Q.P. Code: 917012 **SET - 2**

K.S.R.M. COLLEGE OF ENGINEERING (AUTONOMOUS), KADAPA
B. Tech. I Sem. (R15) Supplementary Examinations of May 2019
SUB: ENVIRONMENTAL STUDIES (EEE, ECE & CSE)

Time : 3 Hours Max. Marks: 70

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

UNIT - I

1.	(a)	What are the consequences of exploitation of land resources?	7 M
	(b)	Discuss in detail about scope and importance of environmental studies.	7 M
		(OR)	
2.	(a)	How does modern agricultural practice impact on the environment?	7 M
	(b)	What are the impacts due to over utilization of surface and ground water?	7 M

UNIT – II

3.	(a)	What are producers, consumers and decomposers of an ecosystem?	7 M
	(b)	What is the difference between food chains and food webs?	7 M
		(OR)	
4.	(a)	Give the details about the structure and functions of Aquatic pond ecosystem.	7 M
	(b)	What is the importance of ecological pyramids?	7 M

UNIT – III

5.	(a)	Enumerate the Hot-spots of biodiversity in an environment.	7 M
	(b)	What are the different services that are contributed in various ways by biodiversity?	7 M
		(OR)	
6.	(a)	What is human-wildlife conflict? Give some examples.	7 M
	(b)	Why is the conservation of biodiversity important?	7 M

UNIT – IV

7.	(a)	When did you prefer an incineration method of solid waste disposal?	7 M
	(b)	Give brief account on Marine pollution.	7 M
		(OR)	
8.	(a)	Explain the effects and control measures of thermal pollution.	7 M
	(b)	Describe the Sources and effects of the Air pollution.	7 M

UNIT-V

9.	(a)	Give details about depletion of the Ozone layer and its impacts.	7 M
	(b)	What is Resettlement and rehabilitation?	7 M
		(OR)	
10.	(a)	Write about role of Information Technology in Environment and Human health.	7 M
	(b)	Present review report on Indian Forest Conservation Act.	7 M

Q.P. Code: 917212

SET - 2

K.S.R.M. COLLEGE OF ENGINEERING (AUTONOMOUS), KADAPA
B. Tech. I Sem. (R15) Supplementary Examinations of May 2019
SUB: PROGRAMMING IN C (EEE, ECE & CSE)

Time : 3 Hours Max. Marks: 70

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

UNIT – I

1.	(a)	Explain the structure of C program. How do compile and execute the program.	7M
	(b)	Write short notes on basic data types that the C language supports.	7M
		(OR)	
2.	(a)	Define algorithm? Write an algorithm to find greatest of three numbers.	7M
	(b)	What is variable? Write the syntax for declaration and initialization of variable. Explain the difference between declaration and definition.	7M

UNIT – II

3.	(a)	What is operator? Explain different operators with examples	7M
	(b)	Write a program to read the numbers between 1-7 and display the corresponding day of the week using switch case statement.	7M
		(OR)	
4.	(a)	Illustrate the importance of Precedence and Associativity in Evaluating Expressions..	7M
	(b)	Explain the ternary operator? Write the syntax. Compare the use of if-else control structure with that of ternary operator.	7M

UNIT – III

5.	(a)	Differentiate between while loop and do-while loop. Draw the flow charts for both.	7M
	(b)	What is function? Write the syntax for definition and declaration of function. Why are functions needed?	7M
		(OR)	
6.	(a)	Write the syntax for loop. Write the program to calculate factorial of a given number using for loop.	7M
	(b)	Describe in detail about the user defined functions.	7M

UNIT – IV

7.	(a)	Explain the binary search technique. Write a program to implement the binary search.	7M
	(b)	Explain any four string manipulation functions.	7M
		(OR)	
8.	(a)	What is 2-D array? Explain its declaration and initialization. How are multi-dimensional arrays are useful.	7M
	(b)	Write a program to reverse the given string without using standard string library function.	7M

UNIT-V

9.	(a)	What are the advantages of union over structures? Explain both Union and Structure with examples.	7M
	(b)	Write a program to open a file, read the file and print the file contents.	7M
		(OR)	
10.	(a)	Write a program to read and display information of a student, using a structure.	7M
	(b)	List and Explain the Bitwise Operators and shift operators. Give the syntax and suitable examples.	7M

