2.6.2. Attainment of programme outcomes and course outcomes are evaluated by the institution.

The process of attainment of COs, POs and PSOs starts from writing appropriate COs for each course of the program from first year to fourth year in a four-year engineering degree program. The Course Outcomes are written by the respective faculty member using action verbs of learning levels suggested by Revised Bloom's Taxonomy. Then, a correlation is established between COs and POs in the scale of 1 to 3, 1 being the slight (low), 2 being moderate (medium) and 3 being substantial (high). A mapping matrix is prepared in this regard for every course in the program including the elective subjects. The written course outcomes and their mapping with POs are reviewed by BOS Chairperson before they are finalized.

In the Outcome Based Education (OBE), assessment is done through one or more than one processes, carried out by the institution that identify, collect and prepare data to evaluate the achievement/attainment of Course Outcomes (COs). Assessment tools are categorized in two methods, to assess the Course Outcomes (COs). They are: 1. Direct Assessment Methods and 2. Indirect Assessment Methods.

Direct Assessment Methods:

1. Two Internal/midterm Assessment Tests
2. Day- to- Day Lab evaluations
3. Tutorials and Assignments
4. Project work for final year students
5. Seminar for third year students
6. Mini Projects
7. Semester-End Examination

Target levels or Rubrics for attainment of Course Outcomes (COs) are set by the Department Academic Committee. After the course is delivered and examination results are announced, actual attainment of COs are determined through Faculty Course Assessment Reports (FCARs). If the attainment is not reached the target, then the course coordinator will submit the action plan to attain the target level in the forthcoming year. The BoS chairperson and HOD continuously monitor to ensure the attainment targets for all the courses in the department. If the attainment is reached for a course then the target level is increased for the next offering of the course or by planning suitable improvements in the teaching-learning process, to increase the actual attainment, so as to reach the desired target.

Supporting evidences for our justification is attached herewith for your kind perusal.

(B.M. SATISH)
PRINCIPAL

PRINCIPAL
SREE VIDYANIKETHAN ENGINEERING COLLEGE
(AUTONOMOUS)
Sree Sainath Nagar, A. RANGAMPET
Chittoor (Dist.) - 517 102, A.P., INDIA.

INDEX

SREE VIDYANIKETHAN ENGINEERING COLLEGE

(AUTONOMOUS)

Sree Sainath Nagar, A. Rangampet – 517102

DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

OVERALL PO ATTAINMENT OF (2015-2019) ATTAINMENTS

Direct Evaluation(through Internal & External Examinations)

(2015-'19 batch)												
Examination	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**
Internal	74.67	78.61	94.80	76.60	77.60	79.60	81.00	90.25	92.39	92.11	89.15	83.48
External	75.96	76.25	75.23	77.16	78.93	73.20	83.00	88.75	93.43	88.04	98.03	99.88

Indirect Evaluation(through Surveys)

SURVEYS	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**
Alumni Survey	79.7	81.9	87.8	85.6	84.7	89.4	83.8	79.1	80.3	83.1	84.4	82.5
Student Exit Survey	75.09	73.4	74.6	74.39	72.63	73.26	72.84	73.75	72.7	78.74	76.21	76.14
Faculty Survey	80	75.83	75.83	80.42	77.92	80.42	80.83	84.17	83.33	82.92	80.83	81.25
Employer Survey	93.75	90.5	90.3	93.54	94.53	92.5	93.5	91	89.98	91.31	92.1	88.89
total	82.14	80.41	82.13	83.49	82.45	83.90	82.74	82.01	81.58	84.02	83.39	82.20

Overall Attainment

Evaluation type	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**
40%-INT	29.87	31.44	37.92	30.64	31.04	31.84	32.40	36.10	36.96	36.84	35.66	33.39
40%-EXT	30.38	30.50	30.09	30.86	31.57	29.28	33.20	35.50	37.37	35.22	39.21	39.95
20%-SURVEY	16.43	16.08	16.43	16.70	16.49	16.78	16.55	16.40	16.32	16.80	16.68	16.44
Final Attainment	**76.68**	**78.02**	**84.44**	**78.20**	**79.10**	**77.90**	**82.15**	**88.00**	**90.64**	**88.86**	**91.55**	**89.78**
Total PO attainment	**83.78**											

Dr. N. GIRIDESH, M.Tech., Ph.D.
Professor & Head
Department of ECE
SREE VIDYANIKETHAN ENGINEERING COLLEGE
(Autonomous)
Sree Sainath Nagar, TIRUPATI-517 102.

