Sri Indu
College of Engineering & Technology
UGC Autonomous Institution
Recognized under 2(f) & 12(B) of UGC Act 1956,
NAAC, Approved by AICTE &
Permanently Affiliated to JNTUH

Estd.2001

NAAC
NATIONAL ASSESSMENT AND ACCREDITATION COUNCIL

DEPARTMENT OF HUMANITIES & SCIENCES

COMPUTER AIDED ENGINEERING GRAPHICS
(R22)

I BTECH I SEMESTER

(COMMON TO CSE, IT, CSIT, CS, DS)

DEPARTMENT OF HUMANITIES & SCIENCES

Branch: COMMON TO CSE, IT, CSIT, CS, DS,EEE

Class: B.Tech- I Year- I SEM **Subject: COMPUTER AIDED ENGINEERING GRAPHICS**

Subject Code: R22MED1125 **Academic Year: 2022-23** **Regulation: R22**

Core/Elective/H&S: H&S **Credits: 3**

SNO	Prepared By	Regulation
1	B.Vineeth	R22
	L.Ravi	
2	K.Vijaya Kumar	
3	G.Swathi	
	A.Pramod Reddy	

Head of the Department

DEPARTMENT OF HUMANITIES & SCIENCES

HANDOUT- INDEX

S. No	Contents
1	Vision, Mission, PEOs, POs, COs
2	Theory
i)	Syllabus Copy
ii)	Lesson plan
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iv)	Individual Faculty Time Table

INSTITUTION VISION

To be a premier Institution in Engineering & Technology and Management with competency, values and social consciousness.

INSTITUTION MISSION

IM_1 Provide high quality academic programs, training activities and research facilities.

IM_2 Promote Continuous Industry-Institute interaction for employability, Entrepreneurship, leadership and research aptitude among stakeholders.

IM_3 Contribute to the economical and technological development of the region, state and nation.

DEPARTMENT VISION

To be a technologically adaptive centre for computing by grooming the students as top notch professionals.

DEPARTMENT MISSION

DM1: To offer quality education in computing.

DM2:To provide an environment that enables overall development of all the stakeholders

DM3:To impart training on emerging technologies

DM4:To encourage participation of stakeholders in Research and Development

PROGRAM EDUCATIONAL OBJECTIVES (PEOs)

PEO 1: **Higher Degrees & Professional Employment:** Graduates with ability to pursue career in core industries or higher studies in reputed institution.

PEO 2: **Domain Knowledge:** Graduates with ability to apply professional knowledge/skills to design and develop product or process.

PEO 3: **Engineering Career:** Graduates with excellence in Electronics and Communication Engineering along with effective inter-personnel skills.

PEO 4: **Lifelong Learning:** Graduates equipped with skills in recent technologies and be receptive to attain professional competence through life-long learning.

PROGRAM OUTCOMES (POs) & PROGRAM SPECIFIC OUTCOMES (PSOs)

SRI INDU COLLEGE OF ENGINEERING & TECHNOLOGY
B. TECH – COMPUTER SCIENCE AND ENGINEERING

PO	Description
PO 1	**Engineering Knowledge**: Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.
PO 2	**Problem Analysis:** Identify, formulate, review research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.
PO 3	**Design / development of Solutions:** Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations.
PO 4	**Conduct investigations of complex problems:** Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.
PO 5	**Modern tool usage:** Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modeling to complex engineering activities with an understanding of the limitations.
PO 6	**The engineer and Society:** Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice.
PO 7	**Environment and sustainability:** Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.
PO 8	**Ethics:** Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice
PO 9	**Individual and team work:** Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.
PO 10	**Communication:** Communicate effectively on complex engineering activities with the engineering community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.
PO 11	**Project management and finance:** Demonstrate knowledge and understanding of the engineering and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.
PO 12	**Life-long learning:** Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological Change
	Program Specific Outcomes
PSO 1	**To apply the knowledge of Software Engineering, Data Communication, Web Technology and Operating Systems for building IOT and Cloud Computing applications.**
PSO 2	**Design, develop and test software systems for worldwide network of computers to provide solutions to real world Problems.**
PSO 3	**Analyze and recommend the appropriate IT infrastructure required for the implementation of a project.**

Course Objectives and Course Outcomes

Course Name: Computer Aided Engineering Graphics (C115)

Course Objective:

- To provide basic concepts in engineering drawing.
- To impart knowledge about standard principles of orthographic projection of objects
- To draw sectional views and pictorial views of solids.

Course Outcomes

Upon successful completion of this course, the student shall be able to:

Course Outcomes (COs)	
C115.1	Acquire requisite basic knowledge, techniques for the study of engineering graphics.
C115.2	Comprehend the basics of orthographic projections and deduce orthographic projections of a points, lines and planes at different orientations.
C115.3	Imagine orthographic views of various solid objects at different orientations .
C115.4	Understanding the meaning of sectioning and to analyze the internal details of solids.
C115.5	Develop the surfaces of right regular solids.
C115.6	Recognize the significance of isometric views to relate 2D with 3D and to create 2D sketches by Auto CAD package.

SRI INDU COLLEGE OF ENGINEERING & TECHNOLOGY
B. TECH – COMPUTER SCIENCE AND ENGINEERING

Academic Year: 2022-23 **B.Tech I Year I Sem**

COs MAPPING WITH POs & PSOs

Justification of CO's and PO's Mapping

SUB NAME: Computer Aided Engineering Graphics **SUB CODE: R22MED1125**

Course Outcomes (COs)	
C115.1	Acquire requisite basic knowledge, techniques for the study of engineering graphics.
C115.2	Comprehend the basics of orthographic projections and deduce orthographic projections of a points, lines and planes at different orientations.
C115.3	Imagine orthographic views of various solid objects at different orientations.
C115.4	Understanding the meaning of sectioning and to anlalyse the internal details of solids.
C115.5	Develop the surfaces of right regular solids.
C115.6	Recognize the significance of isometric views to relate 2D with 3D and to create 2D sketches by Auto CAD package.

CO	**Levels of CO**	**Program Outcomes**												**Program Specific Outcomes**			
		K3	K4	K4	K5	K3,K5, K6	A3	A2	A3	A3	A3	A3	A2	K3	K6	K3	
		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3	
CO-1	K4	3	2	3	-	3	-	-	-	-	-	-	3	3	3	2	1.46
CO-2	K3	3	2	3	-	3	-	-	-	-	-	-	3	3	3	2	1.46
CO-3	K5	3	2	3	-	3	-	-	-	-	-	-	3	3	3	2	1.46
CO-4	K3	3	2	3	-	3	-	-	-	-	-	-	3	3	3	2	1.46
CO-5	K4	3	2	3	-	3	-	-	-	-	-	-	3	3	3	2	1.46
CO-6	K5	3	2	3	-	3	-	-	-	-	-	-	3	3	3	2	1.46
		3	2	3		3							3	3	3	2	

SRI INDU COLLEGE OF ENGINEERING & TECHNOLOGY
(An Autonomous Institution under UGC, New Delhi)

B.Tech. - I Year – I Semester

L	T	P	C
1	0	4	3

(R22MED1125) COMPUTER AIDED ENGINEERING GRAPHICS

Course Objectives:

- To develop the ability of visualization of different objects through technical drawings
- To acquire computer drafting skill for communication of concepts, ideas in the design ofengineering products

Course Outcomes: At the end of the course, the student will be able to:

- Apply computer aided drafting tools to create 2D and 3D objects
- sketch conics and different types of solids
- Appreciate the need of Sectional views of solids and Development of surfaces of solids
- Read and interpret engineering drawings
- Conversion of orthographic projection into isometric view and vice versa manually and by usingcomputer aided drafting

UNIT – I:

Introduction to Engineering Graphics: Principles of Engineering Graphics and their Significance, Scales – Vernier, Plain & Diagonal, Conic Sections including the Rectangular Hyperbola – General method only. Cycloid, Epicycloid, Hypocycloid and Involute, Introduction to Computer aided drafting – views, commands and conics

UNIT- II:

Orthographic Projections: Principles of Orthographic Projections – Conventions – Projections of Points and Lines, Projections of Plane regular geometric figures. Auxiliary Planes. Computer aided orthographic projections – points, lines and planes

UNIT – III:

Projections of Regular Solids –Sections or Sectional views of Right Regular Solids – Prism, Cylinder, Pyramid, Cone – Computer aided projections of solids – sectional views

UNIT – IV:

Development of Surfaces of Right Regular Solids – Prism, Cylinder, Pyramid and Cone, Developmentof surfaces using computer aided drafting

UNIT – V:

Isometric Projections: Principles of Isometric Projection – Isometric Scale – Isometric Views – Conventions – Isometric Views of Lines, Plane Figures, Simple and Compound Solids – Isometric Projection of objects having non- isometric lines. Isometric Projection of Spherical Parts. Conversion of Isometric Views to Orthographic Views and Vice-versa –Conventions. Conversion of orthographic projection into isometric view using computer aided drafting.

TEXT BOOKS:

1. Engineering Drawing N.D. Bhatt / Charotar
2. Engineering Drawing and graphics Using AutoCAD Third Edition, T. Jeyapoovan, Vikas: S. Chand and company Ltd.

REFERENCE BOOKS:

1. Engineering Drawing, Basant Agrawal and C M Agrawal, Third Edition McGraw Hill
2. Engineering Graphics and Design, WILEY, Edition 2020
3. Engineering Drawing, M. B. Shah, B.C. Rane / Pearson.
4. Engineering Drawing, N. S. Parthasarathy and Vela Murali, Oxford

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NBA Accredited, Approved by AICTE and Permanently affiliated to JNTUH
Sheriguda (V), Ibrahimpatnam, R.R.Dist, Hyderabad - 501 510

D4

BR-22

Lr.No.SICET/AUTO/DAE/BR-22/Academic Cal./655/2022 Date: 27.10.2022

I B.TECH. ACADEMIC CALENDAR
ACADEMIC YEAR : 2022-2023

Dr.G. SURESH,
Principal,

To,
All the HODs
Sir,

Sub: SICET (Autonomous) - Academic & Evaluation - Academic Calendar for I **B.Tech - I & II Semester** for the academic year **2022-23** – Reg.

****

The approved Academic Calendar for **I B.Tech – I & II Semester** for the academic year **2022-23** is given below:

I SEMESTER

S.NO.	EVENT	PERIOD	DURATION
1.	Induction & Orientation Programme	**03.11.2022**	
2.	1ST Spell of Instructions for covering First Two and a half Units	03.11.2022 – 28.12.2022	8 Weeks
3.	I Mid Examinations	29.12.2022 – 04.01.2023	1 Week
4.	Submission of I Mid Term Examination Marks to the Autonomous Section on or before	10.01.2023	
5.	2nd Spell of Instructions for covering Remaining Two and a half Units	05.01.2023 – 02.03.2023	8 Weeks
6.	II Mid Examinations	03.03.2023 – 09.03.2023	1 Week
7.	Preparation & Practical Examinations and Remidial Mid Test (RMT)	10.03.2023 – 16.03.2023	1 Week
8.	Submission of II Mid Term Examination Marks Marks to the Autonomous Section on or before	16.03.2023	
9.	I Semester End Examinations	17.03.2023 – 01.04.2023	2 Weeks
	Commencement of Class-Work for I B.Tech - II Semester 03.04.2023		

II SEMESTER

S.NO.	EVENT	PERIOD	DURATION
1.	Commencement of II Sem Class Work	**03.04.2023**	
2.	1st Spell of Instructions for covering First Two and a half Units (Including Summer Vacation)	03.04.2023 – 10.06.2023	10 Weeks
	Summer Vacation	15.05.2023 – 27.05.2023	2 Weeks
3.	I Mid Examinations	12.06.2023 – 17.06.2023	1 Week
4.	Submission of I Mid Term Examination Marks to the Autonomous Section on or before	23.06.2023	
5.	2nd Spell of Instructions for covering Remaining Two and a half Units	19.06.2023 – 12.08.2023	8 Weeks
6.	II Mid Examinations	14.08.2023 – 19.08.2023	1 Week
7.	Preparation & Practical Examinations and Remidial Mid Test (RMT)	21.08.2023 – 26.08.2023	1 Week
8.	Submission of II Mid Term Examination Marks Marks to the Autonomous Section on or before	26.08.2023	
9.	II Semester End Examinations	28.08.2023 – 09.09.2023	2 Weeks
	Commencement of Class Work for II B.Tech – I Semester - 11.09.2023		

ACE CE DEAN PRINCIPAL

Copy to all the Heads of the Depts. and AO.

CONTROLLER OF EXAMINATIONS
Sri Indu College of Engineering & Technology
(An Autonomous Institution under JNTUH)
Sheriguda (V), Ibrahimpatnam, R.R. Dist-501510.

DIRECTOR
(Academic Audit)
Sri Indu College of Engineering & Technology
Sheriguda, IBP, R.R. Dist-501510.

PRINCIPAL
Sri Indu College of Engineering & Technology
(An Autonomous Institution Under JNTUH)
Sheriguda (V), Ibrahimpatnam, R.R. Dist-501510.