Q.P. Code: 917412 | **SET - 2**

K.S.R.M. COLLEGE OF ENGINEERING (AUTONOMOUS), KADAPA
B. Tech. I Sem. (R15) Supplementary Examinations of May 2019
SUB: ENGINEERING GRAPHICS (EEE, ECE & CSE)

Time : 3 Hours | Max. Marks: 70

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

UNIT - I

1. (a) A ball thrown from the ground level reaches a maximum height of 5m and travels a horizontal distance of 12mm from the point of projection. Trace the path of the ball.
   (b) A fountain jet is discharge from the ground level at an inclination of 45^0. The jet travels a horizontal distance of 10m from the point of discharge and falls on the ground Trace the path of the jet.

(OR)

2. Draw a hypocycloid of a circle of 40mm diameter which rolls inside another circle of 200mm diameter for one revolution. Draw a tangent and normal at any point on it.

UNIT – II

3. (a) A line AB of 25mm long is perpendicular to V.P and parallel to H.P. The end points A and B of the line are 10mm and 35mm in front of V.P respectively. The line is 20mm above H.P. Draw the projections.
   (b) A line AB 40mm ling is parallel to V.P and inclined at an angle of 30^0 to H.P. The end A is 15mm above H.P and 20mm in front of V.P. Draw the projections of the line

(OR)

4. A line AB, 90mm long, is inclined at 30^0 to the H.P. Its end A is 12mm above the H.P. and 20mm in front of the V.P. Its front view measures 65mm. Draw the top view of AB and determine its inclination with the V.P.

UNIT – III

5. Draw the projections of a cylinder of 40mm diameter and axis 60mm long, when it is lying on H.P, with its axis inclined at 45^0 to H.P and parallel to V.P.

(OR)

6. A pentagonal prism with side of base 30mm and axis 60mm long is resting with an edge of its base on H.P, such that the rectangular face containing that edge is inclined at 60^0 to H.P. Draw the projection of the prism with its axis is parallel to V.P.

UNIT – IV

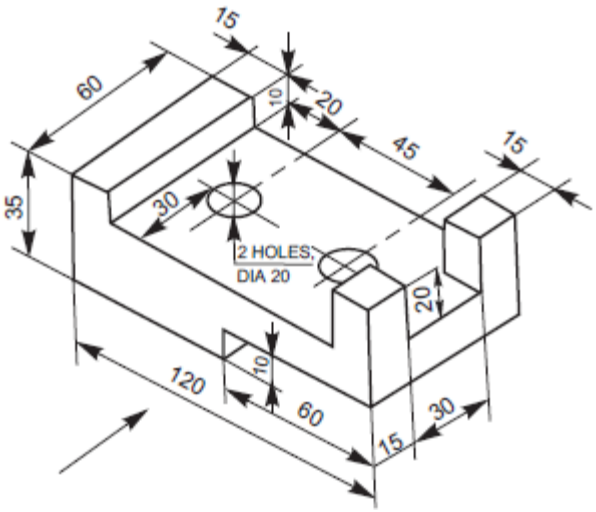
7. A cone of base diameter 50mm and axis length 75mm, resting on HP on its base is cut by a plane in lined at 45^0 to HP and perpendicular to VP and is bisecting the axis. Draw the front view and sectional top view and true shape of this section.

(OR)

8. A pentagonal pyramid of base side 40mm and axis length 80mm is resting on HP on its base with one of its base side parallel to VP. It is cut by a plane inclined at 30^0 to HP and perpendicular to VP and is bisecting the axis. Draw its front view, sectional top view, and the true shape of section.

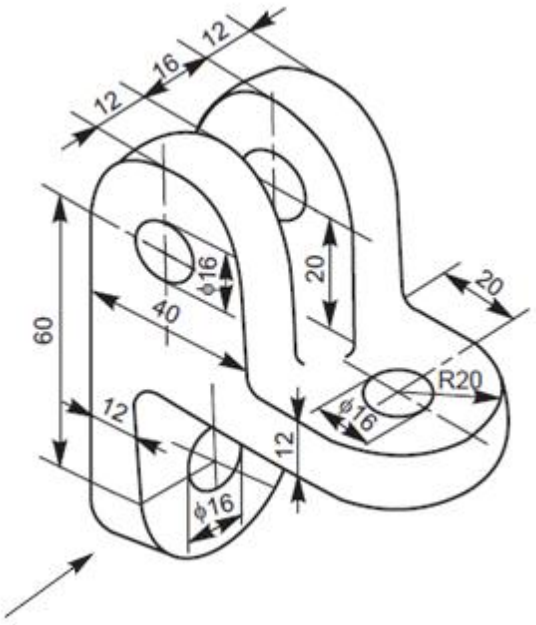
UNIT-V

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



(OR)

