Ref No:

Sri Krishna Institute of Technology, Bangalore



COURSE PLAN

Academic Year 2019-2020

Program:	B E – Civil engineering					
Semester :	2					
Course Code:	18CIV24					
Course Title:	Elements of Civil Engineering and Mechanics					
Credit / L-T-P:	3 / 3-0-0					
Total Contact Hours:	40					
Course Plan Author:	RAMYA B/YESHASHWINI R V/ SHIVASHANKAR R					

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Odd / Even semester	19

A. COURSE INFORMATION

1. Course Overview

Degree:	BE	Program:	CIVIL
Semester:	2019/1st	Academic Year:	2019-20
Course Title:	Elements of civil engineering and mechanics	Course Code:	18CIV14
Credit / L-T-P:	03	SEE Duration:	180 Minutes
Total Contact Hours:	40	SEE Marks:	60 Marks
CIA Marks:	40	Assignment	1 / Module
Course Plan Author:	RAMYA B/YESHASHWINI R V/ SHIVASHANKAR R	Sign	Dt:
Checked By:		Sign	Dt:
CO Targets	BE	SEE Target:	CIVIL

Note: Define CIA and SEE % targets based on previous performance.

2. Course Content

Content / Syllabus of the course as prescribed by University or designed by institute.

Mod	Content	Teaching Hours	Blooms Learning
ule			Levels
1	Introduction to Civil Engineering Scope of different fields of Civil Engineering – Surveying, Building Materials, Construction Technology, Geotechnical Engineering, Structural Engineering, Hydraulics, WaterResources and Irrigation Engineering, Transportation Engineering, Environmental Engineering.1Infrastructure: Types of infrastructure, Role of Civil Engineer in theInfrastructural Development, Effect of the infrastructural facilities onsocio- economic development of a country. Introduction to Engineering Mechanics: Basic idealizations – Particle, Continuum and Rigid body; Newton's lawsBForce and its characteristics, types of forces-Gravity, Lateral and its distribution on surfaces, Classification of force systems, Principle of physical independence, superposition, transmissibility of forces, , Introduction to SI units.Couple, Moment of a couple, Characteristics of couple, Moment of a force, Equivalent force – Couple system; Numerical problems on moment of forces and couples, on equivalent force – couple system.	8	L3
2	Concepts: Resultants and Equilibrium Composition of forces – Definition of Resultant; Composition of coplanar -concurrent force system, Parallelogram Law of forces, Principle of resolved parts; Numerical problems on composition of coplanar concurrent force systems. Equilibrium of forces – Definition of Equilibrant; Conditions of static equilibrium for different force systems, Lami's theorem; Numerical problems on equilibrium of coplanar – concurrent and non-concurrent force systems. Application- Static Friction in rigid bodies in contact Types of friction, Laws of static friction, Limiting friction, Angle of friction, angle of repose; Impending motion on horizontal and inclined planes;Numerical Problems on single and two blocks on inclined planes	8	L3
3	Support Reaction in beams Types of Loads and Supports, statically determinate beams, Numerical problems onsupport reactions for statically determinate beams with Point load (Normal and inclined) and uniformly distributed	8	L3

	and uniformly varying loads and Moments. Types of trusses, analysis of statically determinate trusses using method of joints and method of section		
4	Introduction to the concept, centroid of line and area, centroid of basic geometrical figures, computing centroid for– T, L, I, Z and full/quadrant circular sections and their built up sections. Numerical problems Introduction to the concept, Radius of gyration, Parallel axis theorem, Perpendicular axis theorem, Moment of Inertia of basic planar figures, computing moment of Inertia for – T, L, I, Z and full/quadrant circular sections and their built up sections. Numerical problems	8	L3
5	Concepts and Applications Definitions – Displacement – Average velocity – Instantaneous velocity – Speed – Acceleration – Average acceleration – Variable acceleration – Acceleration due to gravity – Newton's Laws of Motion. D' Alembert's principle and its application in plane motion and connected bodies including pulleys	8	L3
-	Total		

3. Course Material

Books & other material as recommended by university (A, B) and additional resources used by course teacher (C).

1. Understanding: Concept simulation / video ; one per concept ; to understand the concepts ; 15 – 30 minutes

2. Design: Simulation and design tools used – software tools used ; Free / open source

3. Research: Recent developments on the concepts – publications in journals; conferences etc.

Modul	Details	Chapters	Availability
es		in book	
Α	Text books (Title, Authors, Edition, Publisher, Year.)	-	-
1, 2, 3,	Elements of civil engineering and mechanics by M.N.Shesha Prakash	3, 4	In Lib / In Dept
4, 5	and Ganesh, 3 rd Revised edition		
1,2,3,4	Elements of civil engineering and mechanics by S,S, Bhavikatti , New	2, 4	In Lib⁄ In dept
	Age Internqtional Publisher,New Delhi,4th edition		
В	Reference books (Title, Authors, Edition, Publisher, Year.)	-	-
1, 2	Engineering Mechanics by D.H.Young and J.V.Rao,TATA McGraw Hill Book Company,New Delhi	2,4	Not Available
3, 4, 5	Elements of civil engineering and mechanics by S,S, Bhavikatti , New		
	Age Internqtional Publisher,New Delhi,4th edition		
С	Concept Videos or Simulation for Understanding	-	-
C1			
C2			
C3			
C4			
C5			
D	Software Tools for Design	-	-
Е	Recent Developments for Research	-	-
F	Others (Web, Video, Simulation, Notes etc.)	-	-
1			

4. Course Prerequisites

Refer to GL01. If prerequisites are not taught earlier, GAP in curriculum needs to be addressed. Include in Remarks and implement in B.5.

Mod	Course	Course Name	Topic / Description		Sem	Remarks	Blooms
ules	Code						Level
1	18CIV14	Elements of	1.Knowledge of Mathe	matics	1		L3
		civil	2.Knowledge of Physics				
		engineering					
		and mechanics					

Students must have learnt the following Courses / Topics with described Content

5. Content for Placement, Profession, HE and GATE

The content is not included in this course, but required to meet industry & profession requirements and help students for Placement, GATE, Higher Education, Entrepreneurship, etc. Identifying Area / Content requires experts consultation in the area.

Topics included are like, a. Advanced Topics, b. Recent Developments, c. Certificate Courses, d. Course Projects, e. New Software Tools, f. GATE Topics, g. NPTEL Videos, h. Swayam videos etc.

Mod	Topic / Description	Area	Remarks	Blooms
ules				Level

B. OBE PARAMETERS

1. Course Outcomes

Expected learning outcomes of the course, which will be mapped to POs.

Mod	Course	Course Outcome	Teach. Hours	Instr Method	Assessme	Blooms'
ules	Code.#	At the end of the course, student			nt	Level
		should be able to			Method	
1	18CIV14.1	Students should be able to	2	Scope of civil	BB,ppt	C.I.E,Unit
		describe the scope of various fields		engineering		test,Assign
		of civil engineering	<u> </u>			ment
1	18CIV14.2	Students should be able to	6	Resolution of	BB	C.I.E,UNIt
		and moment of forces		Forces		test,Assign
2	1801/142	Students should be able to	1	Resultant of	BB Tutoria	CLEUnit
2	1001114.5	Calculate the resultant of force	4	Concurrent		test.Assian
		system subjected to various load		forces	-	ment
2	18CIV14.4	Students should be able to Apply	3	Friction and	BB	C.I.E,Unit
		laws of friction and types of friction		Equilibrium		test,Assign
						ment
3	18CIV14.5	Students should be able to	3	Resolving of	BB,Tutoria	C.I.E,Unit
		compute the reactive force that		Support	l	test,Assign
		develop as result of external load		Reaction		ment
3	18CIV14.6	Students should be able to	5	Analysis of	BB	C.I.E,Unit
		calculate the trusses by method of		trusses		test,Assign
1	1801/147	Students should be able to	1	Location of	BBTutoria	CIEUnit
4	1001114.7	determine centroid of built up	4	Centroid	I I I I I I I I I I I I I I I I I I I	test Assian
		section		Centrola	L	ment
4	18CIV14.8	Students should be able to	4	Determination	BB,Tutoria	C.I.E,Unit
		calculate M.I of full/quadrant		of Moment of	l	test,Assign
		circular section		Inertia		ment
5	18CIV14.9	Students should be able to	6	kinematics	BB	C.I.E,Unit

		illustrate relationship between motion of bodies				test,Assign ment
5	18CIV14.10	Students should be able to describe relationship between plane motion and connected bodies	2	kinetics	BB	C.I.E,Unit test,Assign ment
-	-	Total	50	-	-	L2-L4

2. Course Applications

Write 1 or 2 applications per CO.

Students should be able to employ / apply the course learnings to ...

Mod	Application Area	CO	Level
ules	Compiled from Module Applications.		
1	Basic fields of civil engineering , Force system and resolution of forces	CO1	L2
2	Equilibrium forces and friction in rigid body	CO2	L3
3	Support reaction and forces acting on trusses	CO3	L3
4	Centroid and moment of inertia	CO4	L3
5	Concept of kinematics and kinetics	CO5	L3

3. Articulation Matrix

CO – PO Mapping with mapping level for each CO-PO pair, with course average attainment.

-	-	Course Outcomes	Program Outcomes -										-					
Mod	CO.#	At the end of the course	PO	PO	PO	PO	PO	PO	PO	PO	PO	PO	PO	PO	PS	PS	PS	Lev
ules		student should be able to	1	2	3	4	5	6	7	8	9	10	11	12	O1	02	03	el
1																		
2																		
3																		
4																		
5																		
-	15EE662.	Average																-
-	PO, PSO	1.Engineering Knowledge; 2.Prob	lem	Ar	naly	sis;	<u>3.</u>	Des	ign	/	Dei	velo	pm	ent	of	Sc	luti	ons;
		4.Conduct Investigations of Comp	lex	Prol	bler	ns;	5.M	lode	ern	Τοο	l Us	sage	e; 6.	The	e En	ngine	eer	and
		Society; 7.Environment and Si	usto	aina	bilit	ty;	8.E	thic	CS;	9.li	ndiv	vidu	al	an	d	Теа	тw	ork;
		10.Communication; 11.Project N	Man	age	eme	ent	ar	nd	Fir	nan	ce;	12	Life	e-lo	ng	Le	earr	ning;
		S1.Software Engineering; S2.Data E	Base	e Mo	ana	iger	nen	nt; S	3.W	eb l	Des	ign						-

4. Curricular Gap and Content

Topics & contents not covered (from A.4), but essential for the course to address POs and PSOs.

