as shown in fig (1). Find the reactions induced at the points of supports A, B and C. (8)

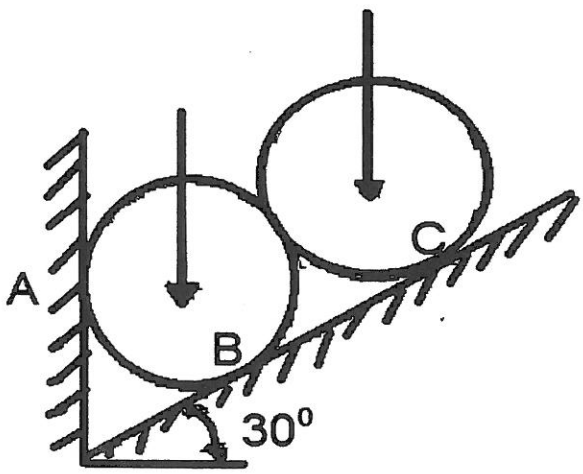

Fig (1)

3. A block lying over a 10^0 wedge on a horizontal floor and leaning against a vertical wall as shown in the fig.(2)and weighing 1500 N is to be raised by applying a horizontal force to the wedge. Assuming coefficient of friction between all the surfaces in contact be 0.3, determine the minimum force to be applied to raise the block. (12)

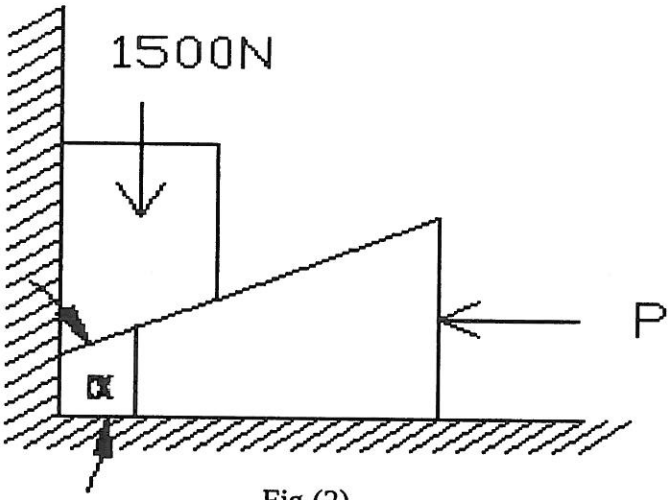

Fig.(2)

4. (a) State Pappus theorems (4)

(b) A semi-circular area is removed from the trapezoid as shown in the figure (3). Determine the centroid of the remaining area. (8)

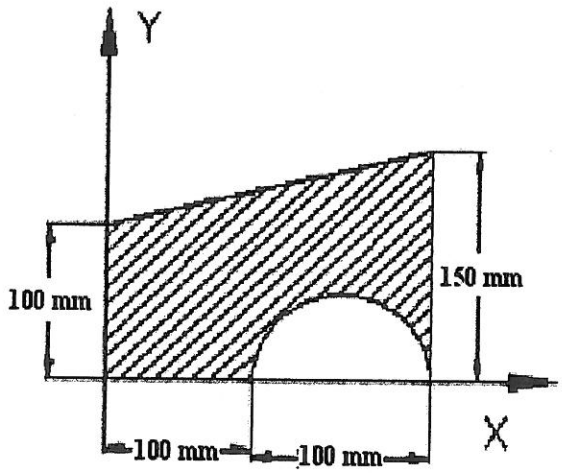

Fig.(3)

5. (a)State and explain parallel axis theorem. (4)

(b) Find the moment of inertia of the area shown in the fig.(4)with respect to a centroidal axis parallel to the base. All the dimensions are in mm. (8)

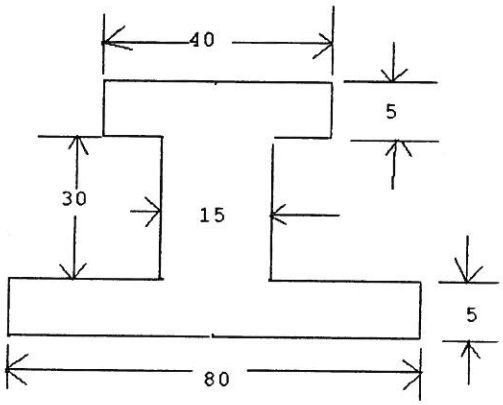

Fig.(4)

6. Derive the expression for the mass moment of inertia of a cone about its geometrical axis. (12)
7. A small block starts from rest at point A and slides down the inclined plane AB as shown in Figure(5). What distance along the horizontal plane BC will it travel before coming to rest? The coefficient of kinetic friction between the block and either plane is μ=0.3. Assume that the initial velocity with which it starts to move along BC is of same magnitude as that gained in sliding from A to B. (12)

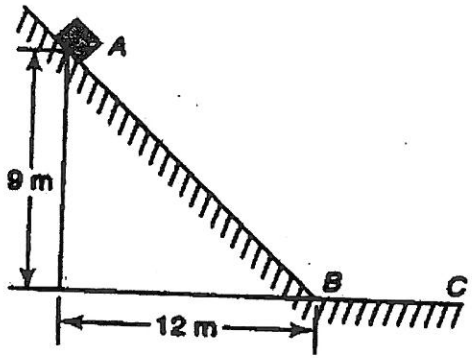

Fig.(5)

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Narasaraopeta Engineering College (Autonomous)
Kotappakonda Road, Yellamanda (P.O), Narasaraopet- 522601, Guntur District, AP.

Subject Code: R16CC1109, R16CC1205

I B.Tech II Semester Regular Examinations, May - 2017

ENVIRONMENTAL STUDIES

(Common to CE,EEE,ME, Re-admitted EEE,ECE)

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

Question Paper Consists of **Part-A** and **Part-B**

Answering the question in **Part-A** is Compulsory, Four Questions should be answered from Part-B

All questions carry equal marks of 12.

*****

PART-A

1.(a) Distinguish between lentic and lotic ecosystems?

(b) What do you mean by water-logging?

(c)What are the hot-spot centres of biodiversity in India?

