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

K.S.R.M. COLLEGE OF ENGINEERING (AUTONOMOUS), KADAPA
B. Tech. I Sem. (R15) Supplementary Examinations of September – 2021
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 is equitable use of resources? And explain in detail.	7M
	(b)	Discuss in detail of about scope and importance of environmental studies.	7M
		(OR)	
2.	(a)	How do you make public awareness on control of environment?	7M
	(b)	What do you mean by over exploitation? How can over exploitation of plants be prevented?	7M
		UNIT – II	
3.	(a)	What are the structural and functional components of an ecosystem? And discuss in detail.	7M
	(b)	Elaborate the structure and function of forest ecosystem.	7M
		(OR)	
4.	(a)	How do producers consumers and decomposers interact in an ecosystem?	7M
	(b)	What are ecological pyramid and its types? And what are its limitations.	7M
		UNIT – III	
5.	(a)	What are the different methods of conserving biodiversity?	7M
	(b)	What is the main difference between consumptive use and productive use?	7M
		(OR)	
6.	(a)	What is meant by biodiversity conservation? What do you understand by biodiversity?	7M
	(b)	What are the endemic species? How are endemic species important?	7M
		UNIT – IV	
7.	(a)	What is meant by noise? What are the control measures of noise pollution?	7M
	(b)	Elaborate the causes of urban and industrial waste?	7M
		(OR)	
8.	(a)	What are the causes effects and control measures of soil pollution?	7M
	(b)	Define Air pollution and discuss its control measures.	7M
		UNIT-V	
9.	(a)	What are the consequences of unsustainable and sustainable living?	7M
	(b)	Write about water shed management leading to water conservation.	7M
		(OR)	
10.	(a)	What are the causes of unsustainable development?	5M
	(b)	Write short notes on: i) Value Education ii) Human Rights iii) Urbanisation	9M

Q.P. Code: 917212 | **SET - 2**

K.S.R.M. COLLEGE OF ENGINEERING (AUTONOMOUS), KADAPA
B. Tech. I Sem. (R15) Supplementary Examinations of September – 2021
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)	What is a Computer? Explain hardware and software components of computer.	8M
	(b)	Draw the flow chart to read three subjects marks of the student, find grade of the student.	6M
		(OR)	
2.	(a)	Explain about standard data types in C.	6M
	(b)	Explain different types of constants in C.	8M
		UNIT – II	
3.	(a)	Explain Different types of expressions in C.	10M
	(b)	Write C program to calculate coefficient and reminder of two numbers	4M
		(OR)	
4.	(a)	Explain nested if statement with example program.	7M
	(b)	Explain two way selection statement. Write a c program to find given number is even or odd.	7M
		UNIT – III	
5.	(a)	Explain the concept of nested loops with example.	7M
	(b)	Write a C program to print even numbers between given range.	7M
		(OR)	
6.	(a)	Explain Scope of the variables.	7M
	(b)	Define Recursive function. Write a C program to find factorial of a given number.	7M
		UNIT – IV	
7.	(a)	Write a C program to sort an array elements in ascending order using bubble sort.	7M
	(b)	Define array. Explain declaration and initialization of on dimensional array.	7M
		(OR)	
8.	(a)	Define a string. Explain array of strings.	7M
	(b)	Explain string input and output functions with examples	7M
		UNIT-V	
9.	(a)	Explain enumerated data type in C.	7M
	(b)	Discuss about nested structures.	7M
		(OR)	
10.	(a)	Explain the following: Defining, opening, and closing a file.	7M
	(b)	Explain about shift operators in C.	7M

Q.P. Code: 917412

SET - 2

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

B. Tech. I Sem. (R15) Supplementary Examinations of September – 2021

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. Construct a Parabola with the distance of focus from the directrix as 50mm.Also draw tangent and normal to the curve at a point of 40mm from the directrix.? **14M**

(OR)

2. **(a)** Construct a cycloid given the generating circle as 40mm. Draw tangent and normal to the curve on it at 30mm from the directrix line? **8M**