Mod	Gap Topic	Actions Planned	Schedule Planned	Resources Person	PO Mapping
ules					
1		Seminar	2 nd week / date	Dr XYZ, Inst	List from B4 above
2		Seminar	3 rd Week		

C. COURSE ASSESSMENT

1. Course Coverage

Assessment of learning outcomes for Internal and end semester evaluation.

Mod		Т	itle		Teach.	No. of question in Exam				CO	Levels		
ules					Hours	CIA-1	CIA-2	CIA-3	Asg	Extra	SEE		
										Asg			
1	Introduction	to	Civil	Engineering	8	2	-	-	1	1	2	CO1	L2,L3

	&Engineering Mechanics									
2	Analysis of Concurrent Force Systems	8	2	-	-	1	1	2	CO2	L3
3	Analysis of Non-Concurrent Force Systems	8	-	2	-	1	1	2	CO3	L3
4	Centroids and Moments of Inertia of Engineering Sections:	8	-	2	-	1	1	2	CO4	L3
5	Kinematics and Kinetics	8	-	-	4	1	1	2	CO5	L3
-	Total	50	4	4	4	5	5	10	-	-

2. Continuous Internal Assessment (CIA)

Assessment of learning outcomes for Internal exams. Blooms Level in last column shall match with A.2.

Mod	Evaluation	Weightage in	CO	Levels
ules		Marks		
1, 2	CIA Exam – 1	30	CO1, CO2, CO3,CO4	L2,L3,L4
3, 4	CIA Exam – 2	30	CO5	
5	CIA Exam – 3	30		
1, 2	Assignment - 1	10	CO1, CO2, CO3,CO4	L2,L3,L4
3, 4	Assignment - 2	10	CO5	
5	Assignment - 3	10		
1, 2	Seminar - 1		-	-
3, 4	Seminar - 2		-	-
5	Seminar - 3		-	-
1, 2	Quiz - 1		-	-
3, 4	Quiz - 2		-	-
5	Quiz - 3		-	-
1 - 5	Other Activities – Mini Project	-	CO4,CO5	L2
	Final CIA Marks		-	-

D1. TEACHING PLAN - 1

Module - 1

Title:		Appr	10 Hrs
		Time:	
a	Course Outcomes	CO	Blooms
	The student should be able to:		
1	describe the scope of various fields of civil engineering	CO1	L2
2	illustrate forces on couple system and moment of forces	CO1	L3
b	Course Schedule	-	-
Class No	Portion covered per hour	-	-
1	Introduction to Civil Engineering Scope of different fields of Civil Engineering – Surveying, Building Materials, Construction Technology, Geotechnical Engineering, Structural Engineering, Hydraulics, WaterResources and Irrigation Engineering, Transportation Engineering, Environmental Engineering.	CO1	
2	Infrastructure: Types of infrastructure, Role of Civil Engineer in theInfrastructural Development, Effect of the infrastructural facilities onsocio- economic development of a country.	CO1	
3	Introduction to Engineering Mechanics: Basic idealizations – Particle, Continuum and Rigid body; Newton's lawsBForce and its characteristics, types of forces-Gravity, Lateral and its distribution on surfaces,	CO1	
4	Classification of force systems, Principle of physical independence,	CO1	

	superposition, transmissibility of forces, , Introduction to SI units		
5	Couple, Moment of a couple, Characteristics of couple, Moment of a force,	CO1	
	Equivalent force – Couple system		
6	Numerical problems on moment of forces and couples, on equivalent force –	CO1	
	couple system.		
7	Numerical problems on moment of forces and couples, on equivalent force –	CO1	
	couple system.		
8	Numerical problems on moment of forces and couples, on equivalent force –	CO1	
	couple system.		
С	Application Areas		
-	Students should be able employ / apply the Module learnings to		
1	Basic fields of civil engineering	CO1	L3
2	Resolve the forces acting on body	CO1	L3
d	Review Questions		
-			
1	Discuss briefly the role of Civil Engineers in the infrastructure development of	CO1	L1
	a country		
2	Differentiate between flexible and rigid pavement	CO1	L3
3	Bring out briefly scope of following specialization of civil engineering	CO1	L2
	i) Environmental Engineering ii) Geotechnical Engineering		
4	Explain briefly the classification of roads.	CO1	L4
5	Define force. Explain the classification of force system	CO1	L2
6	Explain i)Principle of transmissibility of forces.	CO1	L5
	ii)Principle of physical independence of forces		
7	Define couple. Explain characteristics of couple	CO1	L2
8	Bring out briefly scope of following specialization of civil engineering	CO1	L3
	I) Structural Engineering I) Transportation Engineering		
9	A force of 630N is acting on a block as shown in the fig-1 . Find the	CO1	L4
	i)Horizontal & Vertical components		
	II/Inclined to the plane and right angles to the plane	<u> </u>	
10	Replace 1000N force at point A, which is acting at point B as shown in the ng-	CO1	L1
	2. Also lind the moment at A.	CO1	
11	A square A \square C \square as forces acting at along its sides as shown in the ng-3 . Find the value of P 8. O if the system reduces the couple. Also, find the magnitude	COI	∟4
	of the couple		
•	Fyneriences		
			- 10
2		001	LZ
۷		j	

Module – 2

Title:		Appr	10 Hrs
		Time:	
a	Course Outcomes	СО	Blooms
-	The student should be able to:	-	Level
1	Calculate the resultant of force system subjected to various load	CO2	L3
2	Apply laws of friction and types of friction	CO2	L3
b	Course Schedule	-	-
Class	Portion covered per hour	-	-
No			
9	Resultants and Equilibrium Composition of forces – Definition of Resultant;	CO2	L3
		000	
10	Parallelogram Law of forces, Principle of resolved parts; Numerical problems on composition of coplanar concurrent force systems.	CO2	L3

11	Equilibrium of forces – Definition of Equilibrant; Conditions of static equilibrium for different force systems, Lami's theorem	CO2	L3
12	Numerical problems on equilibrium of coplanar – concurrent and non- concurrent force systems	CO2	L3
13	Application- Static Friction in rigid bodies in contact Types of friction, Laws of static friction,	CO2	L3
14	Limiting friction, Angle of friction, angle of repose; Impending motion on horizontal and inclined planes	CO2	L3
15	Numerical Problems on single and two blocks on inclined planes	CO2	L3
16	Numerical Problems on single and two blocks on inclined planes	CO2	L3
С	Application Areas	-	-
-	Students should be able employ / apply the Module learnings to	-	-
1	Concurrent forces	CO2	L3
2	Equilibrium and friction	CO2	L4
d	Review Questions	-	-
-		CO2	L3
1	State and prove Parallelogram law of forces	CO2	L3
2	Explain different types of friction	CO2	L3
3	State and prove Lami'stheorem	CO2	L3
4	Define i) Angle of friction ii) Angle of Repose	CO2	L3
5	Define i) Equilibrant ii) Resultant force	CO2	L3
6	Define friction & Explain laws of static friction	CO2	L3
7	Explain with sketch Cone friction	CO2	L3
8	Determine the reaction at contact points for spheres A & B as shown in fig Q	CO2	L3
	2(a).It is given that WA = 1200N, WB = 1500N, dA = 400mm, dB = 900mm		
е	Experiences	-	-
1		CO2	L2
2			

E1. CIA EXAM – 1

a. Model Question Paper - 1

Crs		18CIV24	Sem:	II	Marks:	30	Time: 7	5 Minute	S	
Code	e:									
Course:										
-	-	Note: Answ	ver all ques	stions, ea	ch carry equa	l marks. N	1odule : 1, 2	Marks	СО	Level
1	а	Define cou	Define couple. Explain characteristics of couple							L2
	b	Bring out b	riefly scope	e of follow	ving specializa	tion of civ	il engineering	5	CO1	L2
		I) Structura	LEngineerir	ng I) Iran:	sportation Eng	gineering	• Find the		CO1	
	С	i)Horizontal	8 vertical 0	ng on a b compone	lock as showr nts	n in the ng	-1. Find the	5	CO1	L3
		ii)Inclined to	o the plane	and right	t angles to the	plane				
1	а	Define force	e. Explain tl	ne classif	ication of force	e system		5	CO1	L3
	b	Explain i)Pr	inciple of tr	ansmissil indepen	oility of forces.	∋ς		5	CO1	L3
	с	Replace 1000N force at point A, which is acting at point B as shown in the fig-2 . Also find the moment at A					e 5	CO1	L3	
3	а	State and p	orove Parall	elogram	law of forces			5	CO1	L3
	b	Define i) An	gle of fricti	on ii) Ang	gle of Repose			5	CO1	L3
	С	A square A Find the va magnitude	B C D as fo lue of P & C of the cou	rces actir Q, if the sy ole.	ng at along its rstem reduces	sides as s the coup	hown in the fig-3. le. Also find the	5	CO1	L3