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



Q.P. Code: 917612 | **SET - 2**

K.S.R.M. COLLEGE OF ENGINEERING (AUTONOMOUS), KADAPA
B. Tech. I Sem. (R15) Supplementary Examinations of May 2019
SUB: MATHEMATICS-II (Common to EEE, ECE and CSE)

Time : 3 Hours | Max. Marks: 70

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

UNIT - I

1. (a) $\bar{F} = grad(x^3 + y^3 + z^3 - 3xyz)$ Show That $\bar{F}$ is irrotational.

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

(OR)

2. State Green's Theorem and verify Green's Theorem for $\int_C (xy + y^2)dx + x^2 dy$. Where C is bounded by $y = x \; and \; y = x^2$

UNIT – II

3. (a) Evaluate $L\{e^t(\cos 2t + \frac{1}{2}\sinh 2t)\}$

   (b) Show that $\int_0^\infty t^2 e^{-4t} \sin 2t dt = \frac{11}{500}$

(OR)

4. Find the Laplace transform of the function $F(t) = \begin{cases} \sin \omega t & 0 < t < \frac{\pi}{\omega} \\ 0 & \frac{\pi}{\omega} < t < \frac{2\pi}{\omega} \end{cases}$

UNIT – III

5. (a) Find $L^{-1}\{\cot^{-1}(\frac{s+a}{b})\}$

   (b) Apply Convolution theorem to evaluate $L^{-1}\{\frac{16}{(s-2)(s+2)^2}\}$

(OR)

6. Using Laplace Transform, Solve $\frac{d^2x}{dt^2} - 4\frac{dx}{dt} - 12x = e^{3t} \; given \; x(0) = 1 \; and \; x^1(0) = -2$

UNIT – IV

7. Find a fourier series to represent $x - x^2 \; from \; x = -\pi \; to \; x = \pi$

(OR)

8. Find the fourier series expansion for $f(x)$, if $f(x) = \begin{cases} 2 & if \; -2 \le x \le 0 \\ x & if \quad 0 < x < 2 \end{cases}$

UNIT-V

9. (a) Form the Partial Differential Equation by eliminating the arbitrary constants $z = ax^3 + by^3$

   (b) Solve by the method of separation of variables $2xz_x - 3yz_y = 0$

(OR)

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

Q.P. Code: 917812 **SET - 2**

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

B. Tech. I Sem. (R15) Supplementary Examinations of May 2019

SUB: HUMAN VALUES AND PROFESSIONAL ETHICS (CE, ME)

Time : 3 Hours Max. Marks: 70

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

UNIT - I

1. Answer any SEVEN of the following 14M
   (i) What is the need to study of ethics
   (ii) Define self confidence.
   (iii) What is the civic virtue?
   (iv) Respect for person
   (v) Define integrity
   (vi) What is a 'patent'?
   (vii) What are the types of theories about morality?
   (viii)Define Risk
   (ix) Give IEEE codes of ethics
   (x) What is collective bargaining?

2. (a) Briefly discuss the topic of work ethics. 14M

   (OR)

   (b) Write a note on the following i) Respect for others ii) Concept of Self interest 14M

3. (a) What does the codes of ethics express? 14M

   (OR)

   (b) What are the characteristic qualities of good engineers? 14M

4. (a) What are the aspects in which engineering differs from standard experiments? 14M

   (OR)

   (b) Explain the purpose of industrial standards with suitable examples. 14M

5. (a) What are the aspects of logical security of the hardware in computer? 14M

   (OR)

   (b) Write a note on following 14M
   (i) Discusses the cases of whistle-blowing
   (ii)Types of IPR

Q.P. Code: 918012 | **SET - 2**

K.S.R.M. COLLEGE OF ENGINEERING (AUTONOMOUS), KADAPA
B. Tech. I Sem. (R15) Supplementary Examinations of May 2019
SUB: ENGINEERING DRAWING - I (CE & ME)