(d) Define BOD?

(e)What are the agents responsible for ozone layer depletion?

(f) Expand EMP?

[2+2+2+2+2+2]

PART-B

4X 12 = 48

2. (a)) Define environmental studies ?Explain scope and importance of environmental studies? (6+6)
(b) Give the characteristic features of forest ecosystem?

3. (a) Write the benefits and problems associated with dams? (5+7)
(b)Explain growing energy needs and how can overcome these with alternate energy resources?

4. (a) What are the values of biodiversity? (7+5)
(b) Describe India as a Mega diversity nation?

5. (a) What is Noise? What are the auditory and non-auditory effects? (6+6)
(b) What is the role of an Individual in prevention of pollution?

6. (a) Write the salient features of the Air(prevention and control of pollution)act? (6+6)
(b) What are the major issues involved in Enforcement of Environmental legislation?

7. (a) Give brief note on EMP and EIS? (6+6)
(b) Discuss about Ecotourism?

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Narasaraopeta Engineering College (Autonomous)

Kotappakonda Road, Yellamanda (P.O), Narasaraopet- 522601, Guntur District, AP.

Subject Code: R16CC1105, R16CC1204

I B. Tech II Semester Regular Examinations, May - 2017

ENGINEERING CHEMISTRY

(Common to ECE, CSE, readmitted ECE, EEE)

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

Question Paper Consists of **Part-A** and **Part-B**

Answering the question in **Part-A** is Compulsory, Four Questions should be answered from Part-B

All questions carry equal marks of 12.

*****

PART-A

1. (a) How caustic embrittlement take place in boilers.
   (b) Write the preparation of polycarbonate.
   (c) Explain the working of solar heaters.
   (d) Differentiate voltaic cell and Daniel cell.
   (e) Mention how catalytic cracking is better than thermal cracking.
   (f) Define photosensitization.

[2+2+2+2+2+2]

PART-B

4X 12 = 48

2. (a) Calculate the total hardness of a sample of water which on analysis is found to contain the following: $Ca(HCO_3)_2$ = 8.1 mg/L, $Mg(HCO_3)_2$ = 7.3 mg/L, $MgCl_2$ = 9.5 mg/L, $CaSO_4$ = 6.8 mg/L. Express total hardness in ^{0}Fr.
   (b) Write notes on softening of hard water by deionization process. Explain how this method is better than other softening methods. [4+8]

3. (a) Explain compounding of plastics.
   (b) What are fibre reinforced plastics? Explain preparation of bullet proof plastics. [6+6]

4. (a) Explain preparation of CNTs by CVD method.
   (b) Discuss the types of liquid crystals.
   (c) What is green chemistry and discuss any one method of green synthesis. [4+4+4]

5. (a) Explain construction and working of metal – metal ion electrode.
   (b) Write the reactions occurring at anode and cathode of lead-acid battery.
   (c) Explain wet corrosion theory with examples. [4+3+5]

6. (a) Explain proximate analysis of coal and its significance.
   (b) Explain with a neat sketch the synthesis of petrol by Bergius process. [6+6]

7. (a) Explain the phenomenon of fluorescence and phosphorescence with the help of a Jablonski diagram.
   (b) State and explain (i) Grothus-Draper Law (ii) Stark Einstein law of photochemical equivalence. [6+6]

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1. (Dr. J. Srinivasa Rao)
2. CG. Naga Raju.
3. (N. Dinesh)

Narasaraopeta Engineering College (Autonomous)

KotappakondaRoad, Yellamanda (P.O), Narasaraopet- 522601, Guntur District, AP.

Subject Code: R16CS1215

I B.Tech II Semester Regular Examinations, May 2017.

ELECTRONIC DEVICES AND LOGIC DESIGN

(CSE)

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

Question Paper Consists of **Part-A** and **Part-B.**

Answering the question in **Part-A** is Compulsory & Four Questions should be answered from Part-B

All questions carry equal marks of 12.

PART-A

1. (a) Plot and explain the characteristics of PN-Diode.
   (b) Discuss the importance and applications of transistor in electronics.
   (c) Discuss the Barkhausen criterion for perfect oscillations.

   (d) Explain various types of number systems with an example

   (e) Mention the differences between combinational and sequential circuits

   (f) What is register and discuss types of registers.

[2+2+2+2+2+2]

PART-B

2. (a) Explain full wave rectification process with neat sketch?
   (b)Discuss the classification of filters and explain each of them? [6+6]

3. (a) Explain the construction, working of MOSFET
   (b) Explain the working of CB Amplifier [6+6]

4. (a) What is need for biasing and explain transistor amplifiers?
   (b) Write about wein bridge oscillator? [6+6]

5. (a) Perform the number conversions : (i) $(213)_{10}$ = ( )$_2$ (ii) $(011110)_2$= ( )$_8$
   (b) Minimize the following function using K-Map.
   $F(A, B,C,D)=\sum m(4,5,9,11,12,15)+d(1,3,6,10)$ [6+6]

6. (a) Design 2X4 Encoder and 8X1 MUX circuits?
   (b) Draw the logic diagram of RS Flip-Flop and explain it's operation? [6+6]

7. (a) Design mod-5 counter?
   (b) Write about universal shift registers? [6+6]

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Narasaraopeta Engineering College (Autonomous)

Kotappakonda Road, Yellamanda (P.O), Narasaraopet- 522601, Guntur District, AP.

Subject Code: R16CC1105, R16CC1204

I B. Tech II Semester Regular Examinations, May - 2017

ENGINEERING CHEMISTRY

(Common to ECE, CSE, readmitted ECE, EEE)

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

Question Paper Consists of **Part-A** and **Part-B**

Answering the question in **Part-A** is Compulsory, Four Questions should be answered from Part-B

All questions carry equal marks of 12.

*****

PART-A

1. (a) How caustic embrittlement take place in boilers.
   (b) Write the preparation of polycarbonate.
   (c) Explain the working of solar heaters.
   (d) Differentiate voltaic cell and Daniel cell.
   (e) Mention how catalytic cracking is better than thermal cracking.
   (f) Define photosensitization.