4	а	Explain with sketch Cone friction	5	CO1	L3
	b	State and prove Lami'stheorem	5	CO1	L3
	С	Determine the reaction at contact points for spheres A & B as shown in fig	5	CO1	L3
		Q 2(a).It is given that WA = 1200N, WB = 1500N, dA = 400mm, dB = 900mm			

b. Assignment -1

		Mod	el Assignme	ent Questio	ns				
Crs Code:	18CIV24 Sem:	11	Marks:	30	Time:				
Course:	Elements of Civil E	ngineering a	nd Mechan	ics Module	: 1, 2				
Note: Each student to answer 2-3 assignments. Each assignment carries equal mark.									
SNo Assignment Description					Marks	со	Level		
1	Discuss br developm	iefly the role ent of a cou	e of Civil Eng ntry	jineers in tł	ne infrastructure	5	CO1	L3	
2	Differentia	te between	flexible and	rigid paver	nent	5	CO1	L3	
3	Bring out I engineerir i) Environn	priefly scope g nental Engin	e of following eering ii) Ge	g specializa otechnical	ation of civil Engineering	5	CO1	L3	
4	Explain br	efly the clas	sification of	roads.		5	CO1	L3	
5	Define for	e. Explain th	ne classificat	tion of force	e system	5	CO1	 L3	
6	Explain i)P ii)Principle	rinciple of tr	ansmissibilit independer	y of forces	es	5	CO1	L3	
7	Define cou	iple. Explain	characteris	tics of coup	ole	5	CO1	L3	
8	Bring out I engineerir i) Structura	Bring out briefly scope of following specialization of civil engineering i) Structural Engineering i) Transportation Engineering					CO1	L3	
9	A force c fig-1 . Fin i)Horizor ii)Inclined	A force of 630N is acting on a block as shown in the fig-1 . Find the i)Horizontal & vertical components ii)Inclined to the plane and right angles to the plane					CO1	L3	
10	Replace point B a at A.	Replace 1000N force at point A, which is acting at point B as shown in the fig-2. Also find the moment at A.					CO1	L3	
11	A square A in the fig-: couple. Al	B C D as fo Find the vaso find the r	rces acting a alue of P & C nagnitude of	at along its), if the syst f the couple	sides as shown em reduces the e.	5	CO1	L3	
12	State and	orove Paralle	elogram law	of forces		5	CO1	L3	
13	Explain dif	ferent types	of friction			5	CO1	L3	
14	State and	orove Lami's	stheorem			5	CO2	L3	
15	Define i) A	ngle of friction	on ii) Angle	of Repose		5	CO2	L3	
16	Define i) E	quilibrant ii)	Resultant fo	rce		5	CO2	L3	
17	Define fric	Define friction & Explain laws of static friction				5	CO2	L3	
18	Explain wi	h sketch Co	ne friction			5	CO2	L3	
19	Determine shown in f = 400mm,	the reaction g Q 2(a).It is dB = 900mn	n at contact given that V n	points for s VA = 1200N	spheres A & B as , WB = 1500N, dA	5	CO2	L3	

D2. TEACHING PLAN - 2

Module – 3

Title:		Appr	10 Hrs
		l ime:	D 1
a	Course Outcomes	CO	Blooms
-	At the end of the topic the student should be able to	-	Level
	compute the reactive force that develop as result of external load	<u> </u>	L3
h	Caurae Schodule	03	L3
	Course Schedule		
17	Support Deaction in beams Types of Leads and Supports statically	- 	-
1/	determinate beams	003	L3
18	Numerical problems on support reactions for statically determinate beams with Point load (Normal and inclined) and	CO3	L3
19	Numerical problems on uniformly distributed and uniformly varying loads and Moments.	CO3	L3
20	Numerical problems on uniformly distributed and uniformly varying loads and Moments.	CO3	L3
21	Types of trusses,	CO3	L3
22	analysis of statically determinate trusses using method of joints and method of section	CO3	L3
23	analysis of statically determinate trusses using method of joints and method of section	CO3	L3
24	analysis of statically determinate trusses using method of joints and method of section	CO3	L3
		CO3	L3
	Application Areas	CO3	L3
	Support reaction	CO3	L3
С	Analyzing the forces acting on trusses	CO3	-
-		CO3	L2
	Review Questions	CO3	
	Explain different types of statically determinate beams	CO3	
	Explain different types of statically indeterminate beams	CO3	L3
d	What is mean by support reaction	CO3	-
-	Explain different types of supports and loads in the analysis of beam	CO3	-
	Determine the reaction at the supports for the system as shown in fig	CO3	L3
	Find the support reaction for beam loaded as shown in fig	<u>CO3</u>	L3
	Define trusses	<u>CO3</u>	L3
	what are the assumption are made in analyzing the simple truss	003	L3
	Explain classification of trusses	003	L3
	Differentiate between method of joint and method of section	<u> </u>	L3
	Analysis of statically determinate trusses using method of joints shown in fig	03	L3
e	Experiences	-	-
2		03	∟∠,∟З

Module – 4

Title	Data Transmission and Telemetry	Appr	10 Hrs
11000	Massurement of Non Electrical Quantities	Time	101110
			Discuss
a	Course outcomes	CO	Blooms
-	At the end of the topic the student should be able to	-	Level
1	determine centroid of built up section	<u>CO4</u>	L3
2	Calculate M.I of full/quadrant circular section	CO4	
h	Course Schodule		
	Course Schedule		
	Introduction to the concept, controid of line and area, controid of basic	-	-
25	acomparical fauros	004	L3
26	computing centroid for-TIII 7 and full/quadrant circular sections and their	CO4	12
20	built up sections	004	L3
27	computing centroid for-TIII7 and full/quadrant circular sections and their	C:O4	13
<i>L</i> /	built up sections.	004	
28	Numerical problems on centroid for- T, L, I, Z and full/guadrant circular	CO4	L3
	sections and their built up sections.		
29	ntroduction to the concept, Radius of gyration, Parallel axis theorem,	CO4	L3
	Perpendicular axis theorem,		
30	Moment of Inertia of basic planar figures, computing moment of Inertia for – T,	CO4	L3
	L, I, Z and full/quadrant circular sections and their built up sections		
31	Moment of Inertia of basic planar figures, computing moment of Inertia for – T,	CO4	L3
	L, I, Z and full/quadrant circular sections and their built up sections		
32	Moment of Inertia of basic planar figures, computing moment of Inertia for – T,	CO4	L3
	L, 1, 2 and full/quadrant circular sections and their built up sections		
C	Application Areas	-	_
-	Students should be able employ / apply the Module learnings to	-	_
	Calculating the area and center of gravity of geometric figures	CO4	3
	Computing the radius of gyration of geometric figures	CO ₄	3
d	Review Questions	-	_
-	The attainment of the module learning assessed through following questions	-	-
1	Define centroid	CO4	L3
2	Determine the centroid of quarter circle	CO4	L3
3	Determine the centroid of triangle by method of integration	CO4	L3
4	Determine the centroid of lamina as shown in fig	CO4	L3
5	Determine the centroid of semi circle by method of integration	CO4	L3
6	Define 2 nd moment of force	CO4	L3
7	What is mean by radius of gyration and explain	CO4	L3
8	State and prove parallel axis theorem	CO4	L3
9	State and prove perdendicular axis theorem	CO4	L3
10	Determine the MI of semi circle by method of integration	CO4	L3
11	Determine the MI of lamina as shown in fig	CO4	L3
12	Determine the centroid of shaded part as shown in fig	CO4	L3
е	Experiences	-	-
1		CO4	L2
2			

E2. CIA EXAM – 2

a. Model Question Paper - 2

Crs	18CIV24	Sem:	11	Marks:	30	Time	75 minutes
Code:							
18CIV24/G					C	opyright ©201	7. cAAS. All rights reserved.

Cour	rse:	Elements of Civil Engineering and Mechanics			
-	-	Note: Answer any 2 questions, each carry equal marks.	Marks	со	Level
1	а	Explain different types of supports and loads in the analysis of beam	5	CO4	L3
	b	Determine the reaction at the supports for the system as shown in fig	5	CO4	L3
2	а	Differentiate between method of joint and method of section	5	CO4	L3
	b	Analysis of statically determinate trusses using method of joints shown in fig	5	CO4	L3
3	а	Determine the centroid of quarter circle	5	CO4	L3
	b	Determine the centroid of lamina as shown in fig	5	CO4	L3
4	а	Determine the centroid of semi circle by method of integration	5	CO4	L3
	b	Determine the centroid of shaded part as shown in fig	5	CO4	L3

b. Assignment – 2

			М	odel Assignme	nt Quest	ions			
Crs Code:	18CIV24	Sem:	II	Marks:	5	Time: g	0 - 120	minute	S
Course:	Elements	s of civil e	ngineering	g and mechanic	S				
SN	lo			Assignment De	scriptior	ı	Marks	со	Level
1		Explain d	ifferent typ	bes of statically	indetern	ninate beams	5	CO4	L3
2		What is n	nean by su	pport reaction			5	CO4	L3
3		Explain d beam	ifferent typ	bes of supports	and load	ls in the analysis of	5	CO4	L3
4	1	Determin shown in	e the reac [.] fig	tion at the supp	oorts for	the system as	5	CO4	L3
5		Find the s	support rea	action for beam	loaded	as shown in fig	5	CO4	L3
6		Define tru	isses				5	CO4	L3
7		What are truss	e the assu	mption are ma	ide in ar	nalyzing the simple	5	CO4	L3
8		Explain c	lassificatio	n of trusses			5	CO4	L3
9		Differentia	ate betwee	en method of jo	int and r	nethod of section	5	CO4	L3
10)	Analysis joints sho	of statical wn in fig	lly determinate	e trusses	s using method o	f 5	CO4	L3
11	L	Define ce	ntroid				5	CO4	L3
12	2	Determin	e the cent	roid of quarter	circle		5	CO4	L3
13	3	Determin	e the cent	roid of triangle	by meth	od of integration	5	CO4	L3
14	1	Determin	e the cent	roid of lamina a	is shown	in fig	5	CO4	L3
15	5	Determin	e the cent	roid of semi cire	cle by me	ethod of integratior	5	CO4	L3
16	5	Define 2 nd	^a moment	of force			5	CO4	L3
17	7	What is n	nean by ra	dius of gyratior	and exp	lain	5	CO4	L3
18	3	State and	l prove par	allel axis theore	em		5	CO4	L3
19)	State and	l prove per	rdendicular axis	theoren	า	5	CO4	L3
		Determin	e the MI o	f semi circle by	method	of integration	5	CO4	L3
		Determin	e the MI o	f lamina as shoʻ	wn in fig		5	CO4	L3
		Determin	e the cent	roid of shaded	part as sl	hown in fig	5	CO4	L3
		What are truss	the assu	mption are ma	ide in ar	nalyzing the simple	5	CO4	L3