Time : 3 Hours | Max. Marks: 70

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

UNIT – I

1. A fixed point is 65 mm from a fixed straight line. Draw the locus of a point 'P' moving such a way that its distance from the fixed straight line is twice its distance from the fixed point. Name the curve. Draw a tangent and normal to the curve at any point on it. 14 M

(OR)

2. A circle of diameter 40 rolls outside on another circle of diameter 40 for one revolution. Draw the path traced by a point on the generating circle for one complete revolution. Name the curve. Draw a tangent and normal to the curve at any point on it. 14 M

UNIT – II

3. (a) Draw the projections of a line CD 50 mm long, parallel to HP and inclined to VP. The end C of the line is 10 mm in front of VP and D is 30 mm in front of VP. The line is 15 mm above HP. 07 M
   (b) The front view of a line inclined at 30^0 to the VP is 65 mm long. Draw the projections of the line when it is parallel to and 40 mm above HP. Its one end being 30 mm in front of the VP. 07 M

(**OR)**

4. The midpoint of straight line AB is 60 mm above HP and 40 in front of VP. The line measures 80 mm long and inclined at an angle of 30^0 to HP and 45^0 to VP. Draw the projections of the line and locate the traces. 14 M

UNIT – III

5. A circle of 50 mm diameter is resting on HP on end A of its diameter AC which is 30^0 inclined to HP while its TV is 45^0 inclined to VP. Draw it's projections. 14 M

(OR)

6. A hexagonal lamina has its one side in HP and its opposite parallel side is 25 mm above HP and in VP. Draw its projections. Take side of hexagon 30 mm long. 14 M

UNIT – IV

7. (a) Draw the projections of a Cone of diameter 40 and axis 70, with its apex on the ground and 40 from VP, and axis perpendicular to HP. 07 M
   (b) Draw the projections of a Tetrahedron of side 40, with base on HP, when one of its edges is parallel to and 10 mm in front of V.P. 07 M

(OR)

8. Draw the projections of a cube of 30 mm edge, resting in HP on one of its corners with a solid diagonal parallel to both HP & VP. 14 M

UNIT-V

9. A cone, diameter of base 60 and axis 40 long, is resting on its base on the ground .It is cut by a section plane such that its true shape is a) an equilateral triangle b) an isosceles triangle of base 30. Draw the sectional top view and true shape of the section. 14 M

(OR)

10. A pentagonal pyramid of side of base 30 and altitude 75 rests on one of the edges of the base on the ground with the base making an angle of 35^0 with the HP. The pyramid is cut by a cutting plane parallel to the HP and passing through the corner of the base farthest from the ground. Draw the sectional top view of the frustum of pyramid. 14 M

Q.P. Code: 918212 **SET - 2**

K.S.R.M. COLLEGE OF ENGINEERING (AUTONOMOUS), KADAPA
B. Tech. I Sem. (R15) Supplementary Examinations of May 2019

SUB: ENGLISH-I

Time : 3 Hours Max. Marks: 70

Answer any FIVE Questions.
All questions carry Equal Marks.

1.		What is the irony of the story "An Astrologer's Day"	14M
2.		What advice the poem "If" gives to the present generation.	14M
3.		Explain incidents which reveal Viswaraya's modesty and humility.	14M
4.		Explain Abdul Kalam's experiences during his visits to Jarkhand State. With reference to the essay "Building A New State.	14M
5.		Write a paragraph on any TWO of the following (i)The pen mightier than the sword (ii)Fortune favours the brave (iii)Better late than never	14M
6.	(a)	Write phonemic transcription of the following sentences. (i) Please be seated. (ii)) He is a brave man.	4M
	(b)	Write the meaning of any **FIVE** of the following using them in sentences of your Own. (i) run into (ii) break down (iii) called on (iv) give away (v) pessimist (vi) bureaucracy (vii) heed (viii)counsel	10M
7.		Answer any **FOURTEEN** of the following as directed. (i) Cows give milk. (change into passive voice) (ii) Poverty made him ill. (change into passive voice) (iii) His pocket has been stolen by them. (change into active voice) (iv) The injured player was being carried off the field. (change into active) (v) "Please take me to the officer", Said the visitor. (change into indirect speech) (vi) He said to his son, "Where are you going?". (change into indirect speech) (vii) He urged the boys to be quiet and listen to his words. (change into direct) (viii) He ordered the servant to get out of the house. (change into direct) (ix) Mohan is stronger than any other boy in the class. (change into positive) (x) madras is one of the biggest cities in India. (change into comparative) (xi) Very few countries in the world are as rich as America. (into superlative) (xii) His silence proves his guilt. (change into complex sentence) (xiii) I am certain that he has told a lie. (change into compound sentence) (xiv) He was tired and fell asleep. (change into simple sentence) (xv) He speaks English fluently. (change into negative sentence) (xvi) She does not know how to knit it. (change into affirmative sentence) (xvii) Mary lives with her aunt. (change into interrogative sentence)	14M