UNIT – I

INTRODUCTION TO ENGINEERING DRAWING

Unit/ Item No.	Topic (s)	Book Reference	Page (s) From	Page (s) To	Teaching Methodology	Proposed No. of Periods	Actual Date of Handled	CO
1.1	Introduction to Engineering Drawing	T1	1	36	Black board	03		CO1
1.2	Principles of Engineering Graphics and their Significance – Drawing Instruments and their Use – Conventions in Drawing – Lettering	T1	37	47	Black board	03		CO1
1.3	Geometrical constructions	T1	69	89	Black board	03		CO1
1.4	Introduction of scales , Construction of plain scales	T1	51	54	Black board	03		CO1
1.5	Construction of Diagonal scales	T1	55	59	Black board	03		CO1
1.6	Introduction to Conic section. General Method For Ellipse, parabola & Hyperbola	T1	101	113	PPT, Black board	03		CO1
1.7	Construction methods of ELLIPSE	T1	104	109	Black board	03		CO1
1.8	Construction methods of PARABOLA	T1	110	112	Black board	03		CO1
1.9	Construction methods of HYPERBOLA,RECTANGULAR HYPERBOLA	T1	113	114	Black board	03		CO1
1.10	Introduction to Cycloidal Curves. Construction of Cycloid, Epi-cycloid and Hypocycloid	T1	116	121	PPT, Black board	03		CO1
1.11	Additional Exercises	T1			PPT, Black board	03		CO1

	Review	**Signature of the HOD/Coordinator**

UNIT – II

ORTHOGRAPHIC PROJECTIONS

Unit/ Item No.	Topic (s)	Book Reference	Page (s) From	Page (s) To	Teaching Methodology	Proposed No. of Periods	Actual Date of Handled	CO
2.1	Introduction of Orthographic Projection and their Conventions	T1	169	176	PPT, Black board	03		CO2
2.2	Projections of Points	T1	189	194	PPT, Black board	03		CO2
2.3	Introduction to Projections of Lines, Problems based on True lengths and traces.	T1	195	240	PPT, Black board	03		CO2
2.4	Introduction to Projections Of Planes and problems	T1	255	270	PPT, Black board	03		CO2
2.5	Introduction to Auxiliary plane Methods and Problems	T1	241	254	Black board	03		CO2
	Additional Exercise	T1			PPT, Black board	03		CO2
	Review	**Signature of the HOD/Coordinator**						

	SRI INDU COLLEGE OF ENGG & TECH QUESTION BANK (Regulation :R22) Department of Mechanical Engineering		(Regulation :R22) Prepared on Rev1: Page: 13 of 52
	Sub. Code & Title	(R22MED1125)COMPUTER AIDED ENGINEERING GRAPHICS	
	Academic Year: 2022-23	**Year/Sem./Section**	**I-I(Common for EEE, CSE,IT,CSIT,CS,DS)**
	Faculty Name & Designation	**A.PRAMOD REDDY / B.VINEETH / G.SWATHI K.VIJAYA KUMAR/ L.RAVI**	

UNIT-III

PROJECTION OF RIGHT REGULAR SOLIDS

Unit/ Item No.	Topic (s)	Book Reference	Page (s)		Teaching Methodology	Proposed No. of Periods	Actual Date of Handled	CO
			From	To				
3.1	Introduction to projection of solids. Projection of Solids in simple positions	T1	271	279	PPT, Black board	03		CO3
3.2	Projection of Solids Axis inclined to one plane and parallel to other plane	T1	279	283	Black board	03		CO3
3.3	Projection of Solids with Axis inclined to both the planes	T1	286	293	Black board	03		CO3
3.4	Auxiliary plane method for solids ,Additional Exercise	T1	294	299	Black board	03		CO3
3.5	Introduction to section of solids,Problems on Section of Prism & Pyramid	T1	313	325	PPT, Black board	03		CO4
3.6	Problems on Section of Cylinder & Cone	T1	326	336	Black board	03		CO4
3.7	Additional Exercise	T1			PPT, Black board	03		CO4
	Review	**Signature of the HOD/Coordinator**						

UNIT-IV

DEVELOPMENT OF RIGHT REGULAR SOLIDS

Unit/ Item No.	Topic (s)	Book Reference	Page (s) From	Page (s) To	Teaching Methodology	Proposed No. of Periods	Actual Date of Handled	CO
4.1	Introduction to Development of Surfaces and problems on Development of Right Regular Solids – Cube,Prisms & cylinder	T1	351	359	PPT, Black board	03		CO5
4.2	Problems on Development of Right Regular Solids – Pyramid & cone	T1	360	369	Presentation	03		CO5
4.3	Additional Exercise	T1			Black board	03		CO5
	Review	**Signature of the HOD/Coordinator**						

	SRI INDU COLLEGE OF ENGG & TECH QUESTION BANK (Regulation :R22) Department of Mechanical Engineering			(Regulation :R22) Prepared on Rev1: Page: 15 of 52
	Sub. Code & Title	**(R22MED1125)COMPUTER AIDED ENGINEERING GRAPHICS**		
	Academic Year: 2022-23	**Year/Sem./Section**	**I-I(Common for EEE, CSE,IT,CSIT,CS,DS)**	
	Faculty Name & Designation	**A.PRAMOD REDDY / B.VINEETH / G.SWATHI K.VIJAYA KUMAR/ L.RAVI**		

UNIT-V

ISOMETRIC PROJECTION

Unit/ Item No.	Topic (s)	Book Reference	Page (s) From	Page (s) To	Teaching Methodology	Proposed No. of Periods	Actual Date of Handled	CO
5.1	Principles of Isometric projection, scale, Isometric Views and Conventions	T1	417	420	PPT, Black board	03		CO6
5.2	Isometric view of planes & simple solids,	T1	421	426	Black board	03		CO6
5.3	Isometric view of compound solids & Non IsometricLines	T1	427	433	Black board	03		CO6
5.4	Conversion of Orthographic to Isometric View	T1	434	464	Black board	03		CO6
5.5	Conversion of Isometric to Orthographic View	T1	526	538	Black board	03		CO6
5.6	Additional Exercise							
5.7	Introduction to Auto-CAD Software package commands.Creation of 2-D sketches	T1	621	639	PPT, Black board	03		CO6
5.8	Additional Exercise	T1			PPT, Black board	03		CO6
	Review	**Signature of the HOD/Coordinator**						

LIST OF TEXT BOOKS AND REFERENCES

Text Books:

T1.Engineering Drawing N.D. Bhatt / Charotar

T2. Engineering Drawing / N. S. Parthasarathy and Vela Murali/ Oxford

Reference Books:

R1. Engineering Drawing / Basant Agrawal and McAgrawal/ McGraw Hill
R2. Engineering Drawing/ M. B. Shah, B.C. Rane / Pearson.
R3. Computer Aided Engineering Drawing – K Balaveera Reddy et al – CBS Publishers

Weblinks

1. https://www.slideshare.net/GovindPatil9/engineering-drawing-basicsppt
2. https://nptel.ac.in/courses/112103019/3
3. https://www.slideshare.net/nyioq/orthographic-projection
4. https://www.slideshare.net/AniketSuryawanshi/projection-of-solids-73140319
5. www.iitg.ac.in/kpmech/ME111-2016/Development.ppt
6. https://www.slideshare.net/kashyapshah11/development-of-surfaces-of-solids
7. www.iitg.ac.in/kpmech/ME111-2016/Intersection%20of%20soildsR1.ppt
8. https://www.slideshare.net/vijendrarathor849/isometric-projection-73581702
9. https://www.slideshare.net/eglive/lesson-13perspectiveprojection

QUESTION BANK WITH BLOOMS TAXONOMY LEVEL (BTL)

(I- Remembering, II- Understanding, III-Applying. IV- Analyzing, Evaluating, IV-Creating)

QUESTION BANK WITH BLOOMS TAXONOMY LEVEL (BTL)

(Remembering, II- Understanding, III-Applying. IV- Analyzing, V- Evaluating, IV-Creating)

UNIT-1
INTRODUCTION TO ENGINEERING GRAPHICS, SCALES, CONIC SECTIONS, CYCLODAL CURVES,INTRODUCTION TO COMPUTER AIDED DRAFTING

PART-A

MULITLE CHOICE QUESTIONS

	½ MARKS QUESTIONS	BT Level	Course Outcome
1C-1	The length: width in case of an arrow head is ( ) a)1:1 b)2:1 c)3:1 d)4:1	I	CO1
1C-2	The included angle of a pentagon is( ) a)68° b)72° c)108° d)112°	I	CO1
1C-3	Name the curve traced by a point on the circumference of a circle which rolls along a straight line without slipping. ( ) a)cycloid b)hypocycloid c)epicycloids d)parabola	I	CO1
1C-4	In the engineering system of paper sizes which of the following is A2 size ( ) a)594×841 b)297×420 c)420×594 d)210×297	I	CO1
1C-5	A drafter helps in drawing to draw ( ) a)parallel and perpendicular lines b)concentric circles c)smooth curves d)all of the above	I	CO1
1C-6	Name the curve when the eccentricity is equal to one ( ) a)ellipse b)parabola c)hyperbola d)any of these	I	CO1
1C-7	When measurements are required in three consecutive units, appropriate scale is a)Plain scale b) Diagonal scale c)Vernier scale d) Comparative scale	I	CO1
1C-8	Drawing pencils are graded according to increase in relative _____( ) a)diameter b)sharpness c)length d) hardness	I	CO1
1C-9	_____ is used to draw curves which are not circular. ( ) a) Compass b) Protractor c) French curves d) Pro circle	III	CO1
1C-10	Which of the following is reducing scale? ( ) a) 10:1 b) 10:2 c) 0.5:1 d) 2:1	III	CO1

1C-11	The unit of R.F is ( ) a) cc b) sq.m c) cm d)none of these	I	CO1
1C-12	When measurements are required in two consecutive units, the appropriate scale is( ) a)Plain scale b) Diagonal scale c)Vernier scale d) Comparative scale	I	CO1
1C-13	The full form of R.F. is ( ) (a) reducing fraction (b) representative fraction (c) rational factor (d) representative factor	I	CO1
1C-14	Involute curve is used in ( ) (a) chains (b) gears (c) cams (d) pulleys	V	CO1
1C-15	The two recommended systems of placing the dimensions are ( ) (a) unidirectional and aligned systems (b) upright and inclined systems (c) linear and oblique systems (d) linear and inclined systems	V	CO1
FILL IN THE BLANK QUESTIONS			
	½ MARKS QUESTIONS	**BT Level**	**Course Outcome**
1F-1	To draw circles and arcs of circles, _____is used.	III	CO1
1F-2	Dimension lines, leader lines, projection and hatching lines are drawn as_____	III	CO1
1F-3	The angle at any corner of a pentagon is _____.	I	CO1
1F-4	Drawings of buildings and large machine parts are prepared by using _____scales.	III	CO1
1F-5	When measurements are desired in three units, _____ scale is used.	I	CO1
1F-6	When a cone is cut by planes at different angles, the intersection curves obtained curves are known as_____.	I	CO1
1F-7	_____are the curves generated by a fixed point on the circumference of a rolling circle.	III	CO1
1F-8	The curve generated by a point on a circumference of a rolling circle, rolling along another circle outside it, is called _____.	I	CO1
1F-9	The curve traced by a point on a straight line, when it rolls without slipping, along a circle or a polygon is called_____.	I	CO1
1F-10	Eccentricity is the ratio of_____	II	CO1
1F-11	Length of the scale= R.F×_____	II	CO1
1F-12	_____is a curve traced by a point on the circumference on a circle which rolls along another circle inside it without slipping.	I	CO1
1F-13	_____lines used for dimension lines.	II	CO1
1F-14	When a right circular cone is cut by a plane passing through its apex, the section obtained is a _____	I	CO1
1F-15	The locus of a point lying on the circumference of the circle which rolls on a straight line is known as _____.	I	CO1
MATCH THE FOLLOWING QUESTIONS			
	1 MARK QUESTIONS	**BT Level**	**Course Outcome**

<table>
<tr><td>1M-1</td><td>Match the following:
<table><tr><td>a. Dimension lines</td><td>i. Continuous thick lines</td></tr><tr><td>b. Extension or Projection lines</td><td>ii. Continuous thin lines</td></tr><tr><td>c. Margin lines</td><td>iii. Continuous thick lines</td></tr><tr><td>d. Outlines</td><td>iv. Continuous thin lines</td></tr></table>a = b = c = d =</td><td>I</td><td>CO1</td></tr>
<tr><td>1M-2</td><td>Match the following:
<table><tr><td>a. E < 1</td><td>i. Rectangular hyperbola</td></tr><tr><td>b. E = 1</td><td>ii. Hyperbola</td></tr><tr><td>c. E =√2</td><td>iii. Ellipse</td></tr><tr><td>d. E > 1</td><td>iv. Parabola</td></tr></table>a = b = c = d =</td><td>I</td><td>CO1</td></tr>
<tr><td>1M-3</td><td>Match the following:
<table><tr><td>a. Drawing board size</td><td>i. To parallel & perpendicular lines</td></tr><tr><td>b. Drawing sheet size</td><td>ii. Draw circles of small radii</td></tr><tr><td>c. Compass is used for</td><td>iii. 500mm ×700mm</td></tr><tr><td>d. Mini-drafter is used for</td><td>iv. 420mm×594mm</td></tr></table>a = b = c = d =</td><td>I</td><td>CO1</td></tr>
<tr><td>1M-4</td><td>Match the following:
<table><tr><th>Conic sections</th><th>Applications</th></tr><tr><td>a. Ellipse</td><td>i. Household lamps, Boyles law curves</td></tr><tr><td>b. Parabola</td><td>ii. Cooling towers, Planetarium</td></tr><tr><td>c. Hyperbola</td><td>iii. Bridge designs</td></tr><tr><td>d. Rectangular hyperbola</td><td>iv. Dams, man holes, monuments</td></tr></table>a = b = c = d =</td><td>I</td><td>CO1</td></tr>
<tr><td>1M-5</td><td>Match the following:
<table><tr><th>Cycloidal curves</th><th>Applications</th></tr><tr><td>a. Cycloidal</td><td>i. Used in rotary pumps , blowers, superchargers</td></tr><tr><td>b. Epi-cycloid</td><td>ii. Used in teeth profile of a gear wheel and a gear reducer.</td></tr><tr><td>c. Hypo-cycloid</td><td>iii. Used in rotary pumps , blowers, superchargers</td></tr><tr><td>d. Involute</td><td>iv. Study of motion, and in mechanisms</td></tr></table>a = b = c = d =</td><td>I</td><td>CO1</td></tr>
<tr><td></td><td><u>PART-B</u></td><td></td><td></td></tr>
<tr><td></td><td>5 MARKS DESPRICTIVE QUESTIONS</td><td>BT Level</td><td>Course Outcome</td></tr>
<tr><td>1D-1</td><td>Draw an ellipse when the distance of its focus from its directrix is 50mm and eccentricity is 2/3.Also draw a tangent and a normal to the ellipse at a point 70mm away from the directrix.</td><td>VI</td><td>CO1</td></tr>
<tr><td>1D-2.</td><td>Draw an epi-cycloid of circle of 40 diameter, which rolls on another circle of 120 diameter for one revolution clockwise. Draw a tangent and a normal to it at a point 90 from the center of the directing circle.</td><td>VI</td><td>CO1</td></tr>
<tr><td>1D-3.</td><td>The distance between Delhi and Agra is 200km.In a railway map it is represented by a line 5cm long. Find its R.F. Draw a diagonal scale to show single km. and maximum 600km.Indicate on the following distance
i) 222km ii) 336km iii) 459km iv) 569km.</td><td>III</td><td>CO1</td></tr>
<tr><td>1D-4.</td><td>Inscribe an ellipse in a parallelogram having sides 150mm and 100mm long and inclined angle of 75^0.</td><td>III</td><td>CO1</td></tr>
<tr><td>1D-5.</td><td>A coin of 40mm diameter rolls over a horizontal table without slipping. A point on the</td><td>III</td><td>CO1</td></tr>
</table>