[2+2+2+2+2+2]

PART-B

4X 12 = 48

2. (a) Calculate the total hardness of a sample of water which on analysis is found to contain the following: $Ca(HCO_3)_2$ = 8.1 mg/L, $Mg(HCO_3)_2$ = 7.3 mg/L, $MgCl_2$ = 9.5 mg/L, $CaSO_4$ = 6.8 mg/L. Express total hardness in ^{0}Fr.
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   (b) Explain with a neat sketch the synthesis of petrol by Bergius process. [6+6]

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   (b) State and explain (i) Grothus-Draper Law (ii) Stark Einstein law of photochemical equivalence. [6+6]

***

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1. (Dr. J. Srinivasa Rao)
2. CG. (G. Naga Raju.)
3. (N. Dinesh)

Narasaraopeta Engineering College (Autonomous)
Kotappakonda Road, Yellamanda (P.O), Narasaraopet- 522601, Guntur District, AP.

Subject Code: R16CC1108, R16CC1203

I B.Tech II Semester Regular Examinations, May - 2017

ENGINEERING PHYSICS

(Common to CE, EEE, ME & Readmitted ME, CSE)

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

Question Paper Consists of **Part-A** and **Part-B**
Answering the question in **Part-A** is Compulsory, Four Questions should be answered from Part-B
All questions carry equal marks of 12

*****

PART-A

1. (a) What is meant by plane polarized and circularly polarized light?
   (b) What are the characteristics of a LASER?
   (c) Define unit cell?
   (d) Write any two applications of ultrasonics.
   (e) What is the physical significance of wave function?
   (f) State Bloch theorem.

[2+2+2+2+2+2]

PART-B

4X12 = 48

2. (a) Describe how the wavelength of sodium yellow light can be determined using Newton's rings. Derive the formula used.
   (b) Write the differences between Fresnel and Fraunhofer diffraction. **[8+4]**

3. (a) Describe the construction and working of a ruby Laser.
   (b) What is Numerical aperture of an optical fiber? Derive the expression for it. **[6+6]**

4. (a) Explain different crystal systems with neat diagrams.
   (b) Draw the (100), (110) and (212) directions of cubic structures. **[6+6]**

5. (a) What are ultrasonic waves? With a neat diagram, explain how Ultrasonic waves are produced by Magnetostriction method?
   (b) The reverberation time of an auditorium is 1.5 sec. The volume of the auditorium is 6×10^4 m^3 and the effective reflecting area with in the auditorium is 4×10^4 m^4. Find the Coefficient of absorption of the auditorium.
   (c) What are the basic requirements of good hall? **[6+2+4]**

6. (a) Derive Schrodinger's time-independent wave equation.
   (b) What is Fermi-Dirac distribution function? Explain its temperature dependence. **[8+4]**

7. (a) Explain how the materials are classified as conductors, semiconductors and insulators.
   (b) What is Hall effect? Derive the expression for Hall coefficient. **[6+6]**

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procedure to printing

Dr. T. Anjaneyulu (AJ)
Dr. K. Neeraja (KN)
Dr. K. Ephraim Babu EB

Narasaraopeta Engineering College (Autonomous)

Kotappakonda Road, Yellamanda (P.O), Narasaraopet- 522601, Guntur District, AP.

Subject Code: R16CC1202

I B.Tech II Semester Regular Examinations, May-2017

INTEGRAL TRANSFORMS AND VECTOR CALCULUS

(Common to CE, EEE, ME, ECE & CSE)

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

Question Paper Consists of **Part-A** and **Part-B.**

Answering the question in **Part-A** is Compulsory & Four Questions should be answered from Part-B

All questions carry equal marks of 12.

PART-A

1. (a) Given $L\left[2\sqrt{\frac{t}{\pi}}\right]=\frac{1}{s\sqrt{s}}$, find the value of $L\left[\frac{1}{\sqrt{\pi t}}\right]$

   (b) Find the Z-transform of $(n+1)(n+2)$.

   (c) Does $f(x)=\tan x$ posses a Fourier expansion? Justify your answer.

   (d) Prove that $F\left[f(ax)\right]=\frac{1}{a}F\left(\frac{s}{a}\right), a>o$

   (e) If $\boldsymbol{P}=5t^2\,\boldsymbol{I}+t^3\,\mathbf{J}-t\,\boldsymbol{K}$ and $\mathbf{Q}=2\boldsymbol{I}\sin t-\boldsymbol{J}\cos t+5t\,\boldsymbol{K}$, find $\frac{d}{dt}(P\cdot Q)$

   (f) Calculate the work done in moving a particle in the force field $\boldsymbol{F}=3x^2\,\boldsymbol{I}+(2xz-y)\,\mathbf{J}+z\,\boldsymbol{K}$, along the straight line from (0, 0, 0) to (2, 1, 3).

[2+2+2+2+2+2]

PART-B

4 X 12 = 48

2. (a) Evaluate $\int_0^{\infty}2e^{-5t}\cosh 3t\left(\frac{\sin 4t}{t}\right)dt$

   (b) Solve the differential equation $\frac{d^2x}{dt^2}-2\frac{dx}{dt}+x=e^t$, with $x=2, \frac{dx}{dt}=-1$ at t = 0 by using Laplace transforms.

3. (a) Prove that (i) $Z\left[\cos n\theta\right]=\frac{z(z-\cos\theta)}{z^2-2z\cos\theta+1}$; and (ii) $Z\left[\sin n\theta\right]=\frac{z\cdot\sin\theta}{z^2-2z\cos\theta+1}$

   (b) Find the inverse Z-transform of $\frac{z^3-20z}{(z-2)^3(z-4)}$.