8. Answer any **FOURTEEN** of the following Correct the following sentences if necessary. 14M

(i) Nobody accept the responsibility.
(ii) No one among the players are going to write the exam.
(iii) Neither the Ministers nor the Chief Minister have attended the party.
(iv) The committee have decided to expel them.
(v) I have visited England last August.
(vi) Rat or cat run every day in the room.
(vii) Mohan repeated the advice again.
(viii)Prof. Suresh is teaching Soil Mechanics since two years.
(ix) He is writing since morning.
(x) I did not finish my work yet.
(xii) Mount Everest is the most highest peak in the world.
(xii) This photograph is the best of the two.
(xiii) He is senior than me by three years.
(xiv) Everybody, including the receptionist, were present for the meeting.
(xv) A box of eggs are on the table.
(xvi) Sachin Tendulkar marries with Anjali.
(xvii)Neither of his parents are Indian.

Q.P. Code: 918412 | **SET - 2**

K.S.R.M. COLLEGE OF ENGINEERING (AUTONOMOUS), KADAPA
B. Tech. I Sem. (R15) Supplementary Examinations of May 2019
SUB: ENGINEERING CHEMISTRY (CE & ME)

Time: 3 Hours | Max. Marks: 70

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

UNIT - I

1.	(a)	Explain zeolite method for the treatment of water.	8M
	(b)	Write short note on i) priming and foaming, ii) caustic embrittlement.	6M
		(OR)	
2.		Explain estimation of hardness by EDTA method in details.	14M

UNIT – II

3.	(a)	Differences between thermo plastics and thermosetting plastics.	8M
	(b)	What is polymerization? Explain addition polymerization with suitable examples.	6M
		(OR)	
4.		Write a brief note on preparations , properties and uses of silicone rubbers	14M

UNIT – III

5.	(a)	Explain corrosion control by cathodic protection technique.	14M
		(OR)	
6.	(a)	What is meant by rechargeable batteries?	7M
	(b)	Write short note on methanol-oxygen fuel cells	7M

UNIT – IV

7.		How metallurgical coke is manufactured by Otto-Hoffmann's by-product oven?	14M
		(OR)	
8.	(a)	Writhe short notes on a) Flash and Fire point b) Cloud & Pour point c) Viscosity	14M

UNIT-V

9.	(a)	Write a short note on fluorescence and phosphorescence.	7M
	(b)	What is green chemistry and its significations.	7M
		(OR)	
10.	(a)	Writ short note on Luminescent compounds and Solar cells	8M
	(b)	Write catalytic inhibitor and its applications	6M

Q.P. Code: 918612 | **SET - 2**

K.S.R.M. COLLEGE OF ENGINEERING (AUTONOMOUS), KADAPA
B. Tech. I Sem. (R15) Supplementary Examinations of May 2019
SUB: ENGINEERING PHYSICS (CE & ME)

Time: 3 Hours | Max. Marks: 70

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

UNIT - I

1.	(a)	Explain construction and working of He-Ne laser with neat diagram.	10M
	(b)	Write in detail about optical resonator	4M
		(OR)	
2.	(a)	Discuss the Fraunhofer diffraction at a single slit	10M
	(b)	A parallel beam of sodium light is normally incident on a grating having 4250 lines/cm and second order is observed at 30^0, calculate λ?	4M

UNIT – II

3.	(a)	Describe the powder method of determining lattice constant of a crystal structure with suitable diagram.	10M
	(b)	What are the Miller indices? Draw the planes for the following Miller indices (001), (111), (222).	4M
		(OR)	
4.	(a)	Discuss any three methods of detecting ultrasonics.	8M
	(b)	What are ultrasonics? What are its properties?	6M