	circumference of the coin is in contact with the table surface in the beginning and after one complete revolution. Draw the path traced by the point. Also draw a tangent and normal at any point on the curve.		
1D-6	Construct a diagonal scale of RF=3:200 showing meters, decimeters, and centimeters. The scale should measure up to 6meters.Show a distances of 4.56meters.	III	CO1
1D-7	To draw a hyperbola with the distance of the focus from the directrix at 50mm and e=3/2 by eccentricity method.	VI	CO1
1D-8	Draw, a hypo-cycloid of a circle of 40 diameter which rolls inside another circle of 160 diameter, for one revolution counter clock–wise. Draw a tangent and normal to it at a point 60 from the center of the directing circle.	VI	CO1
1D-9	Draw an ellipse when the major axis is 120 mm and minor axis is 80mm by concentric circles methods.	VI	CO1
1D-10	Draw an involute of a circle diameter 50mm.	VI	CO1
1D-11	Draw the involute of a regular pentagon of side 25mm.	VI	CO1
1D-12	Draw a Vernier scale of 1:40 to read meters, decimeters and centimeters and long enough measure up to 6meters. Mark a distance of 4.76m on it.	VI	CO1
1D-13	A point P of the Hyperbola is situated at a distance of 35mm and 50mm from the pair of asymptotes. The asymptotes are perpendicular to each other. Draw the hyperbola by orthogonal asymptotes method.	III	CO1
1D-14	Write the important components of CAD work station.	IV	CO1
1D-15	Write the difference between manual drafting and Auto CAD drafting.	IV	CO1

Unit -II

ORTHOGRAPHIC PROJECTIONS,PROJECTION OF POINTS,LINES, PLANES,AUXILIARY PLANES,COMPUTER AIDED ORHOGRAPHIC PROJECTIONS-POINTS,LINES& PLANES

PART-A

MULITLE CHOICE QUESTIONS

	½ MARKS QUESTIONS	**BT Level**	**Course Outcome**
2C-1	A point is in second quadrant 15 units away from the vertical plane and 10 units away from horizontal plane, orthographic projection is drawn what is the distance from point of FV to reference line, TV to reference line ( ) a)15,10 b)10,15 c)0,15 d)10,0	I	CO2
2C-2	A hexagon is placed parallel to vertical plane which of the following projection is true? ( ) a) Front view-line, top view- hexagon b) Front view- hexagon, top view- line c) Front view –line, top view-line d) Top view- hexagon, side view- line	I	CO2
2C- 3	Oblique planes come under _____ ( ) a) planes perpendicular to both reference planes b) planes perpendicular to one reference plane and inclined to other reference plane c) planes inclined to both the reference planes d) planes parallel to one reference plane and perpendicular to other reference plane	I	CO2
2C-4	The intersection of a plane surface with the horizontal plane is a line and it is called as ( ) a)horizontal trace b)vertical trace c)profile trace d) trace	I	CO2
2C-5	Straight line of projection will make an angle with xy line to the angle of plane with other principal plane ( ) a)perpendicular b)equal c)right angle d)zero	I	CO2
2C-6	If a line is inclined to V.P. Its FV will be( ) a)perpendicular to xy line b) parallel to xy line c)show the true length d)none of the above	I	CO2
2C-7	The view which gives the actual length of line in profile plane is _____ ( ) a) front view b) top view c) side view d) bottom view	I	CO2
2C-8	Projection of an object shown by three views is known as ( ) (a) perspective (b) isometric (c) oblique (d) orthographic	I	CO2
2C-9	In first-angle projection method, the relative positions of the object, plane and observers are the following: ( ) (a) Object is placed in between (b) Plane is placed in between (c) Observer is placed in between (d) May be placed in any order	I	CO2
2C-10	In multi-view projections, the XY line is also known as ( )	I	CO2

	(a) horizontal line (b) horizontal trace (c) reference line (d) all of these		
2C-11	For orthographic projections, BIS recommends the following: ( ) (a) First-angle projection (b) Third-angle projection (c) Second-angle projection (d) Fourth-angle projection	I	CO2
2C-12	The line joining the front and top views of a point is called ( ) (a) reference line (b) projector (c) connector (d) locus	I	CO2
2C-13	If a line is parallel to both H.P. and V.P., its true length will be seen in ( ) (a) front view (b) top view (c) side view (d) both front and top views	I	CO2
2C-14	Planes which are inclined to both the horizontal and vertical planes are called ( ) (a) oblique planes (b) profile le planes (c) auxiliary planes (d) none of these	I	CO2
2C-15	If both front and top views of a plane are straight lines the true shape will lie on ( ) (a) profile plane (b) horizontal plane (c) vertical plane (d) any of these	I	CO2
	FILL IN THE BLANK QUESTIONS **½ MARKS QUESTIONS**	**BT Level**	**Course Outcome**
2F-1	In the _____projection, the object positioned in between the observer and the plane of projection.	I	CO2
2F-2	In the third angle projection the object positioned in between _____and _____.	I	CO2
2F-3	A straight line is defined as the _____ distance between two points.	I	CO2
2F-4	When a line is perpendicular to one the planes, it is _____to the other plane.	I	CO2
2F-5	When a line is perpendicular to H.P, its front view is _____to xy.	I	CO2
2F-6	The trace of a line is a _____.	I	CO2
2F-7	The traces of planes are _____.	II	CO2
2F-8	A.V.P. stands for _____.	II	CO2
2F-9	A Point whose elevation is above XY line may be situated in _____.	III	CO2
2F-10	A Point whose elevation and plan are above are above XY is situated in _____.	III	CO2
2F-11	If a line is parallel to both H.P and V.P. its true length will be seen in _____.	III	CO2
2F-12	When a point is above HP and behind VP the point is rests in _____ quadrant	I	CO2
2F-13	When a point below HP and in front of VP the point is rests in _____quadrant.	I	CO2
2F-14	If a line is parallel to HP, its front view will be_____ to xy line.	III	CO2
2F-15	When a point is _____V.P. its top view is above xy.	I	CO2
	MATCH THE FOLLOWING QUESTIONS **1 MARK QUESTIONS**	**BT Level**	**Course Outcome**
2M-1	Match The Following: a. Third angle projection — i. seen from left side, drawn Right side of front view b. First angle projection — ii. seen from top, drawn below of front view c. Third angle projection — iii. seen from left side, drawn Left side of front view d. First angle projection — iv. seen from top, drawn above of front view a = b = c = d =	I	CO2
2M-2	Match The Following: a. Vertical Trace — i. Intersecting line in Horizontal Plane b. No Trace — ii. Intersecting line in Vertical Plane	I	CO2

	c. No Trace — iii. Object Parallel HP d. Horizontal Trace — iv. Object Parallel VP a = b = c = d =		
2M-3	Match the following: **Views** — **Planes** a. Front view — i. Reference plane b. Top view — ii. Profile plane c. Side view — iii. Vertical plane d. Reference line — iv. Horizontal plane a = b = c = d =	I	CO2
2M-4	Match the following: a. I st angle projection — i. FV below xy, TV above xy b. II nd angle projection — ii. FV&TV below xy c. III rd angle projection — iii. FV&TV above xy d. IV th angle projection — iv. TV below xy, FV above xy a = b = c = d =	I	CO2
2M-5	Match the following: **QUADRANTS** — **CONDITIONS** a. Ist Quadrant — i. Above HP& Behind V.P b. IInd Quadrant — ii. Below HP& Behind V.P c. IIIrd Quadrant — iii. Below HP& In Front of V.P d. IVth Quadrant — iv. Above HP& In Front of V.P a = b = c = d =	I	CO2
	PART-B **5 MARKS DESPRICTIVE QUESTIONS**	**BT Level**	**Course Outcome**
2D-1	Draw the projections of the following points on a common reference line, keeping the distance between their projectors 30 mm apart. (a) Point A is 20 mm below the H.P. and 50 mm in front of the V.P. (b) Point B is in the H.P. and 40 mm behind the V.P. (c) Point C is 30 mm in front of the V.P. and in the H.P. (d) Point D is 50 mm above the H.P. and 30 mm behind the V.P. (e) Point E is 20 mm below the H.P. and 50 mm behind the V.P. (f) Point F is in the V.P. and 50 mm below the H.P.	IV	CO2
2D-2	An 80 mm long line PQ is inclined at 30° to the V.P. and is parallel to the H.P. The end P of the line is 20 mm above the H.P. and 40 mm in front of the V.P. Draw the projections of the line and determine its traces.	IV	CO2
2D-3	A 70 mm long line PQ has its end P 20 mm above the H.P. and 30 mm in front of the V.P. The line is inclined at 45° to the H.P. and 30° to the V.P. Draw its projections.	IV	CO2
2D-4	A 60 mm long line PQ lying on the H.P. is inclined at 30° to the V.P. Its end P is 20 mm in front of the V.P. Draw the projections of the line and determine its traces.	IV	CO2
2D-5	Draw the projections of a 70 mm long line PQ, situated in the V.P. and inclined at 30° to the H.P. The end P of the line is 25 mm above the H.P. Also, determine the traces of the line.	IV	CO2
2D-6	A 80 mm long line PQ has its end P 20 mm above the H.P. and 30 mm in front of the V.P.The line is inclined at 45º to the H.P. and 30º to the V.P. Draw its projections.	IV	CO2
2D-7	A straight line PQ has its end P 20 mm above the H.P. and 30 mm in front of the V.P. and the end Q is 80 mm above the H.P. and 70 mm in front of the V.P. If the end projectors are 60 mm apart, draw the projections of the line. Determine its true length and true inclinations with the reference planes.	IV	CO2
2D-8	A hexagonal plane of side 25 mm has its surface parallel to and 20 mm in front of V.P. Draw its	III	CO2

	projections, when a side is (a) parallel to the H.P., (b) perpendicular to the H.P., (c) inclined at 45° to the H.P.		
2D-9	A hexagonal plane of side 30mm has an edge in the VP. The surface of the plane is inclined at 45° to the VP and edge on which it rests is inclined at 30° to the HP draw its projections.	III	CO2
2D-10	A semi-circular plane of diameter 60 mm has its straight edge on the V.P. Draw the projection of the plane when its surface is inclined at 45° to the V.P.	III	CO2
2D-11	Draw the projection of a circle of 50mm diameter resting in the H.P. on a point A on the circumference, its plane inclined at 45° to the H.P. The top view of the diameter AG making 30° angle with the V.P.	III	CO2
2D-12	Draw the projections of a regular pentagon of 30mm side having corner is inclined 30^0 to HP and a side parallel to HP inclined at an angle of 45^0 to VP.	III	CO2
2D-13	A hexagonal plane of side 30mm has an edge in the VP. The surface of the plane is inclined at 45° to the VP and edge on which it rests is inclined at 30° to the HP draw its projections.	III	CO2
2D-14	Write briefly about any 5 drawing commands used in computer aided orthographic projections of points?	IV	CO2
2D-15	Write briefly about any 5 modify commands used in computer aided orthographic projections of lines and planes?	IV	CO2

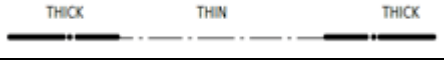
QUESTION BANK WITH BLOOMS TAXONOMY LEVEL (BTL)

emembering, II- Understanding, III-Applying. IV- Analyzing, V- Evaluating, IV-Creating)