4. (a) Show that Fourier series expansion for $f(x)=\left(\frac{\pi-x}{2}\right)^2$ in the range 0 to 2π is

$$f(x)=\frac{\pi^2}{12}+\sum_{n=1}^{\infty}\frac{1}{n^2}\cos nx$$

(b) Obtain the Fourier expansion of $x\sin x$ as a cosine series in $(0, \pi)$. Hence show that $\frac{1}{1\cdot 3}-\frac{1}{3\cdot 5}+\frac{1}{5\cdot 7}-\ldots=\frac{\pi-2}{4}$

5. (a) Find the Fourier transform of $f(x)=\begin{cases}1-x^2, & |x|\le 1\\ 0, & |x|>1\end{cases}$. Hence evaluate $\int_0^{\infty}\frac{x\cos x-\sin x}{x^3}\cos\frac{x}{2}dx.$

(b) Find the Fourier cosine transform of $f(x)=\frac{1}{1+x^2}$. Hence derive Fourier sine transform of $\phi(x)=\frac{x}{1+x^2}$

6. (a) A particle moves along the curve $\boldsymbol{R} = (t^3 - 4t)\boldsymbol{I} + (t^2 + 4t)\boldsymbol{J} + (8t^2 - 3t^3)\boldsymbol{K}$, where t denotes time. Find the magnitudes of acceleration along the tangent and normal at time $t = 2$.

(b) Find the directional derivative of $\phi(x,y,z)=xy^2+yz^3$ at the point (2, -1, 1) in the direction of the normal to the surface $x\log z-y^2+4=0$ at (-1, 2, 1)

7. (a) If $\boldsymbol{F} = (2x^2 - 3z)\,\boldsymbol{I} - 2xy\,\boldsymbol{J} - 4x\,\boldsymbol{K}$, then evaluate $\iiint_V(\nabla\times F)\,dv$, where V is bounded by the coordinate planes and the plane $2x + 2y + z = 4$.

(b) Verify Green's theorem for $\int_C\left[\left(xy+y^2\right)dx+x^2\,dy\right]$, where C is bounded by $y = x$ and $y=x^2$

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Narasaraopeta Engineering College (Autonomous)

Kotappakonda Road, Yellamanda (P.O), Narasaraopet- 522601, Guntur District, AP.

Subject Code: R16CC1201

I B.Tech II Semester Regular Examinations, May-2017

INTERACTIVE ENGLISH

(Common to CE, EEE, ME, ECE & CSE)

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

Question Paper Consists of **Part-A** and **Part-B.**

Answering the question in **Part-A** is Compulsory & Four Questions should be answered from Part-B

All questions carry equal marks of 12.

PART-A

1. (a) What was kalam's first job?
   (b) What does Satya Nadella's plan to Microsoft customers that is new and different?
   (c) In what ways is Azim Premji a modest man?
   (d) Who was Sachin's guru and how did he coach him?
   (e) What steps are being taken for people to access information?
   (f) How was Indra Nooyi's childhood?

[2+2+2+2+2+2]

PART-B

2. (a))How did Kalam try to emulate his father when grew up and started working in the field of science?
   (b) What are verbal and non-verbal communications? **[7+5]**

3. (a) How is the life of Satya Nadella an inspiration to the young generation?
   (b) Write a few tips for effective listening? **[7+5]**

4. (a) How did Azim Premji stand as an exemplary to the modern industrialists?
   (b) A general manager of Proline texttiles Ahmadabad asked the marketing manager to submit a report on the decline of sales. Assume you are the marketing manager and write a report giving suggestions to improve the sales. **[7+5]**

5. (a) Describe Sachin's style of batting and his achievements.
   (b) Change the following sentences into indirect speech.
      i. He said, "Where have you kept your bag?"
      ii. They said, 'Do not walk on the grass.'
      iii. They said to him, "We will hand over our work tomorrow."
   (c) Change the following into passive voice.
      i. I am submitting my research proposal today.
      ii. She sent her son a thousand rupees.

[7+3+2]

6. (a) what is Sam Pitroda's 'Knowledge Revolution'

(b) Correct the following sentences where ever necessary.

i. I am loving my country.

ii. Either you or she are presenting a paper.

iii. I have seen the film yesterday.

iv. The police rushed to the spot, but the burglar already fled.

v. Venu camped besides the lake.

vi. One can't predict their own future.

(c) Fill in the blanks with the suitable word.

i. The marine did not _____ (break/brake) the burning ship but struggled to save those who were hurt.

ii. All he could do was _____ (stair/stare) at the ugly dog.

iii. We are not _____ (adverse/ averse) to the idea of moving to Mysore.

iv. I follow your _____(advise/advice)

[7+3+2]

7. (a) Write about Indra Nooyi's journey as the CEO of Pepsi-Co?

(b) Write one word substitutes for the following words.

i. The young of animals and humans.

ii. A group of islands.

iii. That which can't be dealt with successfully.

iv. A sudden tightening of the muscles.

v. Showing great energy and enthusiasm.

vi. Not embarrassed by people's disapproval.

(c). Replace the underlined word in each sentence with a suitable synonym

i. He is a <u>shrewd</u> politician.

a. Dishonest b. Clever c. Famous d. Notorious

ii. He made a <u>cogent</u> argument at the meeting.

a. Powerful b. Logical c. Appealing d. Convincing

[7+3+2]

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2016 BATCH

I B.TECH

I SEMESTER

SUPPLEMENTARY EXAMINATION

JUNE/JULY-2017

QUESTION PAPERS

ACADEMIC YEAR

2016-17

Narasaraopeta Engineering College (Autonomous)

Kotappakonda Road, Yellamanda (P.O), Narasaraopet- 522601, Guntur District, AP.

Subject Code: R16CC1109

I B.Tech I Semester Supplementary Examinations, June/July-2017

ENVIRONMENTAL STUDIES

(Common to ECE & CSE)

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

Question Paper Consists of **Part-A** and **Part-B.**

Answering the question in **Part-A** is Compulsory & Four Questions should be answered from Part-B

All questions carry equal marks of 12.

PART-A

1.(a)Explain the concept of food chain and food web?

(b)Write about water logging and salinity?

(c)Write about ecosystem diversity?

(d)Explain the effects of oil pollution on the ocean

(e)What is rain water harvesting?