(b) Draw the involute of a square of side 20mm and mention the dimensions? **6M**

UNIT – II

3. **(a)** A line AB is 40mm long inclined at 30 deg to VP and parallel to HP. Also the line is 20mm infront of VP. Draw its projections? **7M**

(b) The top view of a 75mm long line is measured 55mm, the line is in VP. Its one end being 25mm above HP. Draw its projections? **7M**

(OR)

4. A line AB of 90 mm long is inclined at 45 deg to HP and its TV makes an angle 60 deg with xy. The end A is on HP and 12 mm infront of VP. Draw its projections and find its inclination with VP? **14M**

UNIT – III

5. Draw the projections of a regular Hexagon of 25mm side having one of its sides in HP and inclined at 60 deg to VP. Its surface making an angle of 45 deg with HP? **14M**

(OR)

6. Draw the projections of a cylinder of 40mm diameter and axis of 60mm long. It is resting on HP with its axis inclined at 40 deg to VP and parallel to the ground.? **14M**

UNIT – IV

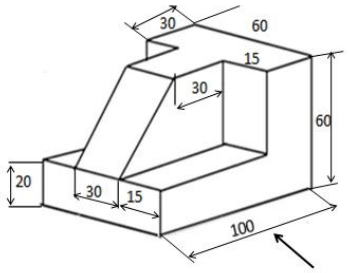
7. A cube of 40mm edge length is resting on HP on one of its edges, with a face parallel to VP. One of the faces containing the resting edge is inclined at 30 deg to HP. The solid is cut by a section plane parallel to HP and 10mm above the axis. Draw the projections of the retaining solid? **14M**

(OR)

8. A hexagonal pyramid with side of base 30mm and axis 60mm long is resting on HP with an edge of the base parallel to VP. It is cut by a section plane perpendicular to VP and inclined at 35 deg to HP. The section plane is passing through a point on the axis at 40mm from the base. Draw the sectional view of the cut Pyramid? **14M**

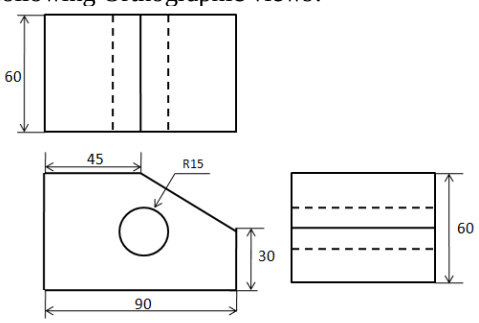
UNIT-V

9. Draw (a) Front view, (b) Top view and (c) Side view of the following Isometric View? **14M**



(OR)

10. Draw Isometric view for the following Orthographic views? **14M**



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

K.S.R.M. COLLEGE OF ENGINEERING (AUTONOMOUS), KADAPA
B. Tech. I Sem. (R15) Supplementary Examinations of September – 2021
SUB: Mathematics-II (Common to 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) Show that curl ($r^n\bar{r}$)=0 7M

   (b) Show that the vector $\left(x^2-yz\right)\bar{i}+\left(y^2-zx\right)\bar{j}+\left(z^2-xy\right)\bar{k}$ is irrotational and find its scalar potential. 7M

(OR)

2. Verify Green's theorem in the plane for $\int_C \left(x^2-xy^3\right)dx+\left(y^2-2xy\right)dy$, where C is a square with vertices (0,0), (2,0), (2,2), (0,2). 14M

UNIT – II

3. (a) Find the Laplace transform of $t^2\sin at$ 7M

   (b) Evaluate $\int_0^\infty e^{-t}\left(\frac{\cos at-\cos bt}{t}\right)dt$ 7M

(OR)

4. Find the Laplace transform of $f(t)=\begin{cases} E\sin wt, 0\prec t\prec \frac{\pi}{w} \\ 0, \frac{\pi}{w}\prec t\prec \frac{2\pi}{w} \end{cases}$ 14M