Unit – III
PROJECTION OF SOLIDS,SECTION OF SOILDS,
COMPUTER AIDED PROJECTION OF SOLIDS AND SECTIONAL VIEWS

PART-A

	MULITLE CHOICE QUESTIONS **½ MARKS QUESTIONS**	**BT Level**	**Course Outcome**
3C-1	The minimum number of orthographic view required to represent a solid on flat surface is _____ ( ) a) 1 b) 2 c) 3 d) 4	II	CO3
3C-2	If a rectangle is made to rotate about one of its perpendicular side the solid formed ( ) a)Cylinder b)Cone c)Sphere d)Frustum	II	CO3
3C-3	If a right angled triangle is made to revolute about one of its perpendicular sides the solid formed is _____ ( ) a) Cube b) Triangular prism c) Cone d) Cylinder	II	CO3
3C-4	Straight lines drawn from the apex to the circumference of the base-circle are all equal and are called _____.( ) a) Edges b) Connecting lines c) Projectors d) Generators	II	CO3
3C-5	The solid formed by 12 equal and regular pentagons as faces is called ____( ) a) Plantonic solid b) Dodacahedron c) Icosahedron d) Pyritohedron	II	CO3
3C-6	A right and regular prisms has equal and regular _____ faces excluding its bases. ( ). a) Rectangle b) Isosceles triangle c) Circle d) Pentagonal	II	CO3
3C-7	A right and regular pyramids has equal and regular _____ faces excluding its bases. ( ) a) Rectangle b) Isosceles triangle c) Circle d) Pentagonal	II	CO3
3C-8	To understand some of the hidden geometry of components an imaginary plane is used to cut the object which is called _____ ( ) a) auxiliary plane b) picture plane c) section plane d) additional plane	II	CO3
3C-9	To find the true shape of the section, it must be projected on a plane parallel to the _____.( ) a) Profile plane b) Vertical plane	I	CO3

	c) Auxiliary plane d) Section plane		
3C-10	The type of line used to represent the cutting plane in drawing is. ( ) a) b) c)  d)	II	CO3
3C-11	Name the view that provides the internal features of an object? ( ) (a) sectional view (b) oblique view (c) auxiliary view (d) pictorial view	II	CO3
3C-12	A cube is resting on a face in the H.P. with vertical faces equally inclined to the V.P. It is cut by an A.I.P. The true shape of section view is ( ) (a) triangle (b) rhombus (c) hexagon (d) any of these	II	CO3
3C-13	A cone is cut by a section plane parallel to the profile plane. Its true shape of section is seen in ( ) (a) front view (b) top view (c) side view (d) auxiliary view	II	CO3
3C-14	A square pyramid resting on its base in the H.P. and a side of base parallel to V.P. It is cut by an A.I.P. Its true shape will be ( ) (a) square (b) rectangle (c) trapezium (d) parallelogram	II	CO3
3C-15	A triangular prism is resting on a rectangular face in the H.P. It is cut by a horizontal plane. Its sectional top view is a/an ( ) (a) Equilateral triangle (b) Isosceles triangle (c) Rectangle (d) None of these	II	CO3
	FILL IN THE BLANK QUESTIONS **½ MARKS QUESTIONS**	**BT Level**	**Course Outcome**
3F-1	Tetrahedron has _____equal faces, each an equilateral triangle.	I	CO3
3F-2	Hexahedron has _____ equal faces, and each a_____.	I	CO3
3F-3	Icosahedron has _____equal faces and all are equilateral triangles.	I	CO3
3F-4	When the axis of a solid is perpendicular to H.P, its_____ view reveals the _____ shape of the base.	I	CO3
3F-5	When the axis of a solid is perpendicular to H.P, its relation with V.P is _____.	I	CO3
3F-6	Section planes are represented by their_____.	I	CO3
3F-7	The true shape of the section is revealed in the top view, when the section plane, cutting a solid is parallel to_____.	I	CO3
3F-8	When a solid is cut by a section plane, inclined to the base the retained portion is called_____ solid.	I	CO3
3F-9	When a cone or pyramid is cut by a section plane, parallel to the base the retained portion of the solid is called_____.	I	CO3
3F-10	The true shape of the section is an _____, when a cylinder is cut by a section plane, inclined to the axis.	I	CO3
3F-11	_____ **is formed when a sphere is cut by a plane**.	I	CO3
3F-12	---------- has four equilateral triangular faces.	I	CO3
3F-13	---------- has six equal square faces.	I	CO3
3F-14	---------- has eight equilateral triangular faces.	I	CO3
3F-15	Three dimensional objects are called _____.	I	CO3
	MATCH THE FOLLOWING QUESTIONS		
	½ MARKS QUESTIONS	**BT Level**	**Course Outcome**

<table>
<tr><td>3M-1</td><td>Match the following:
<table><tr><th>Prisms</th><th>Number of edges</th></tr><tr><td>a. Triangular</td><td>i. 18</td></tr><tr><td>b. Square</td><td>ii. 15</td></tr><tr><td>c. Pentagon</td><td>iii. 9</td></tr><tr><td>d. Hexagonal</td><td>iv. 12</td></tr></table>a = b = c = d =</td><td>I</td><td>CO3</td></tr>
<tr><td>3M-2</td><td>Match the following:
<table><tr><th>Polyhedron</th><th>Number of faces</th></tr><tr><td>a. Triangular Prism</td><td>i. 6</td></tr><tr><td>b. Tetrahedron</td><td>ii. 5</td></tr><tr><td>c. Octahedron</td><td>iii. 4</td></tr><tr><td>d. Cube</td><td>iv. 8</td></tr></table>a = b = c = d =</td><td>I</td><td>CO3</td></tr>
<tr><td>3M-3</td><td>Square prism, hexagonal pyramid, cube, sphere are placed one next to other in between the reference planes in different positions given below match the following.
<table><tr><th>Position of solids</th><th>Front View</th></tr><tr><td>a. Square prism- axis perpendicular to V.P</td><td>i. Circle</td></tr><tr><td>b. Hexagonal pyramid- base parallel to H.P</td><td>ii. Rectangle</td></tr><tr><td>c. Triangular prism – axis perpendicular to P.P</td><td>iii. Isosceles Triangle</td></tr><tr><td>d. Sphere</td><td>iv. Triangle</td></tr></table>a = b = c = d =</td><td>I</td><td>CO3</td></tr>
<tr><td>3M-4</td><td>Given are some shapes of sections of a regular cone. Match the following.
<table><tr><th>Positions of the cutting plane</th><th>True shape of section</th></tr><tr><td>a. Inclined to axis cutting all generators</td><td>i. Circle</td></tr><tr><td>b. Parallel to axis</td><td>ii. Ellipse</td></tr><tr><td>c. Perpendicular to axis</td><td>iii. Triangle</td></tr><tr><td>d. Passing through the axis or the apex</td><td>iv. Rectangular hyperbola</td></tr></table>a = b = c = d =</td><td>I</td><td>CO3</td></tr>
<tr><td>3M-5</td><td>Square pyramid, cylinder, triangular prism, cone are placed one next to other in between the reference planes in different positions given below match the following.
<table><tr><th>Position of solids</th><th>Front View</th></tr><tr><td>a. Square pyramid- axis perpendicular to V.P</td><td>i. Rectangle</td></tr><tr><td>b. Cylinder- base parallel to profile plane</td><td>ii. Circle</td></tr><tr><td>c. Triangular prism – axis perpendicular to H.P</td><td>iii. Square</td></tr><tr><td>d. Cone- base parallel to V.P</td><td>iv. Triangle</td></tr></table>a = b = c = d =</td><td>I</td><td>CO3</td></tr>
<tr><td></td><td><u>PART-B</u>
<u>5 MARKS DESPRICTIVEQUESTIONS</u></td><td>BT Level</td><td>Course Outcome</td></tr>
<tr><td>3D-1.</td><td>A square pyramid of base side 40mm and axis 60mm is resting on its base on the H.P. Draw its projections when
a) A side of the base is parallel to V.P.
b) A side of the base is inclined at 30° to V.P.
c) All sides of the base are equally inclined to the V.P.</td><td>III</td><td>CO3</td></tr>
<tr><td>3D-2</td><td>A pentagonal prism of base side 30mm and axis 60mm has one of its base in the V.P. Draw its</td><td>III</td><td>CO3</td></tr>
</table>

	projections a) A rectangular face is parallel to and 15mm above the H.P. b) A face is perpendicular to H.P. c) A face is inclined at 45º to the H.P.		
3D-3.	A triangular prism, base 40mm side and height 65mm is resting on the H.P. on one of its rectangular faces with the axis parallel to the V.P. Draw its projections.	III	CO3
3D-4	A hexagonal pyramid of base edge 30mm and axis 60mm, is lying on slant edge on the ground with the axis parallel to the V.P. Draw its projection when the face containing the resting edge are equally inclined to the H.P.	III	CO3
3D-5.	A pentagonal prism of base edge 30mm and axis 60mm rests on an edge of its base in the H.P. Its axis is parallel to V.P. and inclined at 45º to H.P. Draw its projections.	III	CO3
3D-6	A cylinder of base diameter 50mm and axis 70mm has a generator in the V.P. and inclined at 45º to the H.P. Draw its projections.	III	CO3
3D-7.	A cone of base diameter 50mm and axis 60mm has a generator in V.P. and the axis parallel to the H.P. Draw its projections.	III	CO3
3D-8.	A square prism,25mm edge of base and 45mm long axis, has its axis inclined at 45° to the H.P. and an edge of its base on which the prism rests is inclined at 30° to the V.P. Draw its projections.	III	CO3
3D-9.	Draw the projections of a cube with 40mm long edge resting on the H.P. on one of its corners with a solid diagonal perpendicular to the V.P.	III	CO3
3D-10.	A hexagonal pyramid of 30mm side of base and 60mm long axis rests with its base on H.P. and one of the edge of the base is parallel to V.P. It is cut by a horizontal section plane at a distance 30mm above the base. Draw the front view and sectional top view.	III	CO3
3D-11	A cube of 30mm long edge is resting on the H.P. on one of its faces with a vertical face inclined at 30° to the V.P. It is cut by a section plane parallel to the V.P. and 10mm away from the axis and further away from the V.P. Draw the sectional view and top view of the cube.	III	CO3
3D-12	A square prism 25mm base side and 60 mm height is kept on H.P. with its axis vertical and two adjacent base sides equally inclined to V.P. It is cut by a sectional plane whose V.T. makes an angle of 30° with the reference line and bisects the axis. Draw the sectional top view and true shape of the section.	III	CO3
3D-13	Write about the commands used in the computer aided projections of solids?	III	CO3
3D-14	Write about the commands used in the computer aided projections of sectional views?	III	CO3
3D-15	A square pyramid of base side 40mm and axis 60mm is resting on its base on the H.P. with a side base parallel to the V.P. Draw its section top views and true shape of the section ,if it is cut by a section plane perpendicular to the V.P., bisecting the axis and is inclined at 45° to the H.P.	III	CO3

Unit-IV

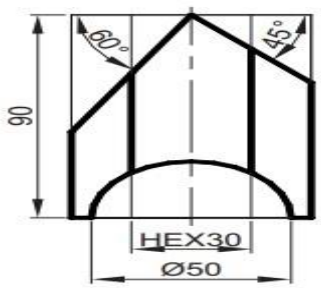
DEVELOPMENT OF SURFACES OF RIGHT REGULAR SOLIDS AND DEVELOPMENT OF SURFACES USING COMPUTER AIDED DRAFTING

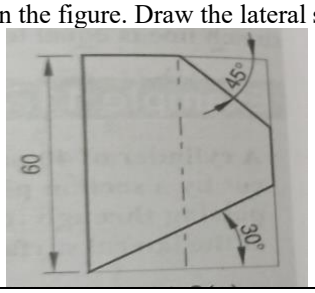
PART-A

	MULITLE CHOICE QUESTIONS ½ MARKS QUESTIONS	**BT Level**	**Course Outcome**
4C-1	Methods for the development can be ( ). a) Parallel line method b) Radical line method c) Triangulation method d) All of them.	I	CO4
4C-2	The nature of lateral surface of a cylinder is ( ). a) Plane surface. b) Singly curved surface. c) Doubly curved surface. d) Singly or doubly curved surface.	I	CO4
4C-3	If a semicircular thin sheet is folded to form a cone then the front view looks like ( ) .	I	CO4

	a) equilateral triangle b) isosceles triangle c) rectangle d) semicircle		
4C-4	A rectangle of 120 mm × 60 mm represents the development of the lateral surface of ( ). a) a square prism of side 30 mm b) a hexagonal prism of side 20 mm c) a cylinder of diameter 120/pie **d)** all of these	I	CO4
4C-5	The solids bounded by plane surfaces are ( ). a) Cube b) Prism c) Pyramid d) All the above.	I	CO4
4C-6	With which workshop practice does development of lateral surface have direct applications? ( ) a) Sheet metal shop b) Foundry shop c) Fitting shop d) None of the above	I	CO4
4C-7	Development of surfaces of a cube consists of : ( ) a) Four rectangles and a square b) Six squares c) Large rectangles d) None of the above	I	CO4
4C-8	What is the shape of a developed lateral surface of a cylinder? ( ) a) Rectangle b) Square c) Circle d) None of the above	I	CO4
4C-9	What is the method used to draw development of lateral surfaces of a pyramid? ( ) a) Radial line method b) Parallel line method c) Triangulation method d) Approximation method	I	CO4
4C-10	What is the method used to draw development of lateral surfaces of a prism? ( ) a) Radial line method b) Parallel line method c) Triangulation method d) Approximation method	I	CO4
4C-11	What is the main purpose of drawing development of surfaces of any object? ( ) a) To produce that object from sheet metal b) To understand the shape of that object c) To view the object d) None of the above	I	CO4
4C-12	What is the shape of the developed surface of a cone? ( ) a) Rectangle b) Sector of a circle c) Circle d)None of the above	I	CO4
4C-13	What is the subtended angle value for the sector used in the development of the cone ( ) a) 360° X (radius of circular base) / (height) b) 360° X(circumference of circular base) / (slant height) c) 360° X (radius of circular base) / (slant height) d) 360° X (diameter of circular base) /(slant height)	II	CO4
4C-14	What is the value of slant height value for a cone of radius r, and height of the cone is h? ( ) a) $(r^2+h^2)^2$ b) $(r^2-h^2)^{0.5}$ c) $(h^2-r^2)^2$ d) $(r^2+h^2)^{0.5}$	II	CO4
4C-15	The best suitable development method for the development of polyhedron and transition pieces is _____ ( ) a) Approximate development b) Parallel line development c) Triangulation development d) Radial line development	I	CO4
	FILL IN THE BLANKS QUESTIONS **½ MARKS QUESTIONS**	**BT Level**	**Course Outcome**
4F-1	Cylinders and cones are the solids bounded by _____curved surfaces.	I	CO4