D3. TEACHING PLAN - 3

Title: Loop and Horn Antenna and Antenna Types Appr Time To Hrs a Course Outcomes CO Blooms - At the end of the topic the student should be able to	Module	9 - 5		
a Course Outcomes Co Blooms - At the end of the topic the student should be able to - Level 1 Illustrate relationship between motion of bodies - Level 2 describe relationship between plane motion and connected bodies - - 3 illustrate relationship between plane motion and connected bodies CO5 L3 3.4 describe relationship between plane motion and connected bodies CO5 L3 3.6 describe relationship between plane motion and connected bodies CO5 L3 3.6 describe relationship between plane motion and connected bodies CO5 L3 3.7 illustrate relationship between plane motion and connected bodies CO5 L3 3.6 describe relationship between plane motion and connected bodies CO5 L3 4.0 describe relationship between plane motion and connected bodies CO5 L3 4.0 describe relationship between plane motion and connected bodies CO5 L3 4.0 describe relationship between plane motion and connected bodies CO5 L3 4.0 describe relationship between plane motion and connected bodies <th>Title:</th> <th>Loop and Horn Antenna and Antenna Types</th> <th>Appr Time:</th> <th>10 Hrs</th>	Title:	Loop and Horn Antenna and Antenna Types	Appr Time:	10 Hrs
- At the end of the topic the student should be able to - Level 1 Illustrate relationship between motion of bodies - - 2 describe relationship between motion and connected bodies - - 33 illustrate relationship between motion of bodies CO5 L3 34 describe relationship between plane motion and connected bodies CO5 L3 35 illustrate relationship between plane motion and connected bodies CO5 L3 36 describe relationship between motion of bodies CO5 L3 36 describe relationship between motion of bodies CO5 L3 37 illustrate relationship between motion of bodies CO5 L3 38 describe relationship between motion of bodies CO5 L3 40 describe relationship between plane motion and connected bodies CO5 L3 40 describe relationship between plane motion and connected bodies CO5 L3 5 students should be able employ / apply the Module learnings to - - 6 Avplication Areas - - - 7 Th	a	Course Outcomes	СО	Blooms
1 illustrate relationship between plane motion and connected bodies 2 describe relationship between plane motion and connected bodies 3 illustrate relationship between motion of bodies CO5 33 illustrate relationship between plane motion and connected bodies CO5 34 describe relationship between plane motion and connected bodies CO5 35 illustrate relationship between plane motion and connected bodies CO5 L3 36 describe relationship between plane motion and connected bodies CO5 L3 38 describe relationship between plane motion and connected bodies CO5 L3 39 illustrate relationship between plane motion and connected bodies CO5 L3 40 describe relationship between plane motion and connected bodies CO5 L3 40 describe relationship between plane motion and connected bodies CO5 L3 40 describe relationship between plane motion and connected bodies CO5 L3 40 describe relationship between plane motion and connected bodies CO5 L3 41 describe relationship between plane motion and connected bodies CO5 L3 42	-	At the end of the topic the student should be able to	-	Level
2 describe relationship between plane motion and connected bodies - - Class No Portion covered per hour - - - 33 illustrate relationship between motion of bodies CO5 L3 34 describe relationship between motion of bodies CO5 L3 36 describe relationship between plane motion and connected bodies CO5 L3 36 describe relationship between plane motion and connected bodies CO5 L3 37 illustrate relationship between motion of bodies CO5 L3 38 describe relationship between motion of bodies CO5 L3 40 describe relationship between motion of bodies CO5 L3 40 describe relationship between motion of bodies CO5 L3 40 describe relationship between motion of bodies CO5 L3 41 describe relationship between motion of bodies CO5 L3 42 describe relationship between motion of bodies CO5 L3 43 definition Areas - - - 44 Application Areas - - -	1	illustrate relationship between motion of bodies		
b Course Schedule - - Class No Portion covered per hour - - 33 illustrate relationship between motion of bodies CO5 L3 34 describe relationship between plane motion and connected bodies CO5 L3 36 illustrate relationship between plane motion and connected bodies CO5 L3 37 illustrate relationship between plane motion and connected bodies CO5 L3 38 describe relationship between plane motion and connected bodies CO5 L3 39 illustrate relationship between plane motion and connected bodies CO5 L3 40 describe relationship between plane motion and connected bodies CO5 L3 40 describe relationship between plane motion and connected bodies CO5 L3 40 describe relationship between plane motion and connected bodies CO5 L3 40 describe relationship between plane motion and connected bodies CO5 L3 51 describe relationship between relation and connected bodies CO5 L3 52 students should be able employ / apply the Module learnings to - -	2	describe relationship between plane motion and connected bodies		
b Course Schedule - - Class No Portion covered per hour - - 31 illustrate relationship between motion of bodies CO5 L3 34 describe relationship between plane motion and connected bodies CO5 L3 35 illustrate relationship between plane motion and connected bodies CO5 L3 37 illustrate relationship between plane motion and connected bodies CO5 L3 30 illustrate relationship between motion of bodies CO5 L3 40 describe relationship between motion of bodies CO5 L3 40 describe relationship between motion of bodies CO5 L3 40 describe relationship between motion of bodies CO5 L3 40 describe relationship between motion and connected bodies CO5 L3 6 Application Areas - - - 7 Students should be able employ / apply the Module learnings to - - 8 Kinetics - - - 6 Review Questions - - - 7 <td< td=""><td></td><td></td><td></td><td></td></td<>				
Class No Portion covered per hour - - 33 illustrate relationship between motion of bodies CO5 L3 44 describe relationship between plane motion and connected bodies CO5 L3 36 illustrate relationship between motion of bodies CO5 L3 37 illustrate relationship between motion of bodies CO5 L3 38 describe relationship between plane motion and connected bodies CO5 L3 39 illustrate relationship between plane motion and connected bodies CO5 L3 40 describe relationship between plane motion and connected bodies CO5 L3 40 describe relationship between plane motion and connected bodies CO5 L3 40 describe relationship between plane motion and connected bodies CO5 L3 40 describe relationship between plane motion and connected bodies CO5 L3 41 describe relationship between plane motion and connected bodies CO5 L3 41 describe relationship between plane motion and connected bodies CO5 L3 52 students should be able employ / apply the Module learnings to - - </th <th>b</th> <th>Course Schedule</th> <th>_</th> <th>-</th>	b	Course Schedule	_	-
33 illustrate relationship between plane motion and connected bodies CO5 L3 34 describe relationship between motion of bodies CO5 L3 36 describe relationship between motion of bodies CO5 L3 37 illustrate relationship between plane motion and connected bodies CO5 L3 38 describe relationship between plane motion and connected bodies CO5 L3 39 illustrate relationship between plane motion and connected bodies CO5 L3 40 describe relationship between plane motion and connected bodies CO5 L3 40 describe relationship between plane motion and connected bodies CO5 L3 40 describe relationship between plane motion and connected bodies CO5 L3 40 describe relationship between plane motion and connected bodies CO5 L3 51 describe relationship between plane motion and connected bodies CO5 L3 52 students should be able employ / apply the Module learnings to - - 53 relationship between plane weelocity invarage velocity CO5 L3 54 Review Questions -	Class No	Portion covered per hour	-	-
34 describe relationship between plane motion and connected bodies CO5 L3 35 illustrate relationship between plane motion and connected bodies CO5 L3 36 describe relationship between plane motion and connected bodies CO5 L3 37 illustrate relationship between plane motion and connected bodies CO5 L3 39 illustrate relationship between plane motion and connected bodies CO5 L3 40 describe relationship between plane motion and connected bodies CO5 L3 40 describe relationship between plane motion and connected bodies CO5 L3 40 describe relationship between plane motion and connected bodies CO5 L3 40 describe relationship between plane motion and connected bodies CO5 L3 50 Application Areas - - - 51 Atdents should be able employ / apply the Module learnings to - - 51 Atdents should be able employ / apply the Module learning seesed through following questions - - 61 Review Questions - - - - 7 Define i0 displacement i0	33	illustrate relationship between motion of bodies	CO5	L3
35 illustrate relationship between plane motion and connected bodies CO5 L3 36 describe relationship between motion and connected bodies CO5 L3 37 illustrate relationship between motion of bodies CO5 L3 38 describe relationship between plane motion and connected bodies CO5 L3 40 describe relationship between plane motion and connected bodies CO5 L3 40 describe relationship between plane motion and connected bodies CO5 L3 40 describe relationship between plane motion and connected bodies CO5 L3 40 describe relationship between plane motion and connected bodies CO5 L3 41 describe relationship between plane motion and connected bodies CO5 L3 42 Application Areas - - - 53 Kinetics - - - 64 Review Questions - - - 7 The attainment of the module learning assessed through following questions - - 7 Define i displacement ii) speed iii) uniform velocity iv average velocity CO5 L3	34	describe relationship between plane motion and connected bodies	CO5	L3
36 describe relationship between plane motion of bodies CO5 L3 37 illustrate relationship between motion of bodies CO5 L3 38 describe relationship between plane motion and connected bodies CO5 L3 40 describe relationship between plane motion and connected bodies CO5 L3 40 describe relationship between plane motion and connected bodies CO5 L3 40 describe relationship between plane motion and connected bodies CO5 L3 40 describe relationship between plane motion and connected bodies CO5 L3 40 describe relationship between plane motion and connected bodies CO5 L3 40 describe relationship between plane motion and connected bodies CO5 L3 51 Students should be able employ / apply the Module learnings to - - 51 Kinetics - - - 61 Review Questions - - - 7 Define i) displacement ii) speed iii) uniform velocity iv) average velocity CO5 L3 8 A wheel is rotating about a fixed axis at 20 rp.m is uniformly acceleration or CO5	35	illustrate relationship between motion of bodies	CO5	L3
37 illustrate relationship between plane motion and connected bodies CO5 L3 38 describe relationship between plane motion and connected bodies CO5 L3 40 describe relationship between plane motion and connected bodies CO5 L3 40 describe relationship between plane motion and connected bodies CO5 L3 40 describe relationship between plane motion and connected bodies CO5 L3 40 describe relationship between plane motion and connected bodies CO5 L3 41 describe relationship between plane motion and connected bodies CO5 L3 42 describe relationship between plane motion and connected bodies CO5 L3 44 Application Areas - - - 55 Kinetics - - - - 40 Review Questions -	36	describe relationship between plane motion and connected bodies	CO5	L3
38 describe relationship between plane motion and connected bodies CO5 L3 39 illustrate relationship between plane motion and connected bodies CO5 L3 40 describe relationship between plane motion and connected bodies CO5 L3 6 Application Areas - - - Students should be able employ / apply the Module learnings to - - Kinematics - - - Kinetics - - - - The attainment of the module learning assessed through following questions - - 1 Define I) displacement III) speed III) uniform velocity iv) average velocity CO5 L3 2 State and explain Newtons law of motion CO5 L3 3 Derive relationship between r.p.m and angular velocity CO5 L3 4 Derive relationship between r.p.m and angular velocity at the end of this interval and ib time required for the speed to reach 110 rpm CO5 L3 6 A burglar's car starts with an acceleration of 2 m/sec2. A police van came after to sec and continued to chase the burglar's car. CO5 L3 7 Define: I) Instantaneous velocity II) Uniform accel	37	illustrate relationship between motion of bodies	CO5	L3