(f)Write about ecotourism

[2+2+2+2+2+2]

PART-B

4X 12 = 48

2. (a)Explain ecological succession with examples? 6m

(b)Discuss about grassland ecosystem? 6m

3. (a)What is mining? Describe different methods of mining ? 6m

(b)Discuss about man induced landslides and its effects? 6m

4. (a)What are various threats of biodiversity? Explain 6m

(b)Write about endangered and endemic species of India? 6m

5. (a)Name different types of air pollutants and sources of air pollution? 6m

(b)What are the effects of water pollution? 6m

6. Discuss the provisions of the following Acts,

(a)Wild life protection Act,1972 6m

(b)Air(prevention and control of pollution)Act,1981 6m

7. (a)Write about the significance of EIA and the stages involved? 6m

(b)Write about EMP ? 6m

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Narasaraopeta Engineering College (Autonomous)

Kotappakonda Road, Yellamanda (P.O), Narasaraopet- 522601, Guntur District, AP.

Subject Code: R16CC1108

I B.Tech I Semester Supplementary Examinations, June/July-2017

ENGINEERING PHYSICS

(Common to ECE & CSE)

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

Question Paper Consists of **Part-A** and **Part-B.**

Answering the question in **Part-A** is Compulsory & Four Questions should be answered from Part-B

All questions carry equal marks of 12.

PART-A

1. (a) What is meant by double refraction?
   (b) Define numerical aperture of an optical fiber.
   (c) What are Miller indices?
   (d) What is Piezo electric effect?
   (e) Write the properties of matter waves.
   (f) State Bloch theorem.

[2+2+2+2+2+2]

PART-B

4X 12 = 48

2. (a) Distinguish between interference and diffraction.
   (b) Give the theory of Fraunhofer diffraction due to a double slit and compare the results obtained with that due to Fraunhofer single slit.
   (c) What is quarter wave plate? [4+6+2]

3. (a) What are the characteristics of a LASER?
   (b) Describe the construction and working of He-Ne laser with neat diagram.
   (c) Describe the construction of an optical fiber. [2+6+4]

4. (a) Find the coordination number, nearest neighbouring distance, atomic radius and packing fractions of BCC lattices.
   (b) State Bragg's law. Write the limitations of Bragg's law of X-ray diffraction. [8+4]

5. (a) Explain the production of ultrasonic waves using Magnetostriction method.
   (b) Define the terms: (i) absorption coefficient (ii) Reverberation time [8+4]

6. (a) Write a note on Fermi-Dirac distribution function.
   (b) Show that the energies of a particle in a potential box are quantised. [5+7]

7. (a) Explain: (i) effective mass of an electron (ii) salient features of Kronig-penny model
   (b) What is Hall effect? Derive the expression for Hall coefficient. [6+6]

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Narasaraopeta Engineering College (Autonomous)
Kotappakonda Road, Yellamanda (P.O), Narasaraopet- 522601, Guntur District, AP.

Subject Code: R16CC1107

I B.Tech I Semester Supplementary Examinations, June/July-2017

ENGINEERING GRAPHICS

(Common to ECE & CSE)

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

Question Paper Consists of **Part-A** and **Part-B**
Answering the question in **Part-A** is Compulsory
Four Questions should be answered from Part-B

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PART-A

1. (a) Construct the regular hexagon in a circle of diameter 100mm.
   (b) A point P; its top view is 40mm above XY; the front view 20mm below the top view. State the quadrant in which the point P is situated.
   (c) The top view of 75mm long line measures 55mm. The line is in the V.P, its one end being 25mm above the H.P. Draw its projections.
   (d) A square ABCD of 40mm side has a corner on the H.P. and 20mm in front of V.P. All the sides of the square are equally inclined to the H.P. and parallel to the V.P. Draw its projections.
   (e) A pentagonal pyramid base side 40 mm, axis 65 mm long, base in the V.P. and edge of the base in the H.P. Draw its projections.
   (f) Draw isometric view of a cone, base 40mm diameter and axis 55mm long when its axis is horizontal.

[2+2+2+2+2+2]

PART-B

4X 12 = 48

2. (a) The vertex of a hyperbola is 65mm from its focus. Draw the curve if the eccentricity is 3/2. Draw a normal and tangent at a point on the curve, 75mm from the directrix.
   (b) Construct a diagonal scale of RF=1/4000 to show meters and long enough to measure up to 500meters.

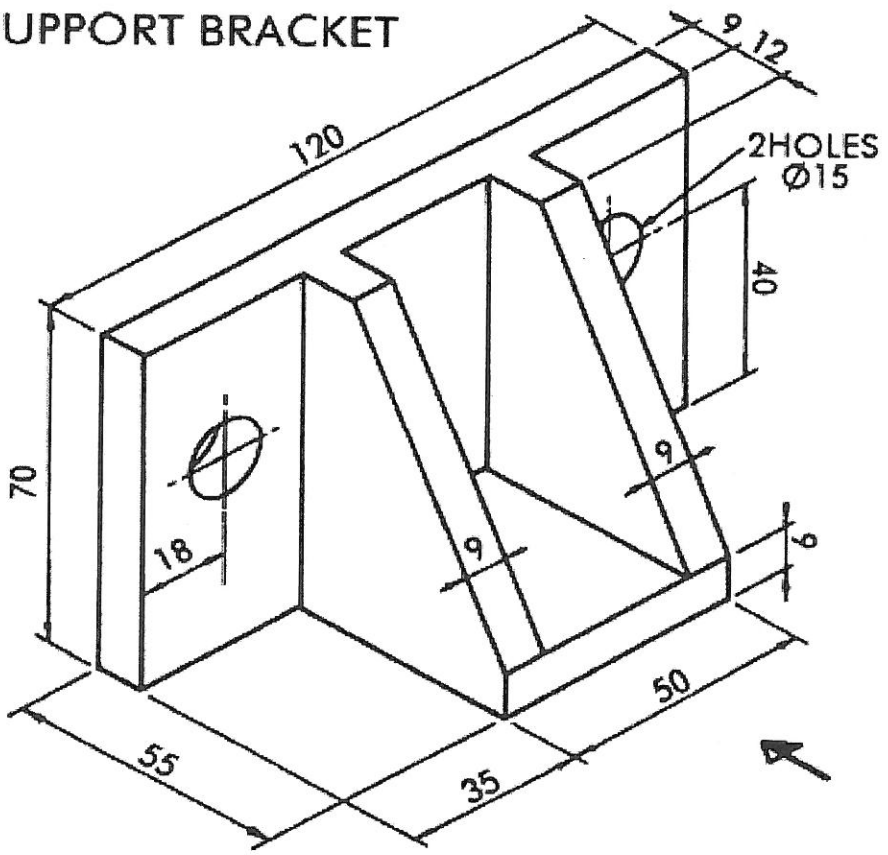
3. (a) A point P is 15mm above H.P. and 20mm in front of the V.P. another point Q is 25mm behind the V.P. and 40mm below the H.P. Draw projections of P and Q keeping the distance between their projectors equal to 90mm. Draw straight lines joining their top views and their front views.
   (b) The front view of a line, inclined at 30^0 to the V.P. is 65mm long. Draw the projections of the line, when it is parallel to and 40mm above the H.P, its one end being 30mm in front of the V.P.