UNIT – III

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

   (b) Evaluate $L^{-1}\left[\frac{1}{\left(s^2+1\right)\left(s^2+9\right)}\right]$ 7M

(OR)

6. Solve $\frac{d^2x}{dt^2}+9x=\cos 2t$, if $x(0)=1, x\left(\frac{\pi}{2}\right)=-1$ 14M

UNIT – IV

7. Expand $f(x)=e^{-x}$ as a Fourier series in the interval (-1,1) 14M

(OR)

8. (a) Find the half-range sine series of $f(x)$ =1 on $[0,l]$. 7M

   (b) Find the Fourier series expansion of $f(x)=2x-x^2$ in (0,3) and hence deduce that $\frac{1}{1^2}-\frac{1}{2^2}+\frac{1}{3^2}-\frac{1}{4^2}+----\infty=\frac{\pi^2}{12}$. 7M

UNIT-V

9. (a) Eliminate arbitary constants from $z=\left(x-a\right)^2+\left(y-b\right)^2$ to form the partial differential equation. 7M

   (b) Solve by the method of separation of variables $2xz_x-3yz_y=0$ 7M

(OR)

10. A tightly stretched string with fixed end points $x=0$ and $x=l$ is initially at rest in its equilibrium position. If it is set to vibrate by giving each of its points a velocity $\lambda x\left(l-x\right)$, find the displacement of the string at any distance x from one end at any time t. 14M

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

K.S.R.M. COLLEGE OF ENGINEERING (AUTONOMOUS), KADAPA
B. Tech. I Sem. (R15) Supplementary Examinations of September – 2021
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.	(a)	What is the need of engineering ethics and what are the responsibilities of engineers to the society?	7M
	(b)	Write a note on civic virtue.	7M

(OR)

2.	(a)	Describe the levels of moral development suggested by Kohlberg.	7M
	(b)	Differentiate between profession and professionalism.	7M

UNIT – II

3.	What are the aspects of engineering that make it appropriate to view engineering projects as experiments?	14M

(OR)

4.	Explain the importance of code of ethics. Also list its limitations.	14M

UNIT – III

5.	Discuss various types of risks with examples.	14M

(OR)

6.	Describe the Government Regulator's Approach to Risk.	14M

UNIT – IV

7.	What is meant by collegiality? Discuss various techniques for achieving collegiality.	14M

(OR)

8.	Discuss in detail about the Intellectual Property Rights.	14M

UNIT-V

9.	What do you understand by environmental ethics? Explain.	14M

(OR)

10.	Discuss the role of technologies in weapon development.	14M

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

K.S.R.M. COLLEGE OF ENGINEERING (AUTONOMOUS), KADAPA
B. Tech. I Sem. (R15) Supplementary Examinations of September – 2021
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. Draw the involute of a regular pentagonal of side 20mm. Draw a tangent and normal to the curve at a distance of 100mm from the centre of the hexagon. **14M**

(OR)

2. Construct an ellipse, with distance of the focus from the directrix as 50mm and eccentricity as 3/4. Also draw the tangent and normal to the curve at a point 40 mm from the focus. **14M**

UNIT – II

3. A line AB, 65mm long, has its end A 20mm above HP and 25mm in front of VP. End B is 40mm above HP and 65mm in front of VP. Draw the projections of AB. Find its inclinations with HP and VP. **14M**

(OR)

4. Two points A and B are on HP; the point A being 30mm in front of VP. While B is 45mm behind VP. The line joining their top views makes an angle of 45^0 with *xy*. Find the horizontal distance between two points. **14M**

UNIT – III

5. A hexagonal lamina of 40mm side has a circular hole of 40mm diameter in its center. The plane stands on one of its sides on HP with its plane perpendicular to VP and 45^0 inclined to HP. Draw the projections. **14M**

(OR)

6. A regular pentagonal lamina of 30mm sides has one edge in HP and inclined at angle of 30^0 to VP. Draw its projections when its surface is inclined at 45^0 to HP **14M**