4F-2	Every line on a development must be _____ to the true length of that line on the actual surface.	I	CO4
4F-3	Single curved surface can be _____ developed.	I	CO4
4F-4	Stretch-out lines is drawn_____ with the base in front view.	I	CO4
4F-5	The shape of the development of lateral surface of a cylinder is_____.	I	CO4
4F-6	The actual surfaces of right pyramid and cones may be developed by _____ development method.	I	CO4
4F-7	In the development of a cone the length of the arc should be equal to the _____of the base circle.	I	CO4
4F-8	The shape of the development of a cone is _____when its slant height is equal to its base circle diameter.	I	CO4
4F-9	The development of the lateral surface of cone is a sector of a circle, the radius of which is equal to the _____ of the cone.	I	CO4
4F-10	The solids bounded by plane surfaces are _____.	I	CO4
4F-11	Every line on a development must be equal to the _____ length of that line on the actual surface.	I	CO4
4F-12	The actual surface of right prism and cylinder may be developed by _____ development method.	I	CO4
4F-13	A small square hole is drilled through the large flat surfaces of a square prism completely, _____ many holes will be observed in the developed surfaces of the square prism.	I	CO4
4F-14	_____is developed when a circular hole drilled on the lateral surface of a vertical cylinder.	I	CO4
4F-15	Development of surface of a square prism consists of_____.	I	CO4
	MATCH THE FOLLOWING QUESTIONS **1 MARKS QUESTIONS**	**BT Level**	**Course Outcome**
4M-1	Match the following: a. Plane surface — i. Cubes b. Single curved surfaces — ii. Spheres c. Doubly curved surfaces — iii. Cylinders and Cones d. Square surfaces — iv. Prisms and P```yramids. a = b = c = d =	I	CO4
4M-2	Match the following: a. Parallel-line method — i. Spherical and double curved b. Radial-line method — ii. Transition pieces c. Triangular method — iii. Pyramids & Cones d. Approximation method — iv. Prisms & Cylinders a = b = c = d =	I	CO4
4M-3	Match the following: a. Development of surface of a cube consists of — i. Four rectangle and a square. b. Development of surface of a square prism consists of — ii. Rectangle c. Development of surface of a cylinder consists of — iii. Four triangles and a square. d. Development of surface of a square pyramid consists of — iv. Six squares a = b = c = d =	I	CO4
4M-4	Match the following: a. Development of surface of a triangular prism consists of — i. Five rectangles and a square.	I	CO4

	b. Development of surface of a pentagonal prism consists of — ii. Three rectangles and a triangle c. Development of surface of a square pyramid consists of — iii. Five triangles and a pentagon. d. Development of surface of a pentagonal pyramid consists of — iv. Four triangles and a square a = b = c = d =		
4M-5	Match the following: i. Radial-line method — i. Prisms & Cylinders ii. Plane surface — ii. Cylinders and Cones iii. Parallel-line method — iii. Prism,Pyramids,Cubes iv. Single curved surfaces — iv. Pyramids & Cones a = b = c = d =	I	CO4
	PART-B **5 MARKSDESCRIPTIVE QUESTIONS**	**BT Level**	**Course Outcome**
4D-1.	A Pentagonal prism of base side 30mm and axis 70mm is resting on its base on the H.P. with a rectangular face parallel to the V.P. It is cut by an A.I.P whose V.T. is inclined at 45º to the reference line and passes through the mid of the axis. Draw the development of the lateral surface of the truncated prism.	III	CO4
4D-2.	A hexagonal prism of side of base 30 axis length 60mm is resting on H.P on its base with two of its vertical faces perpendicular to V.P .It is cut by a plane inclined at 45º to H.P and perpendicular to V.P and meets the axis of the prism at a distance 15mm from the top end. Draw the development of the lateral surface of the prism.	III	CO4
4D-3.	A cylinder of base diameter 40mm and axis length 60mm is resting on ground with its axis vertical .It is cut by a section plane perpendicular to the V.P., inclined at 45° to H.P., passing through the top generators. Draw the development of its lateral surface.	VI	CO4
4D-4.	A cylinder of base diameter 50mm and axis length 70mm is resting on H.P on its base. A cylinder hole of 40mm diameter is drilled on the surface of the cylinder. The axis of the hole intersects with the axis of the cylinder at right angles and bisects the axis this cylinder. Draw the development of the lateral surface of the cylinder.	VI	CO4
4D-5.	A cone of base diameter 50mm and axis 60mm is resting on its base on the H.P. A section plane perpendicular to V.P. and inclined at 45° to H.P., bisects the axis of the cone. Draw the development of the lateral surface.	III	CO4
4D-6.	Draw the development of the lateral surface of a square pyramid of base side 40mm and axis 60mm,resting on its base on the H.P. such that a side of the base is parallel to the V.P.	VI	CO4
4D-7.	Figure shows the front view of a truncated hexagonal prism with a 30mm base edge and 90mm long axis resting on the H.P. such that an edge of the base parallel to the V.P. Draw the development of its lateral surface.  	III	CO4
4D-8.	Develop the lateral surface of a right regular hexagonal prism of 30mm base edge and 60mm height.	VI	CO4

4D-9.	Draw the development of the lateral surface of a square pyramid of base side 40mm and axis 60mm,resting on its base on the H.P. such that all the sides of the base are equally inclined to the V.P.	III	CO4
4D-10.	A square hole of 25mm is cut in a cylinder drum of diameter 50mm and height of 70mm with the faces of the hole inclined at 45° to the H.P. and the axis of the hole intersects with that of the cylinder at right angles. Draw the development of the lateral surface of the drum.	VI	CO4
4D-11.	A pentagonal pyramid of a side of base 30mm and axis 60 long, is resting on its base H.P. with an edge of the base parallel to V.P. Draw the development of the lateral surface of the pyramid.	III	CO4
4D-12.	A right circular cylinder with 50mm diameter of base 60mm height is truncated at its two ends by different section planes as shown in the figure. Draw the lateral surface of the truncated cylinder. 	VI	CO4
4D-13.	Develop the lateral surface of a right regular pentagonal prism of 30mm base edge and 60mm height.	III	CO4
4D-14.	Write about the development of surface using computer aided drafting for parallel line development?	VI	CO4
4D-15.	Write about the development of surface using computer aided drafting for radial line development?	III	CO4

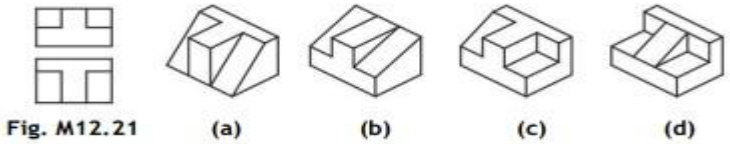
Unit-V

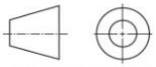
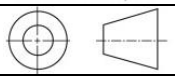
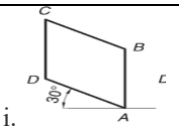
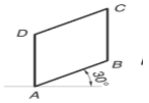
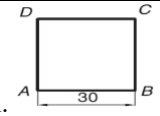
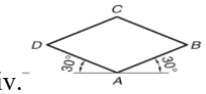
ISOMETRIC PROJECTIONS, CONVERSION OF ISOMETRIC VIEWS TO ORTHOGRAPHIC VIEWS AND VICE-VERSA, CONVERSION OF ORTHOGRAPHIC PROJECTION INTO ISOMETRIC VIEW USING COMPUTER AIDED DRAFTING.

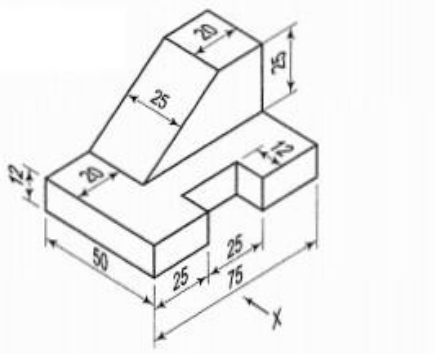
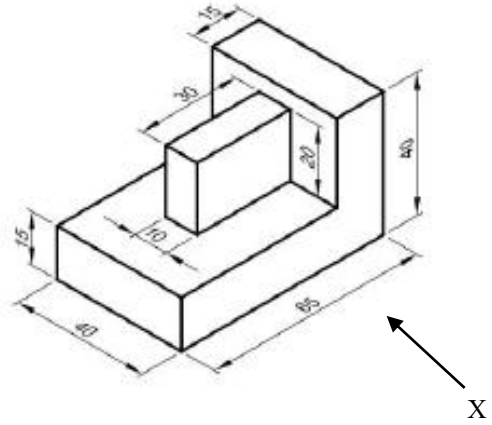
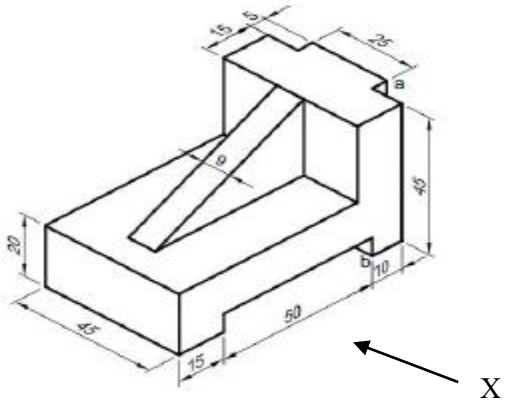
PART-A

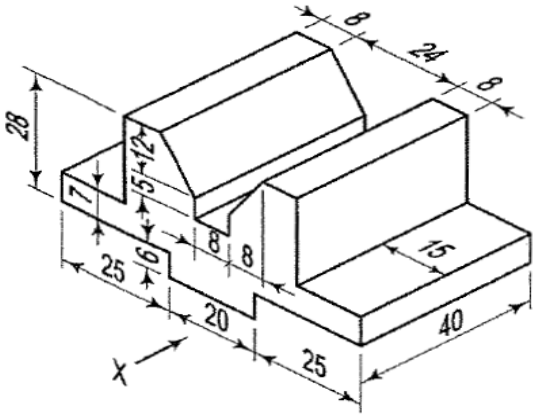
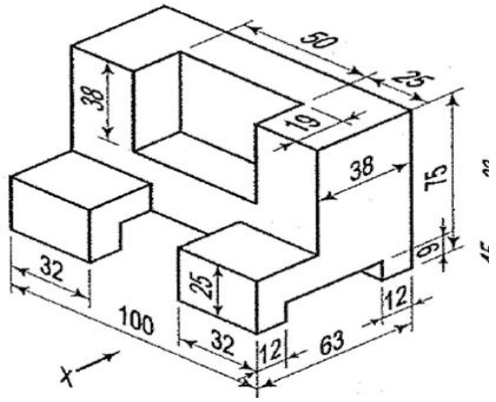
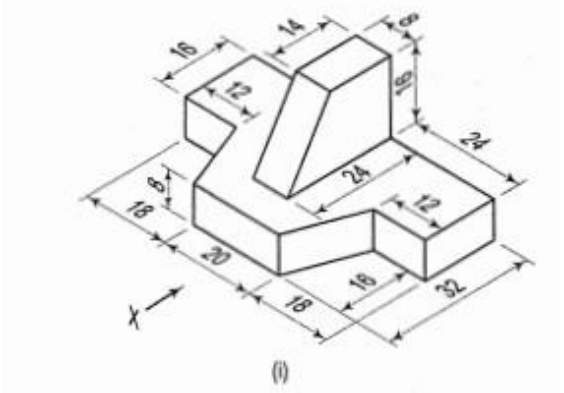
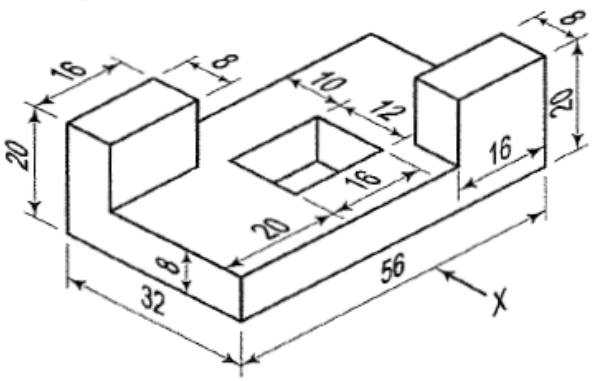
MULITLE CHOICE QUESTIONS

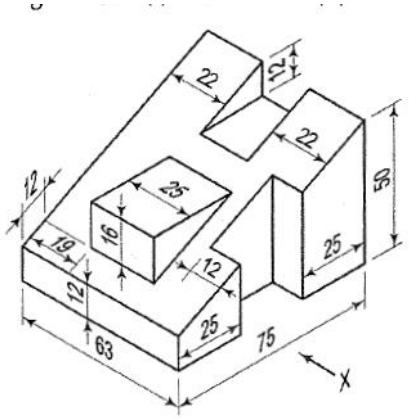
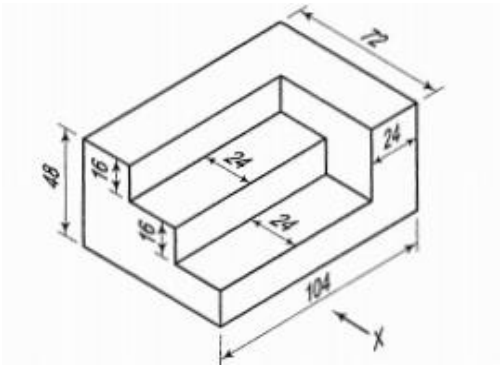
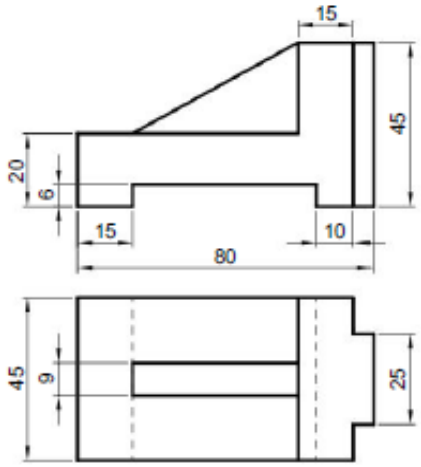
	½ MARK QUESTIONS	BT Level	Course Outcome
5M-1	Second angle projection is not used because ( ). a) Plan is above xy b) both views overlap each other c) elevation is above xy d) views are small in size	I	CO5
5M-2	A sphere can be described in how many views? ( ). a) 4 b) 3 c) 2 d) 1	I	CO5
5M--3	The three lines meeting at the point and making 120° angles with each other are termed ( ). a) Ellipse b) Isometric axes c) Circle d) Parabola	I	CO5
5M-4	The height, width, and depth of an object can be shown with a minimum of how many orthographic projection views? ( ). a) six b) three c) two d) four	I	CO5
5M-5	For the third angle projection method, which of the following is correct? ( ). a) Observer -Object–Plane b) Observer–Plane–Object c) (a) and (b) both d) None of above	I	CO5
5M-6	In the first angle projection method, the view seen from left is placed on ( ). a) Above Front View b) Right of Front View c) Above Top View d) Above Top View	I	CO5
5M-7	Fourth angle projection is not used because: ( ). a) Front view is above reference line and top view is below reference line b) Top view is above reference line and front view is below reference line c) Front view and top view both overlap on each other and below reference line d) Front view and top view both overlap on each other and above the reference line	I	CO5
5M-8	If the object lies in the second quadrant, its position with respect to reference plane will be ( ). a) In front of V.P. and above H.P b) Behind V.P. and below H.P. c) In front of V.P. and below H.P. d) Behind V.P. and above H.P.	I	CO5
5M-9	If the object lies in third quadrant, its position with respect to reference planes will be ( ). a) In front of VP, above HP b) Behind VP, above HP	I	CO5