39 illustrate relationship between plane motion and connected bodies CO5 L3 40 describe relationship between plane motion and connected bodies CO5 L3 c Application Areas - - - Students should be able employ / apply the Module learnings to - - - Students should be able employ / apply the Module learnings to - - - Kinematics - - - Kinetics - - - - - The attainment of the module learning assessed through following questions - - 1 Define i) displacement ii) speed iii) uniform velocity vi) average velocity CO5 L3 2 State and explain Newtons law of motion CO5 L3 3 Derive relationship between r.p.m and angular velocity CO5 L3 4 Derive relationship between r.p.m and angular velocity at the end of this interval and ii) time required for the speed to reach 110 rpm CO5 L3 5 A wheel is rotating about a fixed axis at 20 r.p.m is uniformly velocity at the end of this interval and ii) time required for the speed to reach 110 rpm CO5 L3 6	38	describe relationship between plane motion and connected bodies	CO5	L3
40 describe relationship between plane motion and connected bodies CO5 L3 c Application Areas - - - Students should be able employ / apply the Module learnings to - - Kinematics - - - Kinetics - - - d Review Questions - - - The attainment of the module learning assessed through following questions - - 1 Define i) displacement ii) speed iii) uniform velocity iv) average velocity CO5 L3 2 State and explain Newtons law of motion CO5 L3 3 Derive relationship between r.p.m and angular velocity CO5 L3 4 Derive relationship between r.p.m and angular velocity CO5 L3 5 A wheel is rotating about a fixed axis at 20 r.p.m is uniformly accelerated for 70 CO5 L3 6 A burglar's car starts with an acceleratin of 2 m/sec2. A police van came after m/sec. Find the time taken by the police van to overtake the burglar's car. CO5 L3 7 Define: i) Instantaneous velocity ii) Uniform acceleration iii) Variable acceleration iv) Retardation CO5	39	illustrate relationship between motion of bodies	CO5	L3
c Application Areas - - - Students should be able employ / apply the Module learnings to - - Kinematics Kinetics - - d Review Questions - - 1 Define i) displacement ii) speed iii) uniform velocity iv) average velocity CO5 L3 2 State and explain Newtons law of motion CO5 L3 3 Derive relationship between linear acceleration and angular acceleration CO5 L3 4 Derive relationship between r.p.m and angular velocity CO5 L3 5 A wheel is rotating about a fixed axis at 20 r.p.m is uniformly accelerated for 70 CS L3 5 sec, during which time it makes 50 revolution. Determine I) angular velocity of 40 CO5 L3 6 A burglar's car starts with an acceleration of 2 m/sec2. A police van came after CO5 L3 10 sec. Find the time taken by the police van to overtake the burglar's car. CO5 L3 7 Define i) Instantaneous velocity ii) Uniform acceleration iii) Variable acceleration ivi Netardation CO5 L3 8 What is a projectile? Define: i) Angle of projection ii) Horizontal Range iii) Vertical	40	describe relationship between plane motion and connected bodies	CO5	L3
c Application Areas - - - Students should be able employ / apply the Module learnings to - - Kinematics - - - Kinetics - - - d Review Questions - - - The attainment of the module learning assessed through following questions - - 1 Define i) displacement ii speed iii) uniform velocity iv) average velocity CO5 L3 2 State and explain Newtons law of motion CO5 L3 4 Derive relationship between inear acceleration and angular acceleration CO5 L3 4 Derive relationship between r.p.m and angular velocity CO5 L3 5 A wheel is rotating about a fixed axis at 20 r.p.m is uniformly accelerated for 70 CO5 L3 9 State and continued to chase the burglar's car with an gular velocity at the end of this interval and ii) time required for the speed to reach 110 rpm - 6 A burglar's car starts with an acceleration of 2 m/sec2. A police van came after to sec and continued to chase the burglar's car with an uniform velocity of 40 m/sec. Find the time taken by the police van to overtake the burglar's car. - 7 <				
c Application Areas - - Students should be able employ / apply the Module learnings to - - Kinematics - - Kinetics - - d Review Questions - - - The attainment of the module learning assessed through following questions - - 1 Define i) displacement ii) speed iii) uniform velocity iv) average velocity CO5 L3 2 State and explain Newtons law of motion CO5 L3 3 Derive relationship between r.p.m and angular velocity CO5 L3 4 Derive relationship between r.p.m and angular velocity CO5 L3 5 A wheel is rotating about a fixed axis at 20 r.p.m is uniformly accelerated for 70 CO5 L3 6 A burglar's car starts with an acceleration of 2 m/sec2. A police van came after 10 sec and continued to chase the burglar's car with an uniform velocity of 40 m/sec. Find the time taken by the police van to overtake the burglar's car. CO5 L3 7 Define: i) Instantaneous velocity ii) Uniform acceleration iii) Variable acceleration iv) Retardation CO5 L3 8 What is a projectile? Define: i) Angle of projection iii) Horizontal Range iiii				
c Application Areas - - - Students should be able employ / apply the Module learnings to - - Kinematics - - - kinetics - - - d Review Questions - - - The attainment of the module learning assessed through following questions - - 1 Define i) displacement ii) speed iii) uniform velocity iv) average velocity CO5 L3 2 State and explain Newtons law of motion CO5 L3 3 Derive relationship between Inear acceleration and angular acceleration CO5 L3 4 Derive relationship between r.p.m and angular velocity CO5 L3 5 A wheel is rotating about a fixed axis at 20 r.p.m is uniformly accelerated for 70 CO5 L3 6 A burglar's car starts with an acceleration of 2 m/sec2. A police van came after the end of this interval and ii) time required for the speed to reach 110 rpm CO5 L3 6 A burglar's car starts with an acceleration iii) Variable acceleration iv) Retardation CO5 L3 7 Define: i) Instantaneous velocity ii) Uniform acceleration iiii) Variable acceleration iv) Retardation<				
- Students should be able employ / apply the Module learnings to - - Kinematics Kinetics - - d Review Questions - - - The attainment of the module learning assessed through following questions - - 1 Define i) displacement ii) speed iii) uniform velocity iv) average velocity CO5 L3 2 State and explain Newtons law of motion CO5 L3 3 Derive relationship between Inear acceleration and angular acceleration CO5 L3 4 Derive relationship between r.p.m and angular velocity CO5 L3 5 A wheel is rotating about a fixed axis at 20 r.p.m is uniformly accelerated for 70 sec, during which time it makes 50 revolution. Determine I) angular velocity at the end of this interval and ii) time required for the speed to reach 110 rpm CO5 L3 6 A burglar's car starts with an acceleration of 2 m/sec2. A police van came after to sec and continued to chase the burglar's car. CO5 L3 7 Define i) Instantaneous velocity ii) Uniform acceleration iii) Variable acceleration iv) Retardation CO5 L3 8 What is a projectile? Define: i) Angle of projection ii) Horizontal Range iii) Vertical Height iv) Time of fligh CO	С	Application Areas	-	-
Kinematics Kinetics d Review Questions - - The attainment of the module learning assessed through following questions - 1 Define i) displacement ii) speed iii) uniform velocity iv) average velocity CO5 L3 2 State and explain Newtons law of motion CO5 L3 3 Derive relationship between linear acceleration and angular acceleration CO5 L3 4 Derive relationship between r.p.m and angular velocity CO5 L3 5 A wheel is rotating about a fixed axis at 20 r.p.m is uniformly accelerated for 70 CO5 L3 5 A wheel is rotating about a fixed axis at 20 r.p.m is uniform velocity at the end of this interval and ii) time required for the speed to reach 110 rpm CO5 L3 6 A burglar's car starts with an acceleration of 2 m/sec2. A police van came after to see and continued to chase the burglar's car with an uniform velocity of 40 m/sec. Find the time taken by the police van to overtake the burglar's car. CO5 L3 7 Define: i) Instantaneous velocity ii) Uniform acceleration iii) Variable acceleration iv) Retardation CO5 L3 8 What is a projectile? Define: i) Angle of projection ii) Horizontal Range iii) Vertical Height iv) Time of fligh CO5 L3	-	Students should be able employ / apply the Module learnings to	-	-
Kinetics - d Review Questions - - The attainment of the module learning assessed through following questions - 1 Define i) displacement ii) speed iii) uniform velocity iv) average velocity CO5 L3 2 State and explain Newtons law of motion CO5 L3 3 Derive relationship between Inear acceleration and angular acceleration CO5 L3 4 Derive relationship between r.p.m and angular velocity CO5 L3 5 A wheel is rotating about a fixed axis at 20 r.p.m is uniformly accelerated for 70 CO5 L3 5 A wheel is rotating about a fixed axis at 20 r.p.m is uniformly accelerated for 70 CO5 L3 6 A burglar's car starts with an acceleration of 2 m/sec2. A police van came after 10 sec and continued to chase the burglar's car with an uniform velocity of 40 m/sec. Find the time taken by the police van to overtake the burglar's car. CO5 L3 7 Define: i) Instantaneous velocity ii) Uniform acceleration iii) Variable acceleration iv) Retardation CO5 L3 8 What is a projectile? Define: i) Angle of projection ii) Horizontal Range iii) Vertical CO5 L3 10 What is Banking (super elevation) and why it is provided? CO5		Kinematics		
d Review Questions - - - The attainment of the module learning assessed through following questions - - 1 Define i) displacement ii) speed iii) uniform velocity iv) average velocity CO5 L3 2 State and explain Newtons law of motion CO5 L3 3 Derive relationship between linear acceleration and angular acceleration CO5 L3 4 Derive relationship between r.p.m and angular velocity CO5 L3 5 A wheel is rotating about a fixed axis at 20 r.p.m is uniformly accelerated for 70 CO5 L3 5 A wheel is rotating about a fixed axis at 20 r.p.m is uniformly accelerated for 70 CO5 L3 6 A burglar's car starts with an acceleration of 2 m/sec2. A police van came after 10 sec and continued to chase the burglar's car with an uniform velocity of 40 m/sec. Find the time taken by the police van to overtake the burglar's car. CO5 L3 7 Define: i) Instantaneous velocity ii) Uniform acceleration iii) Variable acceleration iv) Retardation CO5 L3 8 What is a projectile? Define: i) Angle of projection ii) Horizontal Range iii) Vertical Height iv) Time of fligh CO5 L3 9 State and explain D' Alemberts principle CO5 L3		Kinetics		
d Review Questions - - - The attainment of the module learning assessed through following questions - 1 Define i) displacement ii) speed iii) uniform velocity iv) average velocity CO5 L3 2 State and explain Newtons law of motion CO5 L3 3 Derive relationship between linear acceleration and angular acceleration CO5 L3 4 Derive relationship between r.p.m and angular velocity CO5 L3 5 A wheel is rotating about a fixed axis at 20 r.p.m is uniformly accelerated for 70 CO5 L3 5 A wheel is rotating about a fixed axis at 20 r.p.m is uniform velocity at the end of this interval and ii) time required for the speed to reach 110 rpm CO5 L3 6 A burglar's car starts with an acceleration of 2 m/sec2. A police van came after to sec and continued to chase the burglar's car with an uniform velocity of 40 m/sec. Find the time taken by the police van to overtake the burglar's car. CO5 L3 7 Define: i) Instantaneous velocity ii) Uniform acceleration iii) Variable CO5 L3 acceleration iv) Retardation CO5 L3 L3 8 What is a projectile? Define: i) Angle of projection ii) Horizontal Range iii) Vertical CO5 L3				
 The attainment of the module learning assessed through following questions Define i) displacement ii) speed iii) uniform velocity iv) average velocity CO5 L3 State and explain Newtons law of motion CO5 L3 Derive relationship between linear acceleration and angular acceleration CO5 L3 Derive relationship between r.p.m and angular velocity CO5 L3 A wheel is rotating about a fixed axis at 20 r.p.m is uniformly accelerated for 70 CO5 L3 A wheel is rotating about a fixed axis at 20 r.p.m is uniformly accelerated for 70 CO5 L3 A wheel is rotating about a fixed axis at 20 r.p.m is uniformly accelerated for 70 CO5 L3 A wheel is rotating about a fixed axis at 20 r.p.m is uniformly accelerated for 70 CO5 L3 A wheel is rotating about a fixed axis at 20 r.p.m is uniformly accelerated for 70 CO5 L3 A wheel is rotating about a fixed axis at 20 r.p.m is uniformly accelerated for 70 CO5 L3 A wheel is rotating about a fixed axis at 20 r.p.m is uniformly accelerated for 70 CO5 L3 A burglar's car starts with an acceleration of 2 m/sec2. A police van came after 10 sec and continued to chase the burglar's car with an uniform velocity of 40 m/sec. Find the time taken by the police van to overtake the burglar's car. Define: i) Instantaneous velocity ii) Uniform acceleration iii) Variable CO5 L3 What is a projectile? Define: i) Angle of projection ii) Horizontal Range iii) Vertical CO5 L3 What is Banking (super elevation) and why it is provided? CO5 L3 Instanta	d	Review Questions	-	-