UNIT – IV

7. A hexagonal prism, side of base 25mm and axis 50mm long, rests with one of the edges of its base on HP and its axis is inclined at 30^0 to HP and parallel to VP. Draw its projections. **14M**

(OR)

8. A pentagonal pyramid, side of base 25mm and axis 60mm long, lies with one of its triangular faces on HP, such that the axis is parallel to VP. Draw its projections. **14M**

UNIT-V

9. A cone of base 40mm diameter and 60mm long rests with its base on HP. It is cut by a section plane perpendicular to VP, parallel to one of the end generators and passing through a point on the axis 25mm from the apex. Draw sectional top view and true shape of the section. **14M**

(OR)

10. A cube of 50 mm edge is resting on H.P. on one of its faces, with a vertical face inclined at 40^0 to V.P. It is cut by a section plane, perpendicular to V.P. and inclined at 45^0 to H.P. The section plane intersects the axis at 45 mm from the base. Draw the projections. **14M**

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

K.S.R.M. COLLEGE OF ENGINEERING (AUTONOMOUS), KADAPA
B. Tech. I Sem. (R15) Supplementary Examinations of September – 2021
SUB: English - I (Common to all Branches)

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

Answer any FIVE Questions
All questions carry Equal Marks.

1. Write an essay on R.K.Narayan's ***An Astrologer's Day***. **14 M**

2. Describe how Dr. APJ Abdul Kalam planned to transform and develop the state of Jharkhand. **14M**

3. (i) 'Please grant me leave for two days', the clerk said to the manager. (change to **indirect** speech) **14M**
(ii) "Shall I succeed in my examination?' (change to **indirect** speech)
(iii)'Take this dog out." (change to **indirect** speech)
(iv) Raavan declared that he preferred death to dishonour. (change to **direct** speech)
(v) He said that he had to leave then. (change to **direct** speech)
(vi) He told us that we mustn't smoke in the bus. (change to **direct** speech)
(vii) He asked me why I had not eaten anything. (change to **direct** speech)

4. "Mokshagundam Visveswaraya is the father of technologically Independent India". Explain. **14 M**

5. Write the symbols of Monophthongs. Give at least two examples for each of the symbols mentioned. **14M**

6. What moral values Rudyard Kipling advocates in his poem ***If ?*** **14M**

7. Write the meanings of the following idioms and use them in your own words. **14M**
(i) Blessing in disguise (ii) Beat around the bush (iii) Add insult to injury
(iv) Bolt from the blue (v) Bite the dust (vi) Break the ice (vii) Spill the beans

8. **Read the following passage and answer the questions:** **14M**

There was a frog that lived in a shallow well. "Look how well off I am here! "He told a big turtle from the Eastern Ocean. "I can hop along the coping of the well when I go out, and rest by a crevice in the bricks on my return. I can wallow to my heart's content with only my head above water, or stroll ankle deep through soft mud. No crabs or tadpoles can compare with me. I am master of the water and lord of this shallow well, what more can a fellow ask? Why don't you come here more often to have a good time? "

Before the turtle from the Eastern Ocean could get his left foot into the well, however, he caught his right claw on something. So he halted and stepped back then began to describe the ocean to the frog. "It's more than a thousand miles across and more than ten thousand feet deep. In ancient times there were floods nine years out often yet the water in the ocean never increased. And later there were droughts seven years out of eight yet the water in the ocean never grew less. It has remained quite constant throughout the ages. That is why I like to live in the Eastern Ocean." Then the frog in the shallow well was silent and felt a little abashed.

(i) Give a suitable title to the passage
(a) The frog in the well. (b) The frog (c) The well
(d) Shallow well (e) None of these.

(ii) What do you understand by the phrase-"I can wallow to my heart's content'?
(a) Rely on my heart's beating (b) Singing a song (c) Listen to my heart
(d) Rest on his assets. (e)Not mentioned in the passage.

(iii) Where did the big turtle come from?

(a) The Northern Ocean (b) The Southern Ocean (c) The Eastern Ocean
(d) The Western Ocean (e) None of these

(iv) What is the meaning of 'Crevice' in the passage?