4. The end A of a line AB is in the H.P. and 25mm behind the V.P. The end B is in the V.P. and 50mm above the H.P. The distance between the end projectors is 75mm. Draw the projections of AB and determine its true length, traces and inclinations with the two planes.

5. Draw the projections of a regular pentagon of 40mm side, having its surface inclined at 30^0 to the H.P. and a side parallel to the H.P. and inclined at an angle of 60^0 to the V.P.

6. Draw the projections of a cone, base 75 mm diameter and axis 100 mm long, lying on the H.P. on one of its generators with the axis parallel to the V.P.

7. Draw the (i) Front view (ii) Top view and (iii) Side view for the following figure.



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Narasaraopeta Engineering College (Autonomous)
Kotappakonda Road, Yellamanda (P.O), Narasaraopet- 522601, Guntur District, AP.

Subject Code: R16CS1110

I B.Tech I Semester Supplementary Examinations, June/July- 2017

INTRODUCTION TO COMPUTERS AND PROBLEM SOLVING

(CSE)

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

Question Paper Consists of **Part-A** and **Part-B**

Answering the question in **Part-A** is Compulsory, Four Questions should be answered from Part-B

All Questions carry equal marks of 12.

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PART-A

1. (a) Most standard key boards include five major groups of keys. List them
   (b) Write the difference between CD ROM and DVD ROM.
   (c) What is the binary equivalent of $(24.1875)_{10}$
   (d) Mention the standard conventions of drawing a flowchart.
   (e) Write the Fibonacci sequence between 1 to 10
   (f) What is an array?

[2+2+2+2+2+2]

PART-B

4X 12 = 48

2. Explain the various output devices in detail [12]

3. (a) Differentiate between Dot matrix and laser printer [6+6]
   (b) Write short notes on
   i) Registers ii) Processor speed iii) Memory cards

4. (a)Convert following numbers to hexadecimal. [6+6]
   i) $(360)_8$ ii) $(2262)_{10}$ iii) $(10011.1101)_2$
   (b) Perform Subtraction using 1's compliment method
   i) $(11010)_2 - (10000)_2$ ii) $(1000100)_2 - (1010100)_2$

5. (a) Mention the techniques or methods involved in problem solving [6+6]
   (b) Explain about the top-down design in detail

6. (a) Write an algorithm for reversing the digits of an number [6+6]
   (b) Write an algorithm for sin function computation

7. (a) Draw the flow chart for the greatest common divisor of two integers [6+6]
   (b) Write an algorithm for finding maximum number in a set

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Narasaraopeta Engineering College (Autonomous)
Kotappakonda Road, Yellamanda (P.O), Narasaraopet- 522601, Guntur District, AP.

Subject Code: R16CC1102

I B.Tech I Semester Supplementary Examinations, June/July-2017

ENGINEERING MATHEMATICS

(Common to CE, EEE, ME, ECE & CSE)

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

Question Paper Consists of **Part-A** and **Part-B**
Answering the question in **Part-A** is Compulsory
Four Questions should be answered from Part-B, All Questions carry equal marks of 12.

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PART-A

1. (a) Find the integrating factor for $x\log x\frac{dy}{dx}+y=\log x^2$.

   (b) Solve $\left(D^2+1\right)^3 y=0$.

   (c) Verify Rolle's theorem for $f(x)=x^2$, where $2\le x\le 3$.

   (d) If $u=\cos^{-1}\left(\frac{x}{y}\right)+\tan^{-1}\left(\frac{y}{x}\right)$, then find the value of $x\frac{\partial u}{\partial x}+y\frac{\partial u}{\partial y}$.

   (e) Solve $\frac{\partial^2 z}{\partial y^2}=z$, given that when $y=0$, $z=e^x$ and $\frac{\partial z}{\partial y}=e^{-x}$.

   (f) While solving $\frac{\partial u}{\partial x}=2\frac{\partial u}{\partial t}+u$ satisfying boundary condition $u(x, 0) = 6e^{-3x}$ by the method of separation of variables if we arrive at $u(x, t) = c_1e^{(1+2a)x}c_2e^{at}$, find the complete solution of the problem.

[2+2+2+2+2+2]

PART-B

4X 12 = 48

2. (a) Solve the equation $2y\,dx+x\left(2\log x-y\right)dy=0$.

   (b) The number N of bacteria in a culture grew at a rate proportional to N. The value of N was initially 100 and increased to 332 in one hour, what would be the value of N after $1\frac{1}{2}$ hours?

3. (a) Solve $x^2\frac{d^2y}{dx^2}-3x\frac{dy}{dx}+4y=\left(1+x\right)^2$.

   (b) Find the solution of $\frac{d^2y}{dx^2}+4y=x\sin x$.

4. (a) Using Taylor's theorem, prove that $x-\frac{x^3}{6}<\sin x<x-\frac{x^3}{6}+\frac{x^5}{120}$, for $x>0$.

   (b) Find the maximum and minimum values of x^3-6x^2+9x+1 in the interval [0.5, 3.2]

5. (a) If $x^x y^y z^z = c$, show that at $x = y = z$, $\dfrac{\partial^2 z}{\partial x \partial y} = -(x \log ex)^{-1}$.

(b) If $u = a^3x^2 + b^3y^2 + c^3z^2$, where $x^{-1} + y^{-1} + z^{-1} = 1$, show that the stationary value of u is given by $x = \dfrac{\Sigma a}{a}$, $y = \dfrac{\Sigma a}{b}$, $z = \dfrac{\Sigma a}{c}$.