Faculty Course Assessment Report

Course Code:	16BT60409	**Program:**	III B Tech, II Sem ECE
Course Title:	LIGHTWAVE COMMUNICATIONS *(Professional Elective-2)*	**Acad. Year:**	2019-20
Faculty :	Dr. P V RAMANA	**Section:**	A

Course Outcomes

On successful completion of the course, students will be able to:

CO1 CO1. Apply knowledge to understand
- Mode theory of optical communication.
- Losses in optical fibers.
- Optical sources and detectors.
- Power Launching and coupling techniques.
- Optical links.
- WDM concepts.
- Optical Networks.

CO2 Analyze Problems in analog and Digital Links.

CO3 Design and Develop Optical Sources, Detectors and Links.

CO4 Provide valid solutions to overcome losses in optical fibers.

CO5 Select appropriate optical components to suit advanced optical communications and Networks.

CO6 Assess and propose cost effective solutions to minimize the radiation hazards caused by wireless links.

Program Outcomes

Engineering Graduates will be able to:

PO1: Engineering knowledge: Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.

PO2: 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.

PO3: 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.

PO4: 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.

PO5: 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.

PO6: 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.

PO7: 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.

PO8: Ethics: Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.

PO9: Individual and team work: Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.

PO10: 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.

PO11: 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.

PO12: 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	
PSO1:	Apply the knowledge of Electronics, Signal Processing, Communications, and VLSI & Embedded Systems to the solutions of real world problems.
PSO2:	Analyze, Design and Develop solutions in real time in the domains of Electronics, Signal Processing, Communications, and VLSI & Embedded Systems.
PSO3:	Conduct investigations and address complex engineering problems in the domains of Electronics, Signal Processing, Communications, and VLSI & Embedded Systems.
PSO4:	Apply appropriate techniques, resources, and modern tools to complex engineering systems and processes in the domains of Electronics, Signal Processing, Communications, and VLSI & Embedded Systems.

Mapping of Course to Program Outcomes and Program Specific Outcomes:

	PO1	PO2	PO3	PO4	PO5	PO6	PSO1	PSO2	PSO3	PSO4
CO1	3						3			
CO2	2	3						3		
CO3	2	2	3					3		
CO4	2	2	1	3					3	
CO5	2	2			2					3
CO6	2	2	2	2		2				

3: High **2: Medium** **1: Low**

Course Outcomes Assessment:

Course Outcomes		Questions	Percentage of students who got 60% and above marks					
			CO1	**CO2**	**CO3**	**CO4**	**CO5**	**CO6**
CO1	CO2. Apply knowledge to understand • Mode theory of optical communication. • Losses in optical fibers. • Optical sources and detectors. • Power Launching and coupling techniques. • Optical links. • WDM concepts. • Optical Networks.	M1Q1 M1Q2 M1Q4 M1Q5B M2Q1 M2Q3	63.79 70.18 48.00 75.00 52.54 91.07					
CO2	Analyze Problems in analog and Digital Links.	M1Q3A M1Q5A M2Q2B		80.00 84.62 94.12				
CO3	Design and Develop Optical Sources, Detectors and Links.	M2Q2A			82.98			
CO4	Provide valid solutions to overcome losses in optical fibers.	M1Q3B M2Q4				41.94 88.89		
CO5	Select appropriate optical components to suit advanced optical communications and Networks	M2Q5A					61.11	
CO6	Assess and propose cost effective solutions to minimize the radiation hazards caused by wireless links.	M2Q5B						66.67
CO Attainment through CIE			66.76	86.24	82.98	65.41	61.11	66.67
CO Attainment through SEE			79.1	79.1	79.1	79.1	79.1	79.1
Overall CO Attainment=(CIE+SEE)/2			72.93	82.67	81.04	72.26	70.11	72.89
Course Attainment=Average of all CO attainment			**75.31**					