(a) Cleft (b) Vex (c) Ditch (d) Hill (e) Mountain

(v) What did the turtle tell the frog about 'The Ocean'?

(a) It's more than a hundred miles across and more than eight thousand feet deep.
(b) It's more than a thousand miles across and more than ten thousand feet deep.
(c) The Ocean is only twelve thousand feet deep.
(d) The ocean is only twenty thousand feet deep.
(e) Not mentioned in the passage.

(vi) Which of the following statement (S) is/are true in context of the passage?

(a) In ancient times there were floods nine years out of ten.
(b) (b)There were droughts seven years out of eight.
(c) A frog lived in a deep well.
(d) Both 1&2
(e) The frog lived in the Western Ocean.

(vii) Which of the following statement (s) is/are not true in context of passage?

(a) The frog lived in a shallow well.
(b) The big turtle did not live in the eastern ocean.
(c) In ancient times, there were floods nine years out of ten.
(d) (d) All of these.

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

K.S.R.M. COLLEGE OF ENGINEERING (AUTONOMOUS), KADAPA
B. Tech. I Sem. (R15) Supplementary Examinations of September – 2021
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 the chemical reactions take place in the determination of dissolved oxygen	**7M**
	(b)	What is break- point of chlorine? State its significance.	**7M**
		(OR)	
2.	**(a)**	Explain about Ion-Exchange process with the neat diagram.	**8M**
	(b)	Write notes on scale and sludge.	**6M**

UNIT – II

3.	**(a)**	Define addition polymerization? Explain the free radical polymerization reaction with the mechanism	**7M**
	(b)	What is natural rubber? why natural rubber need vulcanization?	**7M**
		(OR)	
4.	**(a)**	Write a short note on chain growth and step growth polymerization	**7M**
	(b)	Mention the Preparation, properties of Polyphospazins.	**7M**

UNIT – III

5.	**(a)**	Write in detail about Concentration cells.	**7M**
	(b)	Write a note on evolution of hydrogen type of corrosion with mechanism	**7M**
		(OR)	
6.	**(a)**	Explain various factors influencing corrosion of metal.	**10M**
	(b)	Define corrosion and explain Pilling – Bed worth rule.	**4M**

UNIT – IV

7.	**(a)**	Define calorific value & determine the calorific value of solid fuels by bomb Calorimetry.	**8M**
	(b)	Define Gross Calorific Value (GCV), Net Calorific Value (NCV) & Relationship between GCV & NCV.	**6M**
		(OR)	
8.	**(a)**	Write a short notes on i) Flash point and fire point ii) Cloud point and Pour point	**7M**
	(b)	Explain the mechanism of Boundary line lubrication	**7M**

UNIT-V

9.	**(a)**	Write short notes on fluorescence and phosphorescence.	**7M**
	(b)	Write a short note on (i) Catalytic promoters (ii) Catalytic poisons	**7M**
		(OR)	
10.	**(a)**	(i) Laws of Photochemistry (ii) solar cells	**7M**
	(b)	Discuss the Significance of green chemistry for sustainable development	**7M**

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

K.S.R.M. COLLEGE OF ENGINEERING (AUTONOMOUS), KADAPA
B. Tech. I Sem. (R15) Supplementary Examinations of September – 2021
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)**	What is optical fiber and explain working principle of optical fiber?	4M
	(b)	Explain the construction and working of He-Ne laser with the help of energy level diagram?	10M
		(OR)	
2.	**(a)**	Obtain an expression for numerical aperture and acceptance angle of an optical fiber?	10M
	(b)	Mention differences between interference and diffraction?	4M

UNIT – II

3.	**(a)**	Describe the powder method of determining lattice constant of a crystal structure with suitable diagram?	10M
	(b)	What are properties of ultrasonics?	4M
		(OR)	
4.	**(a)**	Explain the role of ultrasonic waves in non-destructive testing?	8M
	(b)	Derive the expression for interplanar spacing between two adjacent planes of miller indices (hkl) in a cubic lattice of edge length 'a'.	6M