1 Define i) displacement ii) speed iii) uniform velocity iv) average velocity CO5 L3 2 State and explain Newtons law of motion CO5 L3 3 Derive relationship between linear acceleration and angular acceleration CO5 L3 4 Derive relationship between r.p.m and angular velocity CO5 L3 5 A wheel is rotating about a fixed axis at 20 r.p.m is uniformly accelerated for 70 CO5 L3 5 A wheel is rotating about a fixed axis at 20 r.p.m is uniformly accelerated for 70 CO5 L3 6 A burglar's car starts with an acceleration of 2 m/sec2. A police van came after 10 sec and continued to chase the burglar's car with an uniform velocity of 40 m/sec. Find the time taken by the police van to overtake the burglar's car. CO5 L3 7 Define: i) Instantaneous velocity ii) Uniform acceleration iii) Variable CO5 L3 8 What is a projectile? Define: i) Angle of projection ii) Horizontal Range iii) Vertical Height iv) Time of fligh CO5 L3 9 State and explain D' Alemberts principle CO5 L3 10 What is Banking (super elevation) and why it is provided? CO5 L3 11 Define:i) Centrifugal Force ii) Centripetal force iii) Centripetal Acceleration CO	-	The attainment of the module learning assessed through following questions	-	-
2 State and explain Newtons law of motion CO5 L3 3 Derive relationship between linear acceleration and angular acceleration CO5 L3 4 Derive relationship between r.p.m and angular velocity CO5 L3 5 A wheel is rotating about a fixed axis at 20 r.p.m is uniformly accelerated for 70 CO5 L3 sec, during which time it makes 50 revolution. Determine I) angular velocity at the end of this interval and ii) time required for the speed to reach 110 rpm CO5 L3 6 A burglar's car starts with an acceleration of 2 m/sec2. A police van came after 10 sec and continued to chase the burglar's car with an uniform velocity of 40 m/sec. Find the time taken by the police van to overtake the burglar's car. CO5 L3 7 Define: i) Instantaneous velocity ii) Uniform acceleration iii) Variable acceleration iv) Retardation CO5 L3 8 What is a projectile? Define: i) Angle of projection ii) Horizontal Range iii) Vertical Height iv) Time of fligh CO5 L3 9 State and explain D' Alemberts principle CO5 L3 10 What is Banking (super elevation) and why it is provided? CO5 L3 11 Define: Contrifugal Force ii) Centripetal force iii) Centripetal Acceleration CO5 L3 13 Variabl	1	Define i) displacement ii) speed iii) uniform velocity iv) average velocity	CO5	L3
3 Derive relationship between linear acceleration and angular acceleration CO5 L3 4 Derive relationship between r.p.m and angular velocity CO5 L3 5 A wheel is rotating about a fixed axis at 20 r.p.m is uniformly accelerated for 70 sec, during which time it makes 50 revolution. Determine I) angular velocity at the end of this interval and ii) time required for the speed to reach 110 rpm CO5 L3 6 A burglar's car starts with an acceleratin of 2 m/sec2. A police van came after 10 sec and continued to chase the burglar's car with an uniform velocity of 40 m/sec. Find the time taken by the police van to overtake the burglar's car. CO5 L3 7 Define: i) Instantaneous velocity ii) Uniform acceleration iii) Variable acceleration iv) Retardation CO5 L3 8 What is a projectile? Define: i) Angle of projection ii) Horizontal Range iii) Vertical Height iv) Time of fligh CO5 L3 9 State and explain D' Alemberts principle CO5 L3 10 What is Banking (super elevation) and why it is provided? CO5 L3 11 Define:i) Centrifugal Force ii) Centripetal force iii) Centripetal Acceleration CO5 L3 12 Instantaneous velocity – Speed – Acceleration – Average acceleration CO5 L3 12 Instantaneous velocity – Speed – Acceleration –	2	State and explain Newtons law of motion	CO5	L3
4 Derive relationship between r.p.m and angular velocity CO5 L3 5 A wheel is rotating about a fixed axis at 20 r.p.m is uniformly accelerated for 70 sec, during which time it makes 50 revolution. Determine I) angular velocity at the end of this interval and ii) time required for the speed to reach 110 rpm CO5 L3 6 A burglar's car starts with an acceleratin of 2 m/sec2. A police van came after 10 sec and continued to chase the burglar's car with an uniform velocity of 40 m/sec. Find the time taken by the police van to overtake the burglar's car. CO5 L3 7 Define: i) Instantaneous velocity ii) Uniform acceleration iii) Variable acceleration iv) Retardation CO5 L3 8 What is a projectile? Define: i) Angle of projection ii) Horizontal Range iii) Vertical CO5 L3 10 What is Banking (super elevation) and why it is provided? CO5 L3 11 Define:i) Centrifugal Force ii) Centripetal force iii) Centripetal Acceleration CO5 L3 12 Instantaneous velocity – Speed – Acceleration – Average acceleration CO5 L3 13 Variable acceleration – Acceleration due to gravity – Newton's Laws of Motion. CO5 L3 13 Variable acceleration – Acceleration due to gravity – Newton's Laws of Motion. CO5 L3 14 Variable acceleration – Acceleration due	3	Derive relationship between linear acceleration and angular acceleration	CO5	L3
5 A wheel is rotating about a fixed axis at 20 r.p.m is uniformly accelerated for 70 sec, during which time it makes 50 revolution. Determine I) angular velocity at the end of this interval and ii) time required for the speed to reach 110 rpm CO5 L3 6 A burglar's car starts with an acceleratin of 2 m/sec2. A police van came after 10 sec and continued to chase the burglar's car with an uniform velocity of 40 m/sec. Find the time taken by the police van to overtake the burglar's car. CO5 L3 7 Define: i) Instantaneous velocity ii) Uniform acceleration iii) Variable acceleration iv) Retardation CO5 L3 8 What is a projectile? Define: i) Angle of projection ii) Horizontal Range iii) Vertical Height iv) Time of fligh CO5 L3 9 State and explain D' Alemberts principle CO5 L3 10 What is Banking (super elevation) and why it is provided? CO5 L3 11 Define:i) Centrifugal Force ii) Centripetal force iii) Centripetal Acceleration CO5 L3 13 Variable acceleration – Acceleration due to gravity – Newton's Laws of Motion. CO5 L3 14 Variable acceleration – Acceleration due to gravity – Newton's Laws of Motion. CO5 L3 14 Variable acceleration – Acceleration due to gravity – Newton's Laws of Motion. CO5 L3 12 Exper	4	Derive relationship between r.p.m and angular velocity	CO5	L3
sec, during which time it makes 50 revolution. Determine I) angular velocity at the end of this interval and ii) time required for the speed to reach 110 rpm 6 A burglar's car starts with an acceleratin of 2 m/sec2. A police van came after CO5 L3 10 sec and continued to chase the burglar's car with an uniform velocity of 40 m/sec. Find the time taken by the police van to overtake the burglar's car. CO5 L3 7 Define: i) Instantaneous velocity ii) Uniform acceleration iii) Variable CO5 L3 acceleration iv) Retardation CO5 L3 8 What is a projectile? Define: i) Angle of projection ii) Horizontal Range iii) Vertical CO5 L3 10 What is Banking (super elevation) and why it is provided? CO5 L3 11 Define:i) Centrifugal Force ii) Centripetal force iii) Centripetal Acceleration CO5 L3 12 Instantaneous velocity - Speed - Acceleration - Average acceleration CO5 L3 13 Variable acceleration - Acceleration due to gravity - Newton's Laws of Motion. CO5 L3 14 Variable acceleration - Acceleration due to gravity - Newton's Laws of Motion. CO5 L3 12 Experiences - - - 14	5	A wheel is rotating about a fixed axis at 20 r.p.m is uniformly accelerated for 70	CO5	L3
6 A burglar's car starts with an acceleratin of 2 m/sec2. A police van came after 10 sec and continued to chase the burglar's car with an uniform velocity of 40 m/sec. Find the time taken by the police van to overtake the burglar's car. CO5 L3 7 Define: i) Instantaneous velocity ii) Uniform acceleration iii) Variable acceleration iv) Retardation CO5 L3 8 What is a projectile? Define: i) Angle of projection ii) Horizontal Range iii) Vertical Height iv) Time of fligh CO5 L3 9 State and explain D' Alemberts principle CO5 L3 10 What is Banking (super elevation) and why it is provided? CO5 L3 11 Define: i) Centrifugal Force ii) Centripetal force iii) Centripetal Acceleration CO5 L3 12 Instantaneous velocity – Speed – Acceleration – Average acceleration CO5 L3 13 Variable acceleration – Acceleration due to gravity – Newton's Laws of Motion. CO5 L3 14 Variable acceleration – Acceleration due to gravity – Newton's Laws of Motion. CO5 L3 14 CO5 L3 CO5 L3 14 CO5 L3 CO5 L3		sec, during which time it makes 50 revolution. Determine I) angular velocity at		
6 A burglar's car starts with an acceleratin of 2 m/sec2. A police van came after 10 sec and continued to chase the burglar's car with an uniform velocity of 40 m/sec. Find the time taken by the police van to overtake the burglar's car. CO5 L3 7 Define: i) Instantaneous velocity ii) Uniform acceleration iii) Variable acceleration iv) Retardation CO5 L3 8 What is a projectile? Define: i) Angle of projection ii) Horizontal Range iii) Vertical Height iv) Time of fligh CO5 L3 9 State and explain D' Alemberts principle CO5 L3 10 What is Banking (super elevation) and why it is provided? CO5 L3 11 Define:i) Centrifugal Force ii) Centripetal force iii) Centripetal Acceleration CO5 L3 13 Variable acceleration – Acceleration due to gravity – Newton's Laws of Motion. CO5 L3 14 Variable acceleration – Acceleration due to gravity – Newton's Laws of Motion. CO5 L3 2 CO5 L3		the end of this interval and ii) time required for the speed to reach 110 rpm	<u> </u>	
10 sec and continued to chase the burglar's car with an uniform velocity of 40 m/sec. Find the time taken by the police van to overtake the burglar's car. 7 Define: i) Instantaneous velocity ii) Uniform acceleration iii) Variable acceleration iv) Retardation CO5 L3 8 What is a projectile? Define: i) Angle of projection ii) Horizontal Range iii) Vertical Height iv) Time of fligh CO5 L3 9 State and explain D' Alemberts principle CO5 L3 10 What is Banking (super elevation) and why it is provided? CO5 L3 11 Define:i) Centrifugal Force ii) Centripetal force iii) Centripetal Acceleration CO5 L3 12 Instantaneous velocity – Speed – Acceleration – Average acceleration CO5 L3 13 Variable acceleration – Acceleration due to gravity – Newton's Laws of Motion. CO5 L3 14 Variable acceleration – Acceleration due to gravity – Newton's Laws of Motion. CO5 L3 12 Experiences - - - 14 Variable acceleration – Acceleration due to gravity – Newton's Laws of Motion. CO5 L3 14 CO5 L3 - - 12 CO5 L3 - - <	6	A burglar's car starts with an acceleratin of 2 m/sec2. A police van came after	CO5	L3
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8 What is a projectite? Define. If Angle of projection if Horizontal Range in/Vertical CO5 L3 9 State and explain D' Alemberts principle CO5 L3 10 What is Banking (super elevation) and why it is provided? CO5 L3 11 Define:i) Centrifugal Force ii) Centripetal force iii) Centripetal Acceleration CO5 L3 12 Instantaneous velocity – Speed – Acceleration – Average acceleration CO5 L3 13 Variable acceleration – Acceleration due to gravity – Newton's Laws of Motion. CO5 L3 14 Variable acceleration – Acceleration due to gravity – Newton's Laws of Motion. CO5 L3 1 CO5 L3 L3	0	Acceleration IV) Relarcation	COF	
9 State and explain D' Alemberts principle CO5 L3 10 What is Banking (super elevation) and why it is provided? CO5 L3 11 Define:i) Centrifugal Force ii) Centripetal force iii) Centripetal Acceleration CO5 L3 12 Instantaneous velocity – Speed – Acceleration – Average acceleration CO5 L3 13 Variable acceleration – Acceleration due to gravity – Newton's Laws of Motion. CO5 L3 14 Variable acceleration – Acceleration due to gravity – Newton's Laws of Motion. CO5 L3 14 CO5 L3 CO5 L3 14 Variable acceleration – Acceleration due to gravity – Newton's Laws of Motion. CO5 L3 14 CO5 L3 CO5 L3 12 CO5 L3 CO5 L3	0	Height is Time of fligh	005	L3
9 State and explain D Atemberts principle CO5 L3 10 What is Banking (super elevation) and why it is provided? CO5 L3 11 Define:i) Centrifugal Force ii) Centripetal force iii) Centripetal Acceleration CO5 L3 12 Instantaneous velocity – Speed – Acceleration – Average acceleration CO5 L3 13 Variable acceleration – Acceleration due to gravity – Newton's Laws of Motion. CO5 L3 14 Variable acceleration – Acceleration due to gravity – Newton's Laws of Motion. CO5 L3 14 Variable acceleration – Acceleration due to gravity – Newton's Laws of Motion. CO5 L3 12 Experiences - - 1 CO5 L2		State and explain D' Alemberts principle	COF	
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11 Definite.i/ Centilingar Force ii/ Centilipetat force ii/ Cos 12 Instantaneous velocity – Speed – Acceleration due to gravity – Newton's Laws of Motion. COs L3 14 Variable acceleration – Acceleration due to gravity – Newton's Laws of Motion. COs L3 e Experiences - - 1 COs L2 2 COs L2	11	Dofinoi) Contrifugal Force ii) Contripotal force iii) Contripotal Acceleration		
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13 Variable acceleration - Acceleration due to gravity - Newton's Laws of Motion. CO5 L3 14 Variable acceleration - Acceleration due to gravity - Newton's Laws of Motion. CO5 L3 e Experiences - - - 1 CO5 L2 2 CO5 L2	12	Variable acceleration – Acceleration due to gravity – Newton's Laws of Motion		
e Experiences - - 1 CO5 L2	13	Variable acceleration - Acceleration due to gravity - Newton's Laws of Motion.		
Experiences - - 1 CO5 L2 2 CO5 C05	14	variable acceleration - Acceleration due to gravity - Newton's Laws of Motion.	005	<u>∟</u> 3
2 CO5 L2			-	-
	2		CO5	