Course Outcomes	CO1	CO2	CO3	C04	C05	C06
Target for Attainment (%)	60	60	60	60	60	60
CO Attainment (%)	72.93	82.67	81.04	72.26	70.11	72.89
Outcomes satisfied	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**

Program Outcomes and Program Specific Outcomes Assessment:

	PO1	PO2	PO3	PO4	PO5	PO6	PSO1	PSO2	PSO3	PSO4
CO1	72.93						72.93			
CO2		82.67						82.67		
CO3			81.04					81.04		
CO4				72.26					72.26	
CO5					70.11					70.11
CO6						72.89				
Average PO Attainment (%)	72.93	82.67	81.04	72.26	70.11	72.89	72.93	81.86	72.26	70.11
Target for Attainment (%)	65	65	65	65	65	65	65	65	65	65
Outcomes satisfied	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**

The process of converting CO/PO/PSO attainment percentage into attainment levels is illustrated in the table below:

COs/POs/PSOs attainment %		Attainment Level
≥ 75	:	3
≥ 60 to < 75	:	2
< 60	:	1

COs, POs & PSOs Attainment:

Course Outcomes	CO1	CO2	CO3	C04	C05	C06
CO Attainment (%)	72.93	82.67	81.04	72.26	70.11	72.89
Level of Attainment	2	3	3	2	2	2

Program Outcomes	PO1	PO2	PO3	PO4	PO5	PO6	PSO1	PSO2	PSO3	PSO4
PO Attainment (%)	72.93	82.67	81.04	72.26	70.11	72.89	72.93	81.86	72.26	70.11
Level of Attainment	2	3	3	2	2	2	2	3	2	2

Comments

- The COs and corresponding POs for this course, attained the expected level of attainment.
- After analyzing the performance in the CIE, special emphasize are required on the following
  - Short answer questions
  - Losses in optical fibers
  - Methods to minimize losses in fibers.

Recommendations for Improvement

- Formative tests shall be focused more on short answer questions rather than other type for this course.
- Optical losses and methods to minimize losses should be discussed with more pictorial & video presentation for better understanding.

COURSE OUTCOMES & CORRESPONDING QUESTIONS

CO1: Apply knowledge to understand

- ***Mode theory of optical communication.***
- ***Losses in optical fibers.***
- ***Optical sources and detectors.***
- ***Power Launching and coupling techniques.***
- ***Optical links.***
- ***WDM concepts.***
- ***Optical Networks.***

M1Q1 a) Write an expression for snell's law of refraction in terms of refractive indices of dielectrics.
b) Write an expression for total number of guided modes in multimode step-index fiber.
c) List the types of fiber fabrication methods.
d) Draw the index profile of a step index and graded index fiber.
e) What are the types of dispersion in optical fiber?
f) What is fiber beat length?

M1Q2 Derive expressions for ray theory transmission and make use of it to obtain Numerical Aperture.

M1Q4 Categorize and Explain the scattering losses based on linear and non-linear process?

M1Q5B What is the effect of intermodal delay in multimode fibers?

M2Q1 a) Which optical source has narrow spectral emission width?
b) Write the expression for Responsivity of APD.
c) Draw one type of mechanical misalignment of fibers.
d) List the types of Fiber Connectors.
e) What is power penalty in optical fiber link?
f) What is Impact Ionization in avalanche effect?

M2Q3 Demonstrate how temporary and permanent joints are made between two fibers using splicing techniques?

CO2: Analyze Problems in analog and Digital Links.

M1Q3A A light wave is travelling in a semiconductor medium (GaAs) of refractive index 3.6. It is incident on a different semiconductor medium (AlGaAs) of refractive index 3.4 and the angle of incidence is 80°. Conclude whether this can result in Total Internal Reflection.

M1Q5A Analyze how the dispersion limits the capacity of optical fibers.

M2Q2B Compare Optical LED and Laser with any three parameters

CO3: Design and Develop Optical Sources, Detectors and Links.

M2Q2A Design a structure for optical LED to achieve carrier and optical confinements.

CO4: Provide valid solutions to overcome losses in optical fibers.