UNIT – III

5.	(a)	Derive time independent Schrodinger wave equation	10M
	(b)	Calculate the wavelength associated with an electron raised to a potential of 1600 V.	4M
		(OR)	
6.	(a)	Derive an expression for conductivity of metals on the basis of Drude-Lorentz theory	10M
	(b)	Write the drawbacks of classical free electron theory?	4M

UNIT – IV

7.	(a)	Explain the terms diamagnetism, paramagnetism, ferromagnetism, anti ferromagnetism and ferri magnetism on the basis of magnetic dipoles of the atom.	10M
	(b)	Explain the origin of magnetic moment of the atomic cell.	4M
		(OR)	
8.	(a)	What is super conductivity? Explain type-I and type-II super conductors.	10M
	(b)	Calculate the critical current for a lead wire of 0.5 mm radius at 4.2 K. Given for lead $T_C = 7.18$ K, $H_0 = 6.5\times10^4$ Am^{-1}.	4M

UNIT-V

9.	(a)	What is p-n junction diode? How is it formed? Draw the energy band diagram of an unbiased p-n junction diode?	8M
	(b)	Explain its characteristics under forward and reverse bias conditions with circuit diagrams.	6M
		(OR)	
10.	(a)	Explain the synthesis of nano materials by sol-gel method.	10M
	(b)	Discuss various physical properties of nano materials	4M

Q.P. Code: 918812 | **SET - 2**

K.S.R.M. COLLEGE OF ENGINEERING (AUTONOMOUS), KADAPA
B. Tech. I Sem. (R15) Supplementary Examinations of May 2019
SUB: MATHEMATICS-I (Common to all Branches)

Time : 3 Hours | Max. Marks: 70

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

UNIT - I

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

   (b) Find the orthogonal trajectories of the family of the curves $r^n=a^n\cos n\theta$, where 'a' is a parameter. 7M

(OR)

2. (a) Solve $2xydy-\left(x^2+y^2+1\right)dx=0$ 7M

   (b) A body kept in air with temperature 25^0c, cools from 140^0c to 80^0c in 20 minutes. Find when the body cools down to 35^0c. 7M

UNIT – II

3. (a) Solve $\left(D^2-4\right)y=2\cos^2 x$. 7M

   (b) Solve $\left(D^3+2D^2+D\right)y=e^{2x}+x^2+x$. 7M

(OR)

4. (a) Solve $\left(D^2-2D\right)y=e^x+\sin 3x\cos 2x$. 7M

   (b) Solve $\left(D^2+1\right)y=\cos x$ by the method of variation of parameters. 7M

UNIT – III

5. (a) If $x+y+z=u,\ y+z=uv,\ z=uvw$ then evaluate $\frac{\partial(x,y,z)}{\partial(u,v,w)}$. 7M

   (b) Prove that $u=\frac{x+y}{1-xy}, v=\tan^{-x}+\tan^{-}y$ are functionally dependence and hence find the relation between them. 7M

(OR)

6. (a) Find the maximum and minimum values of $f(x,y)=x^3+3xy^2-3x^2-3y^2+4$ 7M

   (b) Find the shortest distance from origin to the surface $xyz^2=2$ 7M

UNIT – IV

7. (a) Find the radius of curvature at a point $(a\cos\theta, b\sin\theta)$ on the ellipse $\frac{x^2}{a^2}+\frac{y^2}{b^2}=1$ 7M

   (b) Find the equation of the circle of curvature at the point (0,1) on the curve $y=x^3+2x^2+x+1$ 7M

(OR)

8. Trace the curve $r = a\sin 2\theta$ 14M

UNIT-V

9. (a) Evaluate $\int_0^a \int_0^{\sqrt{a^2-x^2}} y\sqrt{x^2+y^2}\,dydx$ by transforming into polar coordinates 7M

(b) Evaluate $\int_0^1 \int_0^{\sqrt{1-x^2}} \int_0^{\sqrt{1-x^2-y^2}} xyz\,dzdydx$ 7M

(OR)

10. By applying change of order of integration, evaluate $\int_0^a \int_{x^2/a}^{2a-x} xy^2\,dydx$. 14M