E3. CIA EXAM – 3

a. Model Question Paper - 3

Crs (Code	18CIV14	Sem:	VII	Marks:	30	Time:	75 minute	S	
Cour	se:	Elements o	f Civil Engin	eering and I	Mechanics					
-	-	Note: Answ	ver all quest	ions, each d	carry equal	marks. Mod	lule : 5	Marks	со	Level
1	а	State and p	rove paralle	l axis theore	em			5	CO5	L3
	b	Determine	the MI of sei	mi circle by	method of	integration		5	CO5	L3
2	а	Determine	the MI of lar	nina as shov	vn in fig			5	CO5	L3
	b	Determine	the radius o	f gyration fo	r the lamina	a as shown ir	n fig	5	CO5	L3
3	а	Derive relat	ionship betv	ween linear	acceleratio	n and angula	ar acceleratior	า 5	CO5	L3
	b	A burglar's	car starts w	ith an accel	leratin of 2	m/sec2. A p	olice van carr	ne 5	CO5	L3
		after 10 se	c and conti	nued to ch	ase the bu	ırglar's car v	with an unifor	m		
		velocity of	40 m/sec. l	-ind the tim	ne taken by	the police	van to overtal	<e< td=""><td></td><td></td></e<>		
		the burglar	s car.							
					OR					
4	а	State and e	xplain D' Ale	emberts prir	nciple			5	CO5	L3
	b	Define:i) Ce	ntrifugal For	ce ii) Centri	petal force i	ii) Centripeta	al Acceleratior	5	CO5	L3