M1Q3B Analyze how the losses (any two losses) in optical fibers can be minimized.

M2Q4 Estimate link power budget and rise time budget for point-to-point fiber optic link.

CO5: Select appropriate optical components to suit advanced optical communications and Networks

M2Q5A Select appropriate optical components along with Fiber bragg grating and design optical demultiplexer.

CO6: Assess and propose cost effective solutions to minimize the radiation hazards caused by wireless links.

M2Q5B Mention the optimal solution for reducing cost/hazards for joining two fiber.

Signature of the faculty

COURSE EVALUATION SHEET

Course Code:	16BT60409
Course Title:	LIGHTWAVE COMMUNICATIONS (Professional Elective-2)
Faculty :	Dr. P V RAMANA

Program:	III B Tech, II Sem ECE
Academic Year:	2019-20
Section:	A

Roll Number	Name of the Students	M1Q1	M1Q2	M1Q3A	M1Q3B	M1Q4	M1Q5A	M1Q5B	M2Q1	M2Q2A	M2Q2B	M2Q3	M2Q4	M2Q5A	M2Q5B
		6	*8*	*3*	*5*	*8*	*4*	*4*	*6*	*5*	*3*	*8*	*8*	*4*	*4*
17121A0401	ACHUGATLA RAFATH	2	6	3	2				1	5	0	6	6		
17121A0402	ALLAM LOKESH NAIDU					3	3		3	5	3	7	0		
17121A0440	BYNA CHARANTEJ AKRI														
17121A0455	DADU KIRAN KUMAR REDDY	5	7	3	4	3			6	2	3	7	7		
17121A0457	DARAM RAMESH								5			3	2	1	1
17121A0461	DEVATHOTI TONY	5	3			5		2.5	3	0	3	8	8		
17121A0472	EGA PAVAN	4	4			4		2	3	3	2			2	2
17121A0475	ESLAVATH PAAVANI	4	8	3	2	5			1	0	2	8	7		
17121A0481	GOPAVARAM MANOJ KUMAR REDDY	5	6.5			3.5			3	4	3	8	8		
17121A0484	GORRE PREETHIRAJ	5	8	2.5	4	7	3		4	0	3	8		0	3
17121A0492	GULLAKUNTLA YASWANTH	3	7	3	3	4.5			2	2	3	0	0		
17121A0493	GUMMA SATHYA SAI	5	5			5			2	0	0	8	5		
17121A0497	JAKKARAJU DEEPIKA	2	3.5			3.5			4	4	3	8		0	1
17121A04A8	KAMBAKA JAYA SARANYA	3	7.5	3	2	2			5	3	2	7	7		
17121A04B2	KATIKA VISHNUVARDHAN								4			6	7	3	0
17121A04B5	KINNERA VIDYA	5	7.5	3	4	7.5			3	0	3		5	2	2
17121A04C5	KUNDAVARAM PREM SUKUMAR	5	7.5	3	2	3.5			5	2	3	8	8		
17121A04C6	KURABALAKOTA MADHAVI	6	7.5	1	2	3			4	3	3	8	8		
17121A04C9	LAKKAVARAM HEMANTH KUMAR	5	7.5	3		7									
17121A04D4	MALLE ROSHINI	2	5	3		4			3			8	6	3	0
17121A04D7	MANAGHANI MOUNIKA	1.5				1.5									
17121A04F7	NITTURU NEHRUN BEE	4	6	3	2	4.5				4	1				
17121A04G1	PAMIDIKALVA SAIKRISHNA SARATH	5		2.5	2.5	3.5			2		3	7			3
17121A04G8	PENUKONDA SUDHARSHAN														
17121A04H9	RASAPPA GOWTHAM		1							3	2	6	6		