6.(a) Form the partial differential equation by eliminating arbitrary functions from $z = (x+y)\phi(x^2 - y^2)$.

(b) Solve $x^2(y-z)p + y^2(z-x)q = z^2(x-y)$.

7. A tightly stretched string of length l with fixed ends is initially in equilibrium position. It is set vibrating by giving each point a velocity $v_0 \sin^3\left(\dfrac{\pi x}{l}\right)$. Find the displacement $y(x, t)$.

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ıarasaraopeta Engineering College (Autonomous)
ıppakonda Road, Yellamanda (P.O), Narasaraopet- 522601, Guntur District, AP.

Subject Code: R16CC1103

I B.Tech I Semester Supplementary Examinations,June/July-2017

MATHEMATICAL METHODS

(Common to CE, EEE, ME & ECE)

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

Question Paper Consists of **Part-A** and **Part-B.**

Answering the question in **Part-A** is Compulsory & Four Questions should be answered from Part-B

All questions carry equal marks of 12.

PART-A

1. (a) Determine the rank of a matrix $A = \begin{bmatrix} 1 & 4 & 5 \\ 2 & 6 & 8 \\ 3 & 7 & 22 \end{bmatrix}$

   (b) Prove that any square matrix A and its transpose A' have the same Eigen values.

   (c) Evaluate $\int_0^1 \int_0^y xdydx$.

   (d) Write merits and demerits of Newton-Raphson method

   (e) Evaluate $\Delta^2 (ab^{cx})$ interval of differencing being unity.

   (f) State Simpson's $(\frac{1}{3})^{rd}$ rule and Simpson's $(\frac{3}{8})^{th}$ rule.

[2+2+2+2+2+2]

PART-B

4X 12 = 48

2.(a) Using the loop current method on a circuit, the following equations are obtained: $3i_1+i_2+i_3 = 8$; $2i_1-3i_2-2i_3 = -5$; $7i_1+2i_2-5i_3 = 0$ by Gauss –Jordan method , solve for i_1 , i_2 and i_3.

(b) Investigate the values of λ and μ so that the equations $2x+3y+5z = 9$, $7x+3y-2z = 8$, $2x+3y+\lambda z = \mu$ have (i) no solution (ii) a unique solution, and (iii) an infinite number of solutions.

3.(a) Find the Eigen values and Eigen vectors of the matrix $A = \begin{bmatrix} 3 & 1 & 4 \\ 0 & 2 & 6 \\ 0 & 0 & 5 \end{bmatrix}$

(b) Reduce the quadratic form $3x^2+5y^2+3z^2-2yz+2zx-2xy$ to the canonical form also find the nature, rank, signature and index.

4.(a) Find the perimeter of the cardiod $r = a(1+\cos\theta)$. Also, show that the upper half of the cardiod is bisected by the line $\theta = \frac{\pi}{3}$.

(b) Evaluate $\int_0^{\frac{\pi}{2}} \int_0^{a\cos\theta} r\,dr\,d\theta$.

5. (a) Find a real root of the equation $\cos x = x e^x$ correct up to four decimal places by the method of False position.

(b) Find a root of $X \log_{10}(x) = 1.2$ using Newton -Raphson method correct to the three decimal places.

6. (a) Show that $\mu^2 = 1 + \frac{\delta^2}{4}$

(b) Given the values

X:	5	7	11	13	17
f(x):	150	392	1492	2366	5202

Evaluate f (9), using Lagrange's formula.

7. (a) Find $y(0.2)$ using Euler modified formula given that $\frac{dy}{dx} = x - y^2$, $y(0) = 1$.

(b) Apply Runge-Kutta method of fourth order method, to find an approximate value of y when x = 0.2, given that $\frac{dy}{dx} = x+y$ and y = 1 when x = 0.

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Narasaraopeta Engineering College (Autonomous)

Kotappakonda Road, Yellamanda (P.O), Narasaraopet- 522601, Guntur District, AP.

Subject Code: R16CC1104

I B.Tech I Semester Supplementary Examinations, June/July-2017

PROGRAMMING WITH C

(Common to CE, EEE & ME)

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

Question Paper Consists of **Part-A** and **Part-B.**

Answering the question in **Part-A** is Compulsory & Four Questions should be answered from Part-B

All questions carry equal marks of 12.

PART-A

1) (a) Describe the main features of C language with examples.
(b) What is typecasting? When should a typecast be used ?
(c) Why do we avoid the use of goto statements in programs?
(d) Differentiate between break and continue with examples.
(e) What is a file? Explain how the file open and file close functions?
(f) What do you understand by strings? How do you declare a string?

[2+2+2+2+2+2]

PART-B

2) (a) Write and explain the basic concepts of a C program.
(b) What is an operator? Explain the arithmetic, relational, logical, and assignment operators in C language.

[6+6]

3) (a) Explain the two way selection (if, if-else, nested if-else) in C language with syntax .
(b) Write a c program for matrix multiplication with sufficient conditions.

[6+6]

4) (a) What is function parameter? Explain different types of parameters in C functions.
(b) Explain about different storage classes with examples along with scope rules.

[6+6]

5) (a)Write a program for illustrating the dynamic memory allocation.
(b) Write a C program to swap two numbers using call by pointers method.

[6+6]

6) (a) Explain array of structures and structure within a structure with examples.
(b) Write a program to display student details using pointers to structure.

[6+6]

7) (a) Write short notes on Text files and Binary files?
(b) Write a program to illustrate file operations.

[6+6]

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Narasaraopeta Engineering College (Autonomous)

Kotappakonda Road, Yellamanda (P.O), Narasaraopet- 522601, Guntur District, AP.

Subject Code: R16CC1105

I B.Tech I Semester Supplementary Examinations, June/July-2017

ENGINEERING CHEMISTRY

(Common to CE, EEE & ME)

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

Question Paper Consists of **Part-A** and **Part-B.**

Answering the question in **Part-A** is Compulsory & Four Questions should be answered from Part-B

All questions carry equal marks of 12.