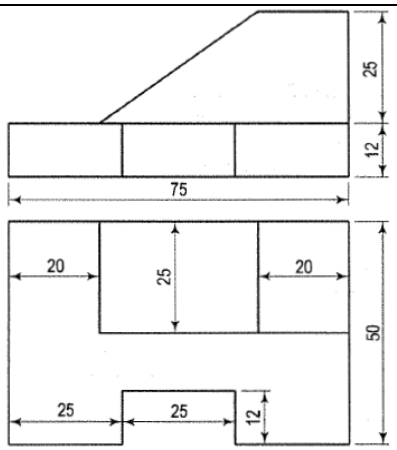
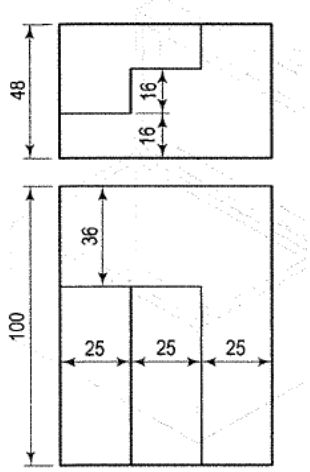
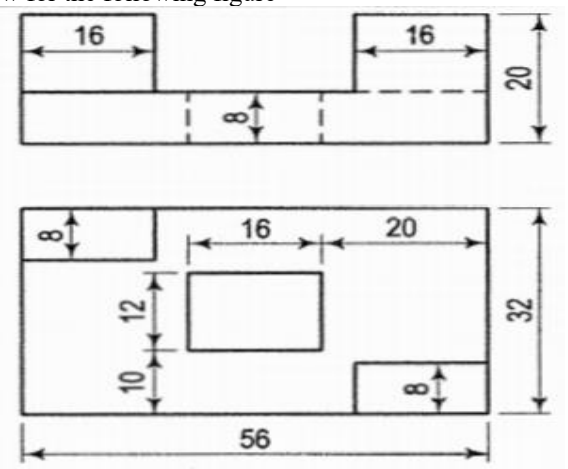
	c) Behind VP, below HP d) In front of VP, below HP		
5M-10	Which of the following pairs of orthographic views both show the height dimension? ( ). a) left side and front b) top and front c) top and rear d) bottom and right side	I	CO5
5M-11	While making isometric projections, the ellipse is preferably drawn by ( ) (a) four-centre method (b) oblong method (c) concentric circles method (d) parallelogram method	I	CO5
5M-12	Pictorial views drawn on isometric scale are called ( ) (a) isometric drawings (b) isometric projections (c) isometric views (d) any of these	I	CO5
5M-13	A square in a regular multi-view projection appears in an isometric view as ( ) (a) box (b) square (c) parallelogram (d) rhombus	I	CO5
5M-14	A sphere in isometric projection appears as a circle of diameter ( ) (a) equal to the diameter of sphere (b) 0.816 times the diameter of sphere (c) less than 0.816 diameter of sphere (d) greater than the diameter of sphere	I	CO5
5M-15	Select the correct isometric view corresponding to the orthographic view shown in Fig. M12.21. ( )  Fig. M12.21 (a) (b) (c) (d)	I	CO5
	FILL THE BLANKS QUESTIONS **½ MARKS QUESTIONS**	**BT Level**	**Course Outcome**
5F-1	The top and right side views have _____ common dimensions.	I	CO5
5F-2	In orthographic projection, visual rays are _____ to the projection plane.	I	CO5
5F-3	_____ angle that isometric lines make with each other.	I	CO5
5F-4	In a third angle projection method, right hand side view of an object is drawn____ front view.	I	CO5
5F-5	In orthographic projection, visual rays or lines of sight for a given view are _____ to each other.	I	CO5
5F-6	The lines parallel to the isometric axes are called _____	I	CO5
5F-7	The lines which are not parallel to isometric axes are known as _____.	I	CO5
5F-8	It is the scale which is used to convert the true length into isometric length. Mathematically, Isometric length = _____	I	CO5
5F-9	In isometric, the horizontal lines on the object are drawn at an angle of_____ with the horizontal.	I	CO5
5F-10	The ratio of isometric length to true length is _____.	I	CO5
5F-11	The projectors in isometric view are_____	I	CO5
5F-12	The exact value of R.F. of an isometric scale is_____.	I	CO5
5F-13	The angle that isometric lines make with each other is_____.	I	CO5
5F-14	On isometric plane, a circle appears as_____.	I	CO5
5F-15	How many points do you need to define for the Rectangle command_____.	I	CO5
	MATCH THE FOLLOWING QUESTIONS **1MARKS QUESTIONS**	**BT Level**	**Course Outcome**

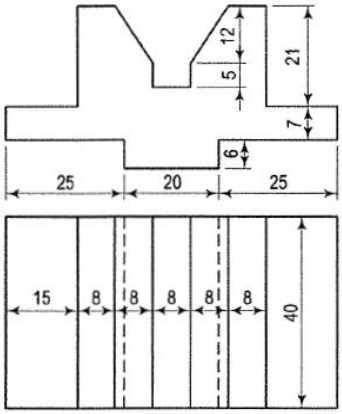
5M-1	Match The Following: a. Ellipse — i. Isometric view of a square will appear as a b. Third angle projection — ii. Isometric view of a circle will appear as a c. Rectangle — iii.  d. First angle projection — iv.  a = b = c = d =	I	CO5
5M-2	Match The Following: **a.** The top view of an object in First angle projection — i. above top view b. The front view of an object in First angle projection — ii. below front view c. The top view of an object in Third angle projection — iii. below top view d. The front view of an object in Third angle projection — iv. above front view a = b = c = d =	I	CO5
5M-3	Match the following: a. right-hand vertical face — i.  b. left-hand vertical face — ii.  c. top face — iii.  d. a square — iv.  a = b = c = d =	I	CO5
5M-4	Match the following: a. The angle that isometric lines make with each other is — i. Rhombus b. On isometric plane, a circle appears as — ii. 120° c. A square in a regular multi-view projection appears in an isometric view as — iii. an Ellipse d. While making isometric projections the ellipse is preferably drawn by — iv. Four centre method a = b = c = d =	I	CO5
5M-5	Match the following: a. All lines that are parallel on the object are on the isometric projection — i. Horizontal b. Vertical line on the object remains in the isometric projection. — ii. Foreshortened. c. The horizontal lines on the object are drawn at an angle of 30° with the. — iii. Vertical d. The lines parallel to the principal lines known as isometric lines are equally — iv. Parallel	I	CO5

	a = b = c = d =		
	PART-B **5 MARK DESPRICTIVEQUESTIONS**	**BT Level**	**Course Outcome**
5D-1.	Draw the front view, top view and the side view for the object shown below. 	VI	CO5, CO6
5D-2.	Draw the front view, top view and the side view for the object shown below. 	VI	CO5, CO6
5D-3.	Draw the front view, top view and the side view for the object shown below. 	VI	CO5, CO6
5D-4.	Draw the front view, top view and the side view for the object shown below.	VI	CO5, CO6

			
5D-5.	Draw the front view, top view and the side view for the object shown below. 	VI	CO5, CO6
5D-6.	Draw the front view, top view and the side view for the object shown below. 	VI	CO5, CO6
5D-7	Draw the front view, top view and the side view for the object shown below. 	VI	CO5, CO6

5D-8	Draw the front view, top view and the side view for the object shown below. 	VI	CO5, CO6
5D-9	Draw the front view, top view and the side view for the object shown below. 	VI	CO5, CO6
5D-10	Draw the Isometric view for the following figure 	VI	CO5, CO6
5D-11	Draw the Isometric view for the following figure	III	CO5, CO6

			
5D-12	Draw the Isometric view for the following figure 	III	CO5, CO6
5D-13	Draw the Isometric view for the following figure 		
5D-14	Draw the Isometric view for the following figure	III	CO5, CO6

			
5D-15	Draw isometric view of a cylinder of 50 mm base diameter and 70 mm long axis when the axis is perpendicular to the (a) H.P., (b) V.P.	III	CO5,

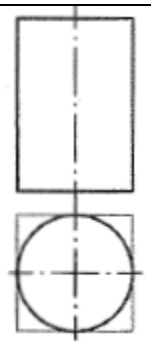
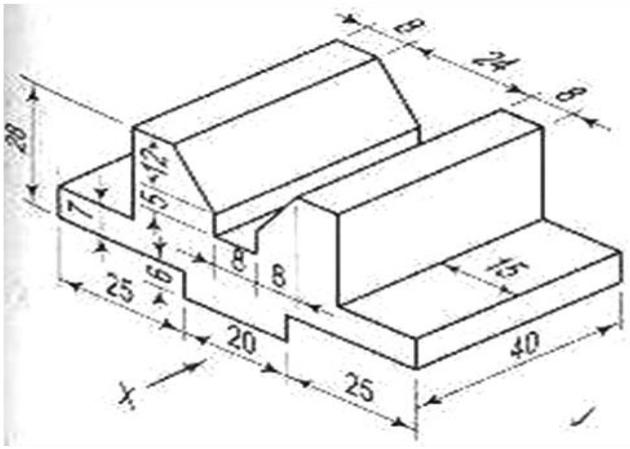
Content beyond the Syllabus

S.No	Topics	Proposed Actions	Date	Resource Person/Mode	POs	PSOs
1	Ellipse by concentric circles method, arcs method, oblong method, parallelogram method	Seminar		Guest lecture/ Virtual class	PO1	PSO1
2	Parabola by tangent method, rectangle method	PPT		Guest lecture/ Virtual class	PO1	PSO1
3	Projection of sphere	Seminar		Guest lecture/ Virtual class	PO2	PSO1
4	Intersection of solids	PPT		Guest lecture/ Virtual class	PO2,PO5	PSO2,PSO3

SRI INDU COLLEGE OF ENGINEERING & TECHNOLOGY
B.TECH – DEPARTMENT OF HUMANITIES & SCIENCES
Academic Year: 2022-23 B.Tech I Year I Sem
(R22MED1125) COMPUTER AIDED ENGINEERING GRAPHICS

ASSIGNMENT

S.No.	Assignment Questions	Course Outcome	Books To be Referred	Date Of Announcement	Date Of Submission	
1	Draw an ellipse when the distance of its focus from its directrix is 50mm and eccentricity is 2/3.Also draw a tangent and a normal to the ellipse at a point 70mm away from the directrix.**(R-18 December 2018)**	CO1	T1			
2	A coin of 40mm diameter rolls over a horizontal table without slipping. A point on the circumference of the coin is in contact with the table surface in the beginning and after one complete revolution. Draw the path traced by the point. Also draw a tangent and normal at any point on the curve.	CO1	T1			
3	Draw the projection of the following points on the same ground line, keeping the distance between projectors equal to 25mm • Point A,20mm above H.P,25mm behind the V.P • Point B,25mm below H.P,20mm behind the V.P	CO2	T1			
4	A square ABCD of 50mm side has its corner A in the H.P., its diagonal AC inclined at 30° to the H.P. and the Diagonal BD inclined at 45° to the V.P. and parallel to the H.P. draw its Projections	CO2	T1			
5	A pentagonal pyramid has its base on the H.P. and the edge of the base nearer the V.P., parallel to it. A vertical section plane, inclined at 45° to the V.P., cuts the pyramid at a distance of 6mm from the axis. Draw the top view, sectional front view and the true shape of the section. Base of the pyramid 30 mm side; axis 50 mm long	CO3	T1			
6	A pentagonal pyramid of base 30mm side and axis 60mm long has its apex in V.P. and the axis perpendicular to V.P., a corner of the base is resting on the ground and the side of the base contained by the corner is inclined at 30° to the ground. Draw its projections.	CO3	T1			
7	Draw the development of the lateral surface of a square pyramid of base side 40 mm and axis 60 mm, resting on its base on the H.P. such that all the sides of the base are equally inclined to the V.P.	CO4	T1			
8	A vertical cylinder of 50 diameter, is penetrated by another cylinder of 35 diameter. The axes of the two cylinders are intersecting at right angle. Draw the projections of the two cylinders showing the curves of intersection.	CO4	T1			
9	Draw the isometric view of the cylinder shown in fig. base diameter 50mm and axis 60mm	CO5	T1			

					
10	Draw the front view, top view and the side view for the Object shown below. 	CO5	T1		

BR-22 **SRI INDU COLLEGE OF ENGINEERING & TECHNOLOGY** **D4**

I B.Tech - I Semester - I Mid Term Examination, January – 2023
(R22MED1125) COMPUTER AIDED ENGINEERING GRAPHICS
(For CSE-A and CSE-B)