b. Assignment – 3

	Model Assignment Questions			
Crs Code:	18CIV24 Sem: II Marks: 5 Time: 9	0 – 120 I	minutes	S
Course:	Elements of Civil Engineering and Mechanics			
Note: Each	student to answer 2-3 assignments. Each assignment carries equal mar	k.		
SNo	Assignment Description	Marks	со	Level
1	Define: i) Displacement ii) Velocity iii) Acceleration iv) Speed v) Decelaration vi) Average velocity	5	CO5	L3
2	What is Banking (super elevation) and why it is provided?	5	CO5	L3
3	What is a projectile? Define: i) Angle of projection ii) Horizontal Range iii) Vertical Height iv) Time of flight	5	CO5	L3
4	Define:i) Centrifugal Force ii) Centripetal force iii) Centripetal Acceleration	5	CO5	L3
5	Define: i) Instantaneous velocity ii) Uniform acceleration iii) Variable acceleration iv) Retardation	5	CO5	L3
6	Define i) displacement ii) speed iii) uniform velocity iv) average velocity	5	CO5	L3
7	State and explain Newtons law of motion	5	CO5	L3
8	Derive relationship between linear acceleration and angular acceleration	5	CO5	L3
9	Derive relationship between r.p.m and angular velocity	5	CO5	L3
10	A wheel is rotating about a fixed axis at 20 r.p.m is uniformly accelerated for 70 sec, during which time it makes 50 revolution. Determine I) angular velocity at the end of this interval and ii) time required for the speed to reach 110 rpm	5	CO5	L3
11	A burglar's car starts with an acceleratin of 2 m/sec2. A police van came after 10 sec and continued to chase the burglar's car with an uniform velocity of 40 m/sec. Find the time taken by the police van to overtake the burglar's car.	5	CO5	L3
12	Define: i) Instantaneous velocity ii) Uniform acceleration iii) Variable acceleration iv) Retardation	5	CO5	L3

13	What is a projectile? Define: i) Angle of projection ii) Horizontal Range iii) Vertical Height iv) Time of fligh	5	CO5	L3
14	State and explain D' Alemberts principle	5	CO5	L3
15	A wheel is rotating about a fixed axis at 20 r.p.m is uniformly accelerated for 70 sec, during which time it makes 50 revolution. Determine I) angular velocity at the end of this interval and ii) time required for the speed to reach 110 rpm	5	CO5	L3
16	A burglar's car starts with an acceleratin of 2 m/sec2. A police van came after 10 sec and continued to chase the burglar's car with an uniform velocity of 40 m/sec. Find the time taken by the police van to overtake the burglar's car.	5	CO5	L3

F. EXAM PREPARATION

1. University Model Question Paper

Cours	se:	SElements of Civil Engineering and Mechanics Month	n / Year	May /	2018
Crs C	ode:	18CIV24 Sem: II Marks: 100 Time:		180 m	inutes
Mod		Answer all FIVE full questions. All questions carry equal marks.	Marks	CO	Level
ule					
1	а	Define couple. Explain characteristics of couple	6	CO1	L3
	b	Bring out briefly scope of following specialization of civil engineering	6	CO1	L3
		i) Structural Engineering i) Transportation Engineering			<u> </u>
	С	A force of 630N is acting on a block as shown in the fig-1 .	8	CO1	L3
		Find the			
		i)Horizontal & vertical components			
		ii)Inclined to the plane and right angles to the plane			
		OR			L3
	а	Define force. Explain the classification of force system	6	CO1	L3
	b	Explain i)Principle of transmissibility of forces.	6	CO1	L3
		ii)Principle of physical independence of forces			
	С	Replace 1000N force at point A, which is acting at point B as	8	CO1	L3
		shown in the fig-2 . Also find the moment at A			
2	а	Explain with sketch Cone friction	6	CO2	L3
	b	State and prove Lami'stheorem	6	CO2	L3
	С	Determine the reaction at contact points for spheres A & B as shown in f	g 8	CO2	L3
		Q 2(a).It is given that WA = 1200N, WB = 1500N, dA = 400mm, dB = 900mr	n		
		OR			
	а	State and prove Parallelogram law of forces	6	CO2	L3
	b	Define i) Angle of friction ii) Angle of Repose	6	CO2	L3
	С	A square A B C D as forces acting at along its sides as shown in the fig-4	. 8	CO2	L3
		Find the value of P & Q, if the system reduces the couple. Also find the			
		magnitude of the couple.			
	2	Evolution different types of supports and loads in the analysis of beam		<u> </u>	
3	d	Explain different types of supports and todds in the analysis of beam	/	<u> </u>	
	D		0	03	L3
	2	Differentiate between method of igint and method of soction	7	COn	12
	h	Analysis of statically determinate trusses using method of joints shown	/ in 8	CO3	
		fia 6			
L				1	

4	а	Determine the centroid of semi circle by method of	6	CO4	L3
		integration			
	b	State and prove parallel axis theorem	6	CO4	L3
	С	Determine the radius of gyration for the lamina as shown in fig 7	8	CO4	L3
		OR			
	а	Determine the MI of semi circle by method of integration	6	CO4	L3
	b	Determine the centroid of I section	6	CO4	L3
	С	Determine the centroid of shaded part as shown in fig 8	8	CO4	L3
5	а	State and explain D' Alemberts principle	6	CO5	L3
	b	What is a projectile? Define: i) Angle of projection ii) Horizontal Range iii)	6	CO5	L3
		Vertical Height iv) Time of fligh			
	С	A burglar's car starts with an acceleratin of 2 m/sec2. A police van came	8	CO5	L3
		after 10 sec and continued to chase the burglar's car with an uniform			
		velocity of 40 m/sec. Find the time taken by the police van to overtake			
		the burgtar's car.			

2. SEE Important Questions

Cours	se:	Elements of Civil Engineering and Mechanics Mon	th / Year	May /2	2018
Crs C	ode:	18CIV24 Sem: II Marks: 100 Time	2	180 mi	nutes
	Note	Answer all FIVE full questions. All questions carry equal marks.	-	-	
Mod	Qno.	Important Question	Marks	со	Year
ule					
1	1	Define couple. Explain characteristics of couple	6	CO1	
	2	Bring out briefly scope of following specialization of civil engineering i) Structural Engineering i) Transportation Engineering	6	CO1	
	3	A force of 630N is acting on a block as shown in the fig-1 .	8	CO1	
		Find the			
		i)Horizontal & vertical components			
		ii)Inclined to the plane and right angles to the plane			
	4	Define force. Explain the classification of force system	6	CO1	
	5	Explain i)Principle of transmissibility of forces.	6	CO1	
		ii)Principle of physical independence of forces			
2	1	Explain with sketch Cone friction	6	CO2	
	2	State and prove Lami'stheorem	6	CO2	
	3	State and prove Parallelogram law of forces	6	CO2	
	4	Define i) Angle of friction ii) Angle of Repose	6	CO2	
	5	A square A B C D as forces acting at along its sides as shown in the fig-4 Find the value of P & Q, if the system reduces the couple. Also find the magnitude of the couple.	. 8	CO2	
3	1	Explain different types of supports and loads in the analysis of beam	6	CO3	
	2	Determine the reaction at the supports for the system as shown in fig 5	8	CO3	
	3	Differentiate between method of joint and method of section	6	CO3	
	4	Analysis of statically determinate trusses using method of joints shown fig 6	in 8	CO3	
4	1	Determine the centroid of semi circle by method of	6	CO4	
		integration			
	2	State and prove parallel axis theorem	6	CO4	
	3	Determine the radius of gyration for the lamina as shown in fig 7	8	CO4	
	4	Determine the MI of semi circle by method of integration	6	CO4	

	5	Determine the centroid of I section	8	CO4	
5	1	State and explain D' Alemberts principle	6	CO5	
	2	What is a projectile? Define: i) Angle of projection ii) Horizontal Range iii) Vertical Height iv) Time of fligh	6	CO5	
	3	What is Banking (super elevation) and why it is provided?	6	CO5	
	4	Define:i) Centrifugal Force ii) Centripetal force iii) Centripetal Acceleration	6	CO5	
	5	A burglar's car starts with an acceleratin of 2 m/sec2. A police van came after 10 sec and continued to chase the burglar's car with an uniform velocity of 40 m/sec. Find the time taken by the police van to overtake the burglar's car.	8	CO5	

Course Outcome Computation

Academic Year:

Odd /	Even	semester
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INTERNAL TEST			•	T1					Г	2				٦	[3	
Course	СО		со		СО		СО		СО		CO		CO7		со	
Outcome	1	117	2	117	3	117	4	117	5	117	6	117	01	117	8	117
NO	Q1	Lv	QZ	Lv	Q3	Lv	GI	Lv	QZ	Lv	Q3	Lv	GI	Lv	QZ	LV
MAX																
MARKS																
USN-1																
USN-2																
USN-3																
USN-4																
USN-5																
USN-6																
Average CO																
Attainment																
LV Threshold	d : 3:>	60%	, 2:>=	50%	and <	=60%	5, 1: <	=49	%							
CO1 Comput	ation	1 :(2+	2+2+3	3)/4 =	10/4	.=2.5										

PO Computation

Program Outcome Weight of CO - PO	PO1	PO3	PO3	PO1	PO12	PO12	PO6	PO1
Course Outcome	CO1	CO2	CO3	CO4	CO5	CO6	CO7	CO8
Test/Quiz/L		T1			T2		Г	3
ab								
QUESTION	Q1	L Q2 LV	Q3 LV	Q1 LV	Q2 LV	Q3 LV	Q1 LV	Q2 LV
NO		\vee						
MAX								
MARKS								
USN-1								
USN-2								
USN-3								
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USIN-4	
USN-5	
USN-6	
Average CO Attainment	