17121A04J0	RAVULA SIVA SANKAR	4		2	1	5			3	3	2	6			
17121A04J8	SHAIK MASTHAN SHARIF	4.5	4.5	3	3.5	6.5			5	3	3	8		2	3
17121A04M7	VATTAM MOHAN REDDY	6	6.5	3	3.5	7									
17121A04M9	VEMGAPATI NAGENDRA BABU	3	5	3	2				2		3	7		3	3
17121A04N4	YANADI PRUDHVI	6	8	3	4.5	7.5			5	4	3	8	8		
17121A04N5	YARAMALA LAKSHMI PAVAN KALYAN REDDY	2						1.5	3			4	4	3	3
17121A04N9	YELLAM RAJU LIKHITHA	4	7	3	2	4.5			5			8	8		4
17121A04P7	PEDDAKOTLA SIVA SAI	2	1.5	3					3	3	2	4			3
17121A04P8	VENNAPUSA MADHUSUDHAN REDDY									3	3		6		3
17121A04P9	KRISHNA RAJ ROKAYA	4.5	7	3	3	5									
17125A0426	MULA PRAVEEN KUMAR	4	5			4					3				
18125A0401	A S POORNESH	5	7.5	3	2	7			3	3	2				4
18125A0402	AKKUPALLI ANIL KUMAR					1	2		4	5	3	7	7		
18125A0404	AMBATI YASWANTH REDDY	6	7.5	1	2	5.5	3	3	5	3	3	8	8		
18125A0406	AVULA RAMA KRISHNA	3	4	3	2	4			3	5	3	8			
18125A0407	B MEGHANA	4.5	6	2			3		3	3	3	5	5		
18125A0408	B V LAVANYA	5	3		3	5			2	4	3	4	4		
18125A0409	BALA KRISHNA VAMSI								3	3	3	5	5		
18125A0411	BASIREDDY PUJITHA	3	3	1.5	1.5	5			3	4	3	7	6		
18125A0412	BAYAPUREDDY SRILAKSHMI	5	7	3	4	7			6	5	3	6	6		
18125A0413	BOORSU VASU	4	4.5	3	2	7			4	5	3	8		1	3
18125A0414	BOYA YOGESH	5	7		4	5			4	5	3	8	8		
18125A0415	CHALICHEEMALA SIVA PRASANNA KUMARI	4	7	2		5	3	1.5	5	5	3	7	6		
18125A0417	D JHANSI LAKSHMI	2	3.5	2			3		3	3	3	6	8		
18125A0418	DIBBISA JAYACHANDRA	4	5			5			3			7	7		3
18125A0420	GIRIGILI BALAKRISHNA	5	6	3	3.5		4	3	2	3	2	8			4
18125A0421	GOLLA SURESH	2.5	3		2.5				4	4	3	8			
18125A0422	GOOPURAPPAGARI MANJUNATHA	2.5	5	2		4.5			5	4	3		7		
18125A0423	GUNTIKA SIREESHA	3.5	5		3	3.5	7		6			8	6	4	3
18125A0424	KALVA PURNA SAI	3.5	3	1.5		4.5			5			7	8	4	2
18125A0425	KANDUKURI VAMSIKRISHNA														
18125A0427	KOMMU PRASAD	3	4	2		2.5			4	3	3	7	8		
18125A0428	KUNDURU RAMMOHAN REDDY	4	2	1	2	4.5			4	5	3	8	7		
18125A0429	KUNI HIMASREE	5.5	5.5					3	3	5	3	7	7		

18125A0431	MALLA RAVIPRAKASH REDDY	3	6.5				3		4		3	8	7		
18125A0434	PEMMAKA BALA SRAVANI	6	8			7.5	3.5	3.5	4	3	3	8		3	3
18125A0435	PITTI NITHEESH KUMAR	3	3.5			3			1			6	6	3	3
18125A0436	PONNAPATI PAVAN KALYAN		5.5	1.5		3.5		2.5	4	4	3	8		3	2
18125A0437	RAGAVAREDDYGARI ANUSHA	4	7	3					5	4	3	8		3	3
18125A0439	SIRVELU MOUNIKA	3	5	1.5		7.5	2	2.5	2	5	3	6	8		
18125A0440	TALARI RAVI TEJA	3	4.5	3	2	4.5			5	5	3	6	5		
18125A0442	VANNAPPAGARI YUVAKISHORE REDDY	5	7			6		3	4	4	3	7	7		
18125A0443	VARADARAJU JASWANTH														
18125A0444	VINUKONDA UDAYA KIRAN		5.5	0.5					4			6	7	3	2
18125A0446	YALLALA SWETHA	5	7.5			7	2.5		5			8	6		3
18125A0447	YERRANAGULA PAVAN KUMAR	4	6			4		2.5	3			6	8		3