A

Duration: 2 Hrs **Dt: 02-01-2023, Day-3 (FN)** **Max Marks: 30M**

Part – A

Answer *All:* multiple choice questions. **Marks: 10Qx1/2M = 5M**

*** (L1-Remembering, L2-Understanding, L3-Applying, L4-Analyzing, L5-Evaluating, and L6-Creating.)**

			*Blooms Taxonomy Levels	Course Outcomes
1.	The length: width in case of an arrow head is. A) 1:1 B) 2:1 C) 3:1 D) 4:1.	[ ]	I	CO1
2.	Name the curve which has zero eccentricity A) Ellipse B) Parabola C) Hyperbola D) Circle	[ ]	I	CO1
3.	A drafter helps in drawing to draw A) Parallel and Perpendicular lines B) Concentric Circles C) Smooth curves D) All of the above	[ ]	I	CO1
4.	Drawing pencils are graded according to increase in relative _____ A) Diameter B) Sharpness C) Length D) Hardness	[ ]	I	CO1
5.	Two points are placed in 1st quadrant of projection planes such that the line joining the points is perpendicular to profile plane the side view and top view will be _____ A) Single point, Two points B) Two points, Single point C) Single point, Single point D) Two points, Two points	[ ]	I	CO2
6.	Oblique planes come under _____ A) Planes perpendicular to both reference planes B) Planes perpendicular to one reference plane and inclined to other reference plane C) Planes inclined to both the reference planes D) Planes parallel to one reference plane and perpendicular to other reference plane	[ ]	I	CO2
7.	Straight line of projection will make an angle with xy line to the angle of plane with other principal plane A) Perpendicular B)Equal C) Right Angle D) Zero	[ ]	I	CO2
8.	A square plate of negligible thickness is inclined to HP. The FV will appear as A) Rhombus B) Square C) Line D) Rectangle	[ ]	I	CO2
9.	The minimum number of orthographic view required to represent a solid on flat surface is _____ A) 1 B) 2 C) 3 D) 4	[ ]	II	CO3
10.	Straight lines drawn from the apex to the circumference of the base-circle are all equal and are called _____. A) Edges B) Connecting lines C) Projectors D) Generators	[ ]	II	CO3

Answer *All:* fill in the blank questions. **Marks: 6Qx1/2M = 3M**

11.	Engineering drawings are required to _____to others.	III	CO1
12.	Drawings of buildings and large machine parts are prepared by using _____scales.	III	COI
13.	Section plane, cutting all the generators of a cylinder and making an angle with the axis other 90°produces_____.	III	CO1
14.	To represent the projections on a paper, the planes must be rotated such that _____quadrant always opens out.	I	CO2
15.	Plane surface have _____dimensions.	I	CO2
16.	Tetrahedron has _____equal faces, each an equilateral triangle.	I	CO3

P.T.O.

Answer *All:* Match the following questions. **Marks: 2Qx1M = 2M**

17. **Match the following**: I CO1

a) E < 1	i) Rectangular hyperbola
b) E = 1	ii) Hyperbola
c) E =√2	iii) Ellipse
d) E > 1	iv) Parabola

18. **Match The Following**: I CO2

a) Vertical Trace	i) Intersecting line in Horizontal Plane
b) No Trace	ii) Intersecting line in Vertical Plane
c) No Trace	iii) Object Parallel HP
d) Horizontal Trace	iv) Object Parallel VP

Part – B

Answer any *FOUR* questions. **Marks: 4Qx5M = 20M**

19.	Draw an ellipse when the distance of its focus from its directrix is 50mm and eccentricity is 2/3.Also draw a tangent and a normal to the ellipse at a point 70mm away from the directrix**.**	VI	CO1
20.	Construct a diagonal scale of RF=3:200 showing meters, decimeters, and centimeters. The scale should measure up to 6meters.Show a distances of 4.56meters.	III	CO1
21.	The major axis of an ellipse is 130 mm long and the minor axis is 100 mm long. Find the foci and draw the ellipse by 'arcs of circles' method.	III	CO1
22.	Draw the projections of the following points on a common reference line, keeping the distance between their projectors 30 mm apart. (a) Point A is 20 mm below the H.P. and 50 mm in front of the V.P. (b) Point B is in the H.P. and 40 mm behind the V.P. (c) Point C is 30 mm in front of the V.P. and in the H.P. (d) Point D is 50 mm above the H.P. and 30 mm behind the V.P. (e) Point E is 20 mm below the H.P. and 50 mm behind the V.P. (f) Point F is in the V.P. and 50 mm below the H.P.	IV	CO2
23.	A 70 mm long line PQ has its end P 20 mm above the H.P. and 30 mm in front of the V.P. The line is inclined at 45° to the H.P. and 30° to the V.P. Draw its projections.	IV	CO2
24.	A hexagonal pyramid of base edge 30mm and axis 60mm, is lying on slant edge on the ground with the axis parallel to the V.P. Draw its projection when the face containing the resting edge are equally inclined to the H.P.	III	CO3

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BR-22 **SRI INDU COLLEGE OF ENGINEERING & TECHNOLOGY** **D4**

I B.Tech - I Semester - I Mid Term Examination, January – 2023

(R22MED1125) COMPUTER AIDED ENGINEERING GRAPHICS

(For CSE-C and CSE-D)

B

Duration: 2 Hrs **Dt: 02-01-2023, Day-3 (AN)** **Max Marks: 30M**

Part – A

Answer *All:* multiple choice questions. **Marks: 10Qx1/2M = 5M**

*** (L1-Remembering, L2-Understanding, L3-Applying, L4-Analyzing, L5-Evaluating, and L6-Creating.)**

		*Blooms Taxonomy Levels	Course Outcomes
1.	The included angle of a pentagon is. [ ] A) 68° B) 72° C) 108° D) 112°.	I	CO1
2.	Name the curve traced out by a point moving in a plane such that the difference between its distances from two fixed point is constant. [ ] A) Ellipse B) Parabola C) Hyperbola D) Any of these.	I	CO1
3.	When measurements are required in three consecutive units, appropriate scale is. [ ] A) Plain scale B) Diagonal scale C) Vernier scale D) Comparative scale.	I	CO1
4.	Which of the following is reducing scale? [ ] A) 10:1 B) 10:2 C) 0.5:1 D) 2:1.	III	CO1
5.	A point is in second quadrant 15 units away from the vertical plane and 10 units away from horizontal plane, orthographic projection is drawn what is the distance from point of FV to reference line, TV to reference line. [ ] A) 15,10 B) 10,15 C) 0,15 D) 10,0.	I	CO2
6.	A pentagon is placed parallel to horizontal plane which of the following projection is true? [ ] A) Front view-line, top view- pentagon B) Front view- pentagon, top view- line C) Front view –line, top view-line D) Top view- line, side view- line.	I	CO2
7.	If a line is inclined to V.P. Its FV will be? [ ] A) Perpendicular to xy line B) Parallel to xy line C) Show the true length D) None of the above	I	CO2
8.	Projection of an object shown by three views is known as. [ ] A) Perspective B) Isometric C) Oblique D) Orthographic.	I	CO2
9.	The minimum number of orthographic view required to represent a solid on flat surface is _____ . [ ] A) 1 B) 2 C) 3 D) 4.	II	CO3
10.	If a right angled triangle is made to revolute about one of its perpendicular sides the solid formed is _____. [ ] A) Cube B) Triangular prism C) Cone D) Cylinder.	II	CO3

Answer *All:* fill in the blank questions. **Marks: 6Qx1/2M = 3M**

11.	Drawings of buildings and large machine parts are prepared by using _____scales.	III	CO1
12.	_____are the curves generated by a fixed point on the circumference of a rolling circle.	III	CO1
13.	The curve traced by a point on a straight line, when it rolls without slipping, along a circle or a polygon is called _____.	I	CO1
14.	In the _____projection, the object positioned in between the observer and the plane of projection.	I	CO2
15.	The trace of a line is a _____.	I	CO2
16.	When the axis of a solid is perpendicular to H.P, its_____ view reveals the _____ shape of the base.	I	CO3

P.T.O

Answer *All:* Match the following questions. **Marks: 2Qx1M = 2M**

17. Match the following: I CO1

a) Dimension lines	i) Continuous thick lines
b) Extension or Projection lines	ii) Continuous thin lines
c) Margin lines	iii) Continuous thick lines
d) Outlines	iv) Continuous thin lines

18. Match the following: I CO2

Views	Planes
a) Front view	i) Reference plane
b) Top view	ii) Profile plane
c) Side view	iii) Vertical plane
d) Reference line	iv) Horizontal plane

Part – B

Answer any *FOUR* questions. **Marks: 4Qx5M = 20M**

19. The distance between Delhi and Agra is 200km.In a railway map it is represented by a line 5cm long. Find its R.F. Draw a diagonal scale to show single km. and maximum 600km.Indicate on the following distance: III CO1
    a) 222km, b) 336km, c) 459km and d) 569km.
20. Inscribe the largest possible ellipse in a rectangle of sides 160mm and 100mm. VI CO1
21. To draw a hyperbola with the distance of the focus from the directrix at 50mm and e=3/2 by eccentricity method. VI CO1
22. A 50 mm long line PQ is parallel to both the H.P. and the V.P. It is 25 mm in front of the V.P. and 60 mm above the H.P. Draw its projections and determine the traces. IV CO1
23. An 80 mm long line PQ is inclined at 30° to the V.P. and is parallel to the H.P. The end P of the line is 20 mm above the H.P. and 40 mm in front of the V.P. Draw the projections of the line and determine its traces. IV CO2
24. A pentagonal prism of base side 30mm and axis 60mm has one of its base in the V.P. Draw its projections: III CO3
    a) A rectangular face is parallel to and 15mm above the H.P.
    b) A face is perpendicular to H.P.
    c) A face is inclined at 45º to the H.P.

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BR-22 **SRI INDU COLLEGE OF ENGINEERING & TECHNOLOGY** **D4**

I B.Tech - I Semester - II Mid Term Examination, March – 2023

(R22MED1125) COMPUTER AIDED ENGINEERING GRAPHICS **A**

(For CSE-A and CSE-B)

Duration: 2 Hrs **Dt: 06-03-2023, Day-3 (FN)** **Max Marks: 30M**

Part – A

Answer *All:* multiple choice questions. **Marks: 10Qx1/2M = 5M**

*** (L1-Remembering, L2-Understanding, L3-Applying, L4-Analyzing, L5-Evaluating, and L6-Creating.)**

		*Blooms Taxonomy Levels	Course Outcomes
1.	To understand some of the hidden geometry of components an imaginary plane is used to cut the object which is called _____. [ ] A) auxiliary plane B) picture plane C) section plane D) additional plane.	II	CO3
2.	Name the view that provides the internal features of an object. [ ] A) sectional view B) oblique view C) auxiliary view D) pictorial view.	II	CO3
3.	Methods for the development can be. [ ] A) Parallel line method B) Radical line method C) Triangulation method D) All of them.	I	CO4
4.	A rectangle of 120 mm × 60 mm represents the development of the lateral surface of. [ ] A) a square prism of side 30 mm B) a hexagonal prism of side 20 mm C) a cylinder of diameter 120/pie D) all of these.	I	CO4
5.	Development of surfaces of a cube consists of: [ ] A) Four rectangles and a square B) Six squares C) Large rectangles D) None of the above.	I	CO4
6.	What is the method used to draw development of lateral surfaces of a prism? [ ] A) Radial line method B) Parallel line method C) Triangulation method D) Approximation method.	I	CO4
7.	Second angle projection is not used because. [ ] A) Plan is above xy B) both views overlap each other C) elevation is above xy D) views are small in size.	I	CO5
8.	For the third angle projection method, which of the following is correct? [ ] A) Observer -Object–Plane B) Observer–Plane–Object C) (a) and (b) both D) None of above.	I	CO5
9.	If the object lies in the second quadrant, its position with respect to reference plane will be [ ] A) In front of V.P. and above H.P B) Behind V.P. and below H.P. C) In front of V.P. and below H.P. D) Behind V.P. and above H.P.	I	CO5
10.	Which of the following pairs of orthographic views both show the height dimension? [ ] A) left side and front B) top and front C) top and rear D) bottom and right side .	I	CO5

Answer *All:* fill in the blank questions. **Marks: 6Qx1/2M = 3M**

11.	When a cone or pyramid is cut by a section plane, parallel to the base the retained portion of the solid is called_____.	I	CO3
12.	Single curved surface can be _____ developed.	I	CO4
13.	The actual surfaces of right pyramid and cones may be developed by_____ development method.	I	CO4
14.	The shape of the development of a cone is _____when its slant height is equal to its base circle diameter.	I	CO4
15.	_____angle that isometric lines make with each other.	I	CO5
16.	In isometric, the horizontal lines on the object are drawn at an angle of_____with the	I	CO5

horizontal.

P.T.O.

Answer *All:* Match the following questions. **Marks: 2Qx1M = 2M**

17. Match the following: I CO4

a) Plane surface	i) Cubes
b) Single curved surfaces	ii) Spheres
c) Doubly curved surfaces	iii) Cylinders and Cones
d) Square surfaces	iv) Prisms and Pyramids.