PART-A

1. (a) What is meant by phosphate conditioning?
   (b) How can rubber be vulcanized?
   (c) Write any four applications of green chemistry.
   (d) Define single electrode potential.
   (e) Discuss how nitrogen is determined by ultimate analysis.
   (f) What is meant by quantum yield.

[2+2+2+2+2+2]

PART-B

4X 12 = 48

2. (a) Explain (i) boiler corrosion (ii) caustic embrittlement.
   (b) Explain cold lime soda process with a neat diagram. [8+4]

3. (a) Discuss the preparation, properties and uses of polycarbonates.
   (b) Write notes on biodegradable polymers. [8+4]

4. (a) Discuss any one method for preparation of carbon nanotubes.
   (b) Write any four applications of liquid crystals.
   (c) Discuss the working of photovoltaic cell. [4+4+4]

5. (a) Explain electrochemical theory of corrosion
   (b) Discuss the working of a dry cell. [8+4]

6. (a) Explain Fischer-Tropsch method for synthesis of petrol with a neat sketch.
   (b) Calculate the gross and net calorific value of coal containing the following composition:
   C = 84%, H = 6%, O = 4 %, S = 2 %, N = 2 % and remaining ash.
   Latent heat of steam = 587 cal/gm [8+4]

7. (a) Explain Jablonski diagram
   (b) Discuss photosensitized reactions with example. [8+4]

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Narasaraopeta Engineering College (Autonomous)

Kotappakonda Road, Yellamanda (P.O), Narasaraopet- 522601, Guntur District, AP.

Subject Code: R16CC1101

I B.Tech I Semester Supplementary Examinations, June/July-2017

FUNCTIONAL ENGLISH

(Common to CE, EEE, ME, ECE & CSE)

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

Question Paper Consists of **Part-A** and **Part-B.**

Answering the question in **Part-A** is Compulsory & Four Questions should be answered from Part-B

All questions carry equal marks of 12.

PART - A

1.(a) What techniques did the astrologer use to surprise his customers?

(b) What is soil erosion? What are its main causes.

(c) What does Kalam think about 'Value addition' in India?

(d) What are the differences between skimming and scanning?

(e) Why does Corrie excite about?

(f) What kind of life does the narrator live in her son's home?

[2+2+2+2+2+2]

PART – B

2. (a) What amusing situation makes an "Astrologers's Day" a humorous story.

(b) Write one word substitutes for the following

(i) A lover of mankind

(ii) That which cannot be believed

(iii) That which is not in use any more

(iv) A list of books

(c) You are Keerthi, a graduate in Electronics and Communication Engineering. You have three years of experience as a Software Engineer with Accenture Company. Write an e-mail application letter in response to an advertisement for the post of a senior software Engineer in WIPRO Company. Attach your CV and testimonials for the company's reference.

[6+2+4]

3. (a) How does Abdul Kalam attempt to motivate the Chinmaya Vidyalaya students ?

(b) Correct errors, if any in the following sentences and rewrite them.

(i) We didn't saw any point to extend our stay.

(ii) Manoj read a old tale about a Elephant.

(iii) I have read the book yesterday.

(iv) The bowl of nuts are on the table.

(v) Does the bookshop has more books for children? **[7+5]**

4. (a) How can water be the most uncommon of liquids with amazing properties with its unique power of maintaining animal and plant life?

(b) Expand the proverb 'failures are stepping stones to success.'

[7+2]

5. (a) What makes the narrator upset in the story 'Wood Rose'?

(b) Write an antonym for each of the words given below.

(i) Incredible (ii) Consent (iii) Fair (iv) Pain

(c) Match the words given in Column A with their meanings in Column B.

	Column A		Column B
1	callous	A	dislike
2	consent	B	decline
3	aversion	C	agree
4	blithe	D	weak
5	fragile	E	happiness
6	decay	F	hard

[7+2+3]

6. (a) How does Mrs. Meldon ensure that Corrie's invention does not harm anyone?

(b) Fill in the blanks with suitable words.

(i) It is a story of two men and a batch of _____(deceased/diseased) armoured cars.

(ii) He _____ (insured/ensure) her that she would pass.

(iii) After they _____(have eaten/had eaten) lunch, the boys ran outside.

(iv) China is the most _____ (popular/populous) country in the world.

(v)The valley is known for its _____ (luxurious/luxuriant)growth of vegetation.

[7+5]

7. a. Write an essay on ' Problems of Teenage'.

b. Read the paragraph given below and answer the following questions.

"Did you see that?" Joe said to his friend Bill. "You're a great shooter!" Bill caught the basketball and bounced it before throwing it again. The ball flew into the net."Bill, you never miss!" Joe said admiringly. "Unless I'm in a real game," Bill complained. "Then I miss all the time." Joe knew that Bill was right. Bill performed much better when he was having fun with Joe in the school yard than he did when he was playing for the school team in front of a large crowd. "Maybe you just need to practice more," Joe suggested. "But I practice all the time with you!" Bill objected. He shook his head. "I just can't play well when people are watching me." "You play well when I'm watching," Joe pointed out. "That's because I've known you since we were five years old," Bill said with a smile. "I'm just not comfortable playing when other people are around." Joe nodded and understood, but he also had an idea.

The next day Joe and Bill met in the school yard again to practice. After a few minutes, Joe excused himself. "Practice without me," Joe said to his friend. "I'll be back in a minute." Joe hurried through the school building, gathering together whomever he could find—two students, a math teacher, two secretaries, and a janitor. When Joe explained why he needed them, everyone was happy to help.Joe reminded the group to stay quiet as they all went toward the school's basketball court. As Joe had hoped, Bill was still practicing basketball. He made five baskets in a row without noticing the silent people standing behind him. "Hey, Bill!" Joe called out finally. Bill turned. A look of surprise came over his face. "I just wanted to show you that you could play well with people watching you," Joe said. "Now you'll have nothing to worry about for the next game!"

1. What would be the best title for the story?

2. In line 6, the word performed is closest in meaning to _____.

a. acted b. played c. moved d. changed

3. Why does Bill play well when Joe is watching him?

4. Why does Joe decide to gather a group of people?

5. Who were watching Bill while he was playing ?

[7+5]