Total Attempted	58	57	40	31	50	13	12	59	47	51	56	45	18	27
No. of students secured ≥ 60% of marks	37	40	32	13	24	11	9	31	39	48	51	40	11	18
% of students secured ≥ 60% of marks	63.79	70.18	80.00	41.94	48.00	84.62	75.00	52.54	82.98	94.12	91.07	88.89	61.11	66.67

CO1	CO1	CO2	CO2	CO3	CO3	CO4	CO4	CO5	CO5	CO6	CO6
M1Q1	63.79	M1Q3A	80.00	M2Q2A	82.98	M1Q3B	41.94	M2Q5A	61.11	M2Q5B	66.67
M1Q2	70.18	M1Q5A	84.62			M2Q4	88.89				
M1Q4	48.00	M2Q2B	94.12								
M1Q5B	75.00										
M2Q1	52.54										
M2Q3	91.07										
CO Attainment	**66.76**		**86.24**		**82.98**		**65.41**		**61.11**		**66.67**

Continuous Internal Evaluation (CIE)	66.76	86.24	82.98	65.41	61.11	66.67
Semester End Evaluation (SEE)	79.1	79.1	79.1	79.1	79.1	79.1
Average of CIE & SEE	72.93	82.67	81.04	72.26	70.11	72.89
Course Attainment (Average of COs attainment)	**75.31**					

(Dr. P.V. RAMANA)

Faculty Course Assessment Report

Course Code:	16BT70431	**Program:**	IV B.Tech., I-Sem, ECE
Course Title:	Antennas and Microwave Engineering Lab	**Acad. Year:**	2019-20
Faculty :	Ms. K. Neelima	**Section:**	A,B,C & D

COURSE : ANTENNAS AND MICROWAVE ENGINEERING LAB(16BT70431)

Course Outcomes

CO1	Apply the knowledge of antennas and microwaves to understand the working of various devices.
CO2	Analyze the characteristics of different microwave components like • Attenuators • Directional Couplers • Horn antennas etc.,
CO3	Design various antennas for different communication needs.
CO4	Solve problems using different antenna designs and microwave devices.
CO5	Apply appropriate tools to design and analyze various antennas.
CO6	Understand the working of various antennas and microwave components and provide engineering solutions for societal use.
CO7	Commit to ethical principles in the design of antennas and microwave components.
CO8	Work individually or in a group in the field of antennas and microwaves.
CO9	Communicate effectively in verbal and written form in the area of antennas and microwaves.

Program Outcomes

Engineering Graduates will be able to:

PO1:	Engineering knowledge: Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.
PO2:	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.
PO3:	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.
PO4:	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.
PO5:	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.
PO6:	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.
PO7:	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.
PO8:	Ethics: Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.
PO9:	Individual and team work: Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.
PO10:	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.

PO11:	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.
PO12:	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	
PSO1:	Apply the knowledge of Electronics, Signal Processing, Communications, and VLSI & Embedded Systems to the solutions of real world problems.
PSO2:	Analyze, Design and Develop solutions in real time in the domains of Electronics, Signal Processing, Communications, and VLSI & Embedded Systems.
PSO3:	Conduct investigations and address complex engineering problems in the domains of Electronics, Signal Processing, Communications, and VLSI & Embedded Systems.
PSO4:	Apply appropriate techniques, resources, and modern tools to complex engineering systems and processes in the domains of Electronics, Signal Processing, Communications, and VLSI & Embedded Systems.