UNIT – III

5.	**(a)**	State and explain de Broglie hypothesis of matter waves	4M
	(b)	Describe the electrical conductivity in metals using classical free electron theory?	10M
		(OR)	
6.	**(a)**	Describe the behavior of a particle in a one-dimensional infinite potential well in terms of its eigen values and functions?	10M
	(b)	What are advantages of Quantum free electron theory?	4M

UNIT – IV

7.	**(a)**	Explain the terms diamagnetism, paramagnetism, ferromagnetism, anti-ferromagnetism, and ferrimagnetism on the basis of magnetic dipoles of the atom?	10M
	(b)	What are the applications of superconductors?	4M
		(OR)	
8.	**(a)**	Describe BCS theory?	10M
	(b)	What are the applications of soft and hard magnetic materials?	4M

UNIT-V

9.	**(a)**	Derive the expression for intrinsic carrier concentration, conductivity, and Fermi energy level for intrinsic semiconductor?	10M
	(b)	Explain optical and thermal properties of nanomaterials?	4M
		(OR)	
10.	**(a)**	Describe the synthesis of nanomaterials by chemical vapour deposition method?	10M
	(b)	The mobility and resistivity of a specimen is 0.4116 m^2/Vs and 8.93×10^{-3} Ω-m respectively. Find Hall coefficient (R_H) of specimen?	4M

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

K.S.R.M. COLLEGE OF ENGINEERING (AUTONOMOUS), KADAPA
B. Tech. I Sem. (R15) Supplementary Examinations of September – 2021
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 $(1+y^2)dx = (\tan^{-1} y - x)dy$ **7 M**

(b) Solve $(5x^4 + 3x^2y^2 - 2xy^3)dx + (2x^3y - 3x^2y^2 - 5y^4)dy = 0$ **7 M**

(OR)

2. (a) Find the orthogonal trajectory of the cardioids $r = a(1-\cos\theta)$ **7 M**

(b) If the temperature of the air is 30^0 C and the substance cools from 100^0 C to 70^0 C in 15 minutes. Find when the temperature will be 40^0 C. **7 M**

UNIT – II

3. (a) Find the general solution of $D^2y - 2Dy + y = xe^x \sin x$ **10 M**

(b) Find the general solution of $(D^2 + 4D + 3)y = 0$ **4 M**

(OR)

4. (a) Apply the method of variation of parameters to solve $D^2y - 2Dy + y = e^x \log x$ **10 M**

(b) Find the complementary function of $D^2y + 4y = 4\sec^2 2x$ **4 M**

UNIT – III

5. (a) Using Maclaurin's series, expand Tanx upto terms containing x^5 **7 M**

(b) If $u = x^2 - y^2$, $v = 2xy$ and $x = r\cos\theta, y = r\sin\theta$ then find $\dfrac{\partial(u,v)}{\partial(r,\theta)}$ **7 M**

(OR)

6. (a) Show that the function $f(x,y) = x3 + y3 - 63(x+y) + 12xy$ is maximum at (-7,-7) and minimum at (3, 3) **7 M**

(b) Find the minimum value of $x^2 + y^2 + z^2$, given that $xyz = a^3$ **7 M**

UNIT – IV

7. (a) Find the radius of curvature of $x = \log t, y = \dfrac{1}{2}(t + t^{-1})$ at the point $(a, 0)$ **7 M**

(b) Find the circle of curvature at (0, 0) for parabola $x + y = x^2 + y^2 + x^3$ **7 M**

(OR)

8. Trace the curve $y^2(x-a) = x^2(x+a)$ **14 M**

UNIT-V

9. Change the order of integration and hence evaluate $\int_0^{4a} \int_{\frac{x^2}{4a}}^{2\sqrt{ax}} dydx$ **14 M**

(OR)

10. **Evaluate** $\int_0^{\log 2} \int_0^{x} \int_0^{x+\log y} e^{x+y+z} dz\, dy\, dx$ **14 M**