18. Match The Following: I CO5

a) The top view of an object in First angle projection	i) above top view
b) The front view of an object in First angle projection	ii) below front view
c) The top view of an object in Third angle projection	iii) below top view
d) The front view of an object in Third angle projection	iv) above front view

Part – B

Answer any *FOUR* questions. **Marks: 4Qx5M = 20M**

19. A cone of base diameter 50 mm and axis 60 mm has a generator in V.P. and the axis parallel to the H.P. Draw its projections. III CO3

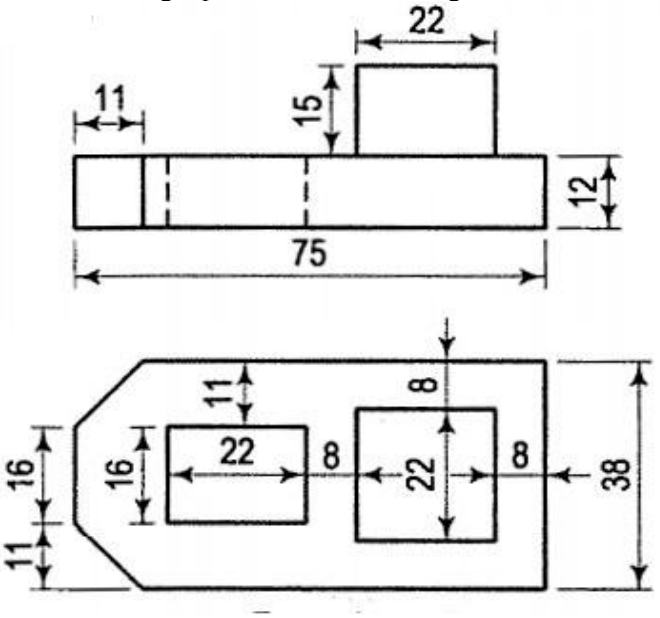
20. Draw the projections of a cube with 40 mm long edge resting on the H.P. on one of its corners with a solid diagonal perpendicular to the V.P. III CO3

21. A hexagonal prism of side of base 30 axis length 60 mm is resting on H.P on its base with two of its vertical faces perpendicular to V.P .It is cut by a plane inclined at 45º to H.P and perpendicular to V.P and meets the axis of the prism at a distance 15mm from the top end. Draw the development of the lateral surface of the prism. III CO4

22. Draw the development of the lateral surface of a square pyramid of base side 40 mm and axis 60 mm, resting on its base on the H.P. such that a side of the base is parallel to the V.P. VI CO4

23. Draw the development of the lateral surface of a square pyramid of base side 40 mm and axis 60mm,resting on its base on the H.P. such that all the sides of the base are equally inclined to the V.P. III CO4

24. The front and side views of an angle plate are shown in Fig. Draw its isometric view. VI CO5



BR-22 **SRI INDU COLLEGE OF ENGINEERING & TECHNOLOGY** **D4**

I B.Tech - I Semester - II Mid Term Examination, March – 2023

(R22MED1125) COMPUTER AIDED ENGINEERING GRAPHICS **B**

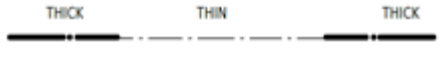
(For CSE-C and CSE-D)

Duration: 2 Hrs **Dt: 06-03-2023, Day-3 (AN)** **Max Marks: 30M**

Part – A

Answer *All:* multiple choice questions. **Marks: 10Qx1/2M = 5M**

*** (L1-Remembering, L2-Understanding, L3-Applying, L4-Analyzing, L5-Evaluating, and L6-Creating.)**

		*Blooms Taxonomy Levels	Course Outcomes
1.	To find the true shape of the section, it must be projected on a plane parallel to the ___.[ ] A) Profile plane B) Vertical plane C) Auxiliary plane D) Section plane.	I	CO3
2.	The type of line used to represent the cutting plane in drawing is. [ ] A) B) C)  D) .	II	CO3
3.	The nature of lateral surface of a cylinder is. [ ] A) Plane surface B) Singly curved surface C) Doubly curved surface D) Singly or doubly curved surface.	I	CO4
4.	If a semicircular thin sheet is folded to form a cone then the front view looks like. [ ] A) equilateral triangle B) isosceles triangle C) rectangle D) semicircle.	I	CO4
5.	What is the shape of a developed lateral surface of a cylinder? [ ] A) Rectangle B) Square C) Circle D) None of the above.	I	CO4
6.	What is the main purpose of drawing development of surfaces of any object? [ ] A) To produce that object from sheet metal B) To understand the shape of that object C) To view the object D) None of the above.	I	CO4
7.	The three lines meeting at the point and making 120° angles with each other are termed. A) Ellipse B) Isometric axes C) Circle D) Parabola. [ ]	I	CO5
8.	In the first angle projection method, the view seen from left is placed on. [ ] A) Above Front View B) Right of Front View C) Above Top View D) Above Top View.	I	CO5
9.	If the object lies in third quadrant, its position with respect to reference planes will be. [ ] A) In front of VP, above HP B) Behind VP, above HP C) Behind VP, below HP D) In front of VP, below HP.	I	CO5
10.	While making isometric projections, the ellipse is preferably drawn by. [ ] A) four-centre method B) oblong method C) concentric circles method D) parallelogram method.	I	CO5

Answer *All:* fill in the blank questions. **Marks: 6Qx1/2M = 3M**

11.	When a cone or pyramid is cut by a section plane, parallel to the base the retained portion of the solid is called_____.	I	CO3
12.	Every line on a development must be_____ to the true length of that line on the actual surface.	I	CO4
13.	The shape of the development of lateral surface of a cylinder is_____.	I	CO4
14.	The development of the lateral surface of cone is a sector of a circle, the radius of which is equal to the _____ of the cone.	I	CO4
15.	In orthographic projection, visual rays are _____ to the projection plane.	I	CO5
16.	The lines parallel to the isometric axes are called _____ .	I	CO5

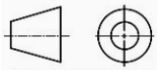
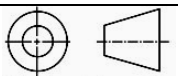
P.T.O.

Answer *All:* Match the following questions. **Marks: 2Qx1M = 2M**

17.

a) Parallel-line method	i) Spherical and double curved	I	CO4
b) Radial-line method	ii) Transition pieces		
c) Triangular method	iii) Pyramids and Cones		
d) Approximation method	iv) Prisms and Cylinders		

18.

a) Ellipse	i) Isometric view of a square will appear as a	I	CO5
b) Third angle projection	ii) Isometric view of a circle will appear as a		
c) Rectangle	iii) 		
d) First angle projection	iv) 		

Part – B

Answer any *FOUR* questions. **Marks: 4Qx5M = 20M**

19. A square prism,25mm edge of base and 45mm long axis, has its axis inclined at 45° to the H.P. and an edge of its base on which the prism rests is inclined at 30° to the V.P. Draw its projections. III CO3

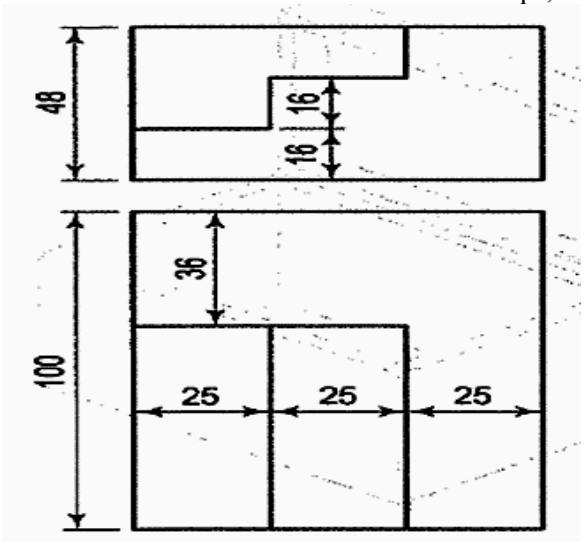
20. A hexagonal pyramid of 30mm side of base and 60mm long axis rests with its base on H.P. and one of the edge of the base is parallel to V.P. It is cut by a horizontal section plane at a distance 30mm above the base. Draw the front view and sectional top view. III CO3

21. A Pentagonal prism of base side 30mm and axis 70mm is resting on its base on the H.P. with a rectangular face parallel to the V.P. It is cut by an A.I.P whose V.T. is inclined at 45º to the reference line and passes through the mid of the axis. Draw the development of the lateral surface of the truncated prism. III CO3

22. A cone of base diameter 50mm and axis 60mm is resting on its base on the H.P. A section plane perpendicular to V.P. and inclined at 45° to H.P. bisects the axis of the cone. Draw the development of the lateral surface. III CO3

23. Draw the development of the lateral surface of a square pyramid of base side 40mm and axis 60mm,resting on its base on the H.P. such that all the sides of the base are equally inclined to the V.P. III CO3

24. Draw the isometric view of the model of steps, two views of which are shown in fig. VI CO5



QC1141

SRI INDU COLLEGE OF ENGINEERING & TECHNOLOGY

(An Autonomous Institution under UGC, New Delhi) - Recognized under 2(f) and 12(B) of UGC Act 1956

IB.Tech.ISemester(REGULAR)End Examinations, March – 2023.

(R22MED1125) COMPUTER AIDED ENGINEERING GRAPHICS

27/03/2023 **(For CSE)** **Day- 5(AN)**

Duration: 3 Hrs **Maximum Marks: 60M**

Blooms Taxonomy : (I-Remembering, II-Understanding, III-Applying, IV-Analyzing, V-Evaluating and VI-Creating)
Course Outcomes : CO

PART – A

***Answer ALLthe following questions*.(10Qx1M=10M)**

1.	a)	What are Different Methods of dimensioning?	I	CO1
	b)	Define Eccentricity.	III	CO1
	c)	Name the Principal Planes of Projection.	II	CO2
	d)	Distinguish between First and Third Angle Projection	II	CO2
	e)	What are the different types of Solids?	I	CO3
	f)	Define cylinder in terms of surface of revolution.	III	CO3
	g)	Name any Two curved surfaces.	II	CO4
	h)	List out the classification of Development of Surfaces.	V	CO4
	i)	What is Meant by Orthographic Projection?	I	CO5
	j)	What are the principles of dimensioning in isometric projections?	II	CO5

PART – B

***Answer FIVE questions choosing at least one from each unit.*(5Qx10M=50M)**

UNIT-I

2.		Two points A and B are 100 apart. A point C is 75 from A and 60 from B. Draw an ellipse passing through A, B and C.	III	CO1
		(OR)		
		Construct a hypocycloid of rolling circle 50 dia, and directing circle 175 diameter.	III	CO2

UNIT-II

3.		Draw the projections of a point lying 20 below H.P and in third quadrant, if its shortest distance from the line of intersection of planes is 50. Also find the distance of the point from V.P.	II	CO2
		(OR)		
		A 90 long line is parallel to and 25 infront of the V.P. It's one end is in the H.P while the other is 50 above the H.P. Draw its projections and find its inclination with the H.P.	III	CO2

UNIT-III

4.		A pentagonal prism, base 25 side, and axis 60 long is lying on the ground on one of its faces with the axis parallel to the V.P. Draw its projections.	II	CO3
		(OR)		
		A pentagonal pyramid has an edge of the base in the V.P and inclined at 30° to the H.P, while the triangular face containing that edge makes an angle 45° with the V.P. Length of the side of the base being 30 and length of the axis 75. Draw the projections of the solid.	III	CO3

P.T.O.

UNIT-IV

5.		A square prism of side of base 40mm and axis 80mm long, is resting on its base on H.P such that, a rectangular face of it is parallel to V.P. Draw the development of the	III	CO4

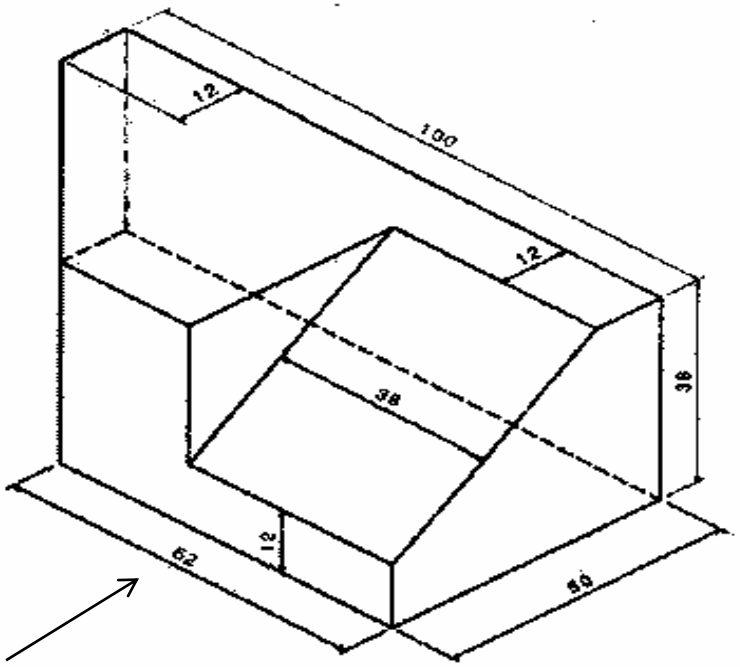
prism.

(OR)

A pentagonal pyramid of side of base 30mm and axis 60mm long is resting on its base on H.P with an edge of the base parallel to V.P. Draw the development of the lateral surface of the pyramid. IV CO4

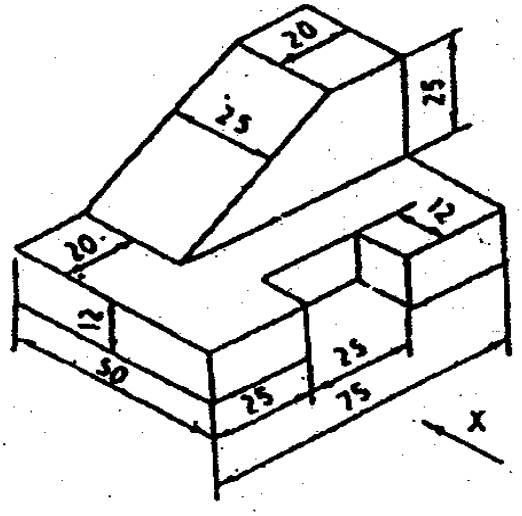
UNIT-V

6. Draw the front view, right side view and top view. II CO5



(OR)

Draw the front view, left side view and top view. CO



Sri Indu College of Engineering and Technology

(An Autonomous Institution Under UGC)

Department of HUMANITIES & SCIENCES

MASTER TIME TABLE

NAME OF THE FACULTY	**B.VINEETH,G.SWATHI, L.RAVI, K.VIJAYKUMAR, A.PRAMODH REDDY**	**SUBJECT**	**COMPUTER AIDED ENGINEERING GRAPHICS**

TIME	**09:40am To 10:30am**	**10:30am To 11:20pm**	**11:20am To 12:10pm**		**12:40pm To 1:45pm**	**1:45pm To 2:50pm**	**2:50pm To 4:00pm**
DAY	**1**	**2**	**3**		**4**	**5**	**6**
MON	CS-A,DS-A			**L U N C H**	CSIT,DS-B		
TUE	CSE-D,IT				CSE-A,CS-A		
WED	CSE-A,CS-B,EEE				DS-A		
THU	CSE-C				CSE-D,IT		
FRI	CSE-B				CSE-C		
SAT	CSIT,DS-B				CSE-B,CS-B,EEE		

HOD

PRINCIPAL