Mapping of Course to Program Outcomes and Program Specific Outcomes:

	PO1	PO2	PO3	PO4	PO5	PO6	PO8	PO9	PO10	PSO1	PSO2	PSO3	PSO4
CO1	3									3			
CO2	2	3									3		
CO3	2	1	3								3		
CO4	2	2	2	3								3	
CO5	2	1	1		3								3
CO6	2					3							
CO7	2		2				3						
CO8	1							3					
CO9	2								3				

3: High 2: Medium 1: Low

Evaluation Rubrics (Microwave Engineering Lab)

Rubric	Excellent (Wt=3)	Good (Wt=2)	Fair (Wt=1)
Experiment write-up (CO1)	Comprehensive write-up	Moderate write-up	Partial write-up
Analyze and use the Microwave Components (CO1 & CO2)	Best analysis and usage of the Microwave Components	Good analysis and usage of the Microwave Components	Moderate analysis and usage of the Microwave Components
Solve Problems in Leakage Power while interconnecting Microwave Components (CO4)	Exact Solution for leakage power while interconnecting Microwave Components	Small deviation in Solution for leakage power while interconnecting Microwave Components	Acceptable deviation Solution for leakage power while interconnecting Microwave Components
Understanding and Usage of Bench Setup (CO5 & CO6)	Optimal understanding and usage of Bench Setup	Alternative understanding and usage of Bench Setup	understanding and usage of Bench Setup without constraints
Follow Ethical Principles while Working and Communicating (CO7,CO8 & CO9)	Perfect Follow up of Ethical Principles while Working and Communicating	Correct Follow up of Ethical Principles while Working and Communicating	Poor Follow up of Ethical Principles while Working and Communicating
Viva-Voce (CO1)	Answered all questions	Answered majority of questions	Answered few questions

Evaluation Rubrics (Antennas Lab)

Rubric	Excellent (Wt=3)	Good (Wt=2)	Fair (Wt=1)
Experiment write-up (CO1)	Comprehensive write-up	Moderate write-up	Partial write-up
Analyze Antennas for Evaluation (CO1 & CO2)	Best analysis of Antennas for Evaluation	Good analysis of Antennas for Evaluation	Moderate analysis of Antennas for Evaluation
Design of various Antennas (CO3)	Precise Design of Antennas	Fine Design of Antennas	Fair Design of Antennas
Solve Problems in design of Structure & Feed for Antennas (CO4)	Exact Solution for design of Structure & Feed for Antennas	Small deviation in Solution for design of Structure & Feed for Antennas	Acceptable deviation Solution for design of Structure & Feed for Antennas
Understanding and Usage of CAD tools (CO5 & CO6)	Optimal understanding and usage of CAD tools	Alternative understanding and usage of CAD tools	understanding and usage of CAD tools without constraints
Follow Ethical Principles while Working and Communicating (CO7,CO8 & CO9)	Perfect Follow up of Ethical Principles while Working and Communicating	Correct Follow up of Ethical Principles while Working and Communicating	Poor Follow up of Ethical Principles while Working and Communicating
Viva-Voce (CO1)	Answered all questions	Answered majority of questions	Answered few questions

Course Outcome Assessment:

	Percentage of students who got 60% and above marks								
	CO1	**CO2**	**CO3**	**CO4**	**CO5**	**CO6**	**CO7**	**CO8**	**CO9**
CO Attainment through day-to-day evaluation(CIE)	98	99	96	94	98	98	99	99	99
CO Attainment through Internal Examination(CIE)	99	99	99	99	99	99	99	99	99
CO Attainment through SEE	98	98	98	98	98	98	98	98	98
Overall CO Attainment=(CIE+SEE)/3	98.33	98.67	97.67	97.00	98.33	98.33	98.67	98.67	98.67
Course Attainment=Average of all CO attainment	**98.26**								

Course Outcomes	**CO1**	**CO2**	**CO3**	**CO4**	**CO5**	**CO6**	**CO7**	**CO8**	**CO9**
Target for Attainment (%)	60	60	60	60	60	60	60	60	60
CO Attainment (%)	98.33	98.67	97.67	97.00	98.33	98.33	98.67	98.67	98.67
Outcomes satisfied	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**

Program Outcome and Program Specific Outcomes Assessment:

	PO1	PO2	PO3	PO4	PO5	PO6	PO8	PO9	PO10	PSO1	PSO2	PSO3	PSO4
CO1	98.33									98.33			
CO2		98.67									98.67		
CO3			97.67								97.67		
CO4				97.00								97.00	
CO5					98.33								98.33
CO6						98.33							
CO7							98.67						
CO8								98.67					
CO9									98.67				
Average PO Attainment (%)	98.33	98.67	97.67	97.00	98.33	98.33	98.67	98.67	98.67	98.33	98.17	97.00	98.33
Target for Attainment (%)	60	60	60	60	60	60	60	60	60	60	60	60	60
Outcomes satisfied	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**

The process of converting CO/PO/PSO attainment percentage into attainment levels is illustrated in the table below:

COs/POs/PSOs attainment %		Attainment Level
≥ 75	:	3
≥ 60 to < 75	:	2
< 60	:	1

COs, POs & PSOs Attainment:

Course Outcomes	CO1	CO2	CO3	CO4	CO5	CO6	CO7	CO8	CO9
CO Attainment (%)	98.33	98.67	97.67	97.00	98.33	98.33	98.67	98.67	98.67
Level of Attainment	3	3	3	3	3	3	3	3	3

Program Outcomes	PO1	PO2	PO3	PO4	PO5	PO6	PO8	PO9	PO10	PSO1	PSO2	PSO3	PSO4
PO Attainment (%)	98.33	98.67	97.67	97.00	98.33	98.33	98.67	98.67	98.67	98.33	98.17	97.00	98.33
Level of Attainment	3	3	3	3	3	3	3	3	3	3	3	3	3

Comments

All course outcomes and corresponding program outcomes & Program Specific Outcomes are satisfied with the expected level of attainment.

Recommendations for Improvement

- As attainment values are highly satisfied, Design of Antennas can be carried out at the various operating frequencies and applications of Circulator and Magic Tee can be done as beyond syllabus experiments.

Signature of the faculty

SREE VIDYANIKETHAN ENGINEERING COLLEGE (Autonomous)

Sree Sainath Nagar, Tirupati – 517 102

Department of Electronics & Communication Engineering

IV B.Tech I Sem. ECE - A,B,C,D AY: 2019-20

ANTENNAS AND MICROWAVE ENGINEERING LAB (16BT70431) Evaluation Sheet (Internal)

Awarded Marks =Awarded Weight x Max. Marks /Max. Weight

Excellent (Weight=3); Good (Weight=2); Satisfactory (Weight=1); W=Weight; M= Max.Marks

Faculty Handling Course: Ms.K.Neelima

S. No	Roll No	Exp1													Exp2													Exp3													Exp4												
		R1		R2		R3		R4		R5		R6		Tot.	R1		R2		R3		R4		R5		R6		Tot.	R1		R2		R3		R4		R5		R6		Tot.	R1		R2		R3		R4		R5		R6		Tot.
		CO1		CO2		CO4		CO5,CO6		CO7,CO8,CO9		CO1			CO1		CO2		CO4		CO5,CO6		CO7,CO8,CO9		CO1			CO1		CO2		CO4		CO5,CO6		CO7,CO8,CO9		CO1			CO1		CO2		CO4		CO5,CO6		CO7,CO8,CO9		CO1		
		W	M	W	M	W	M	W	M	W	M	W	M	30	W	M	W	M	W	M	W	M	W	M	W	M	30	W	M	W	M	W	M	W	M	W	M	W	M	30	W	M	W	M	W	M	W	M	W	M	W	M	30
		3	3	3	8	3	6	3	7	3	3	3	3		3	3	3	8	3	6	3	7	3	3	3	3		3	3	3	6	3	8	3	7	3	3	3	3		3	3	3	6	3	8	3	7	3	3	3	3	
1	14121A0447	3	3	2	6	3	6	3	7	3		3	3	28	3	3	2	6	2	4	1	3	3	3	3	3	22	3	3	3	6	1	3	3	7	3	3	3	3	25	3	3	3	6	2	6	0	0	3	3	3	3	21
2	14121A04D6	3	3	3	8	3	6	3	7	3	3	3	3	30	3	3	3	8	3	6	3	7	3	3	3	3	30	3	3	3	6	3	8	3	7	3	3	3	3	30	3	3	3	6	3	8	3	7	3	3	3	3	30
3	14121A04M6	3	3	2	6	3	6	3	7	2	2	3	3	27	2	2	3	8	3	6	3	7	3	3	3	3	29	2	2	3	6	2	6	2	5	3	3	3	3	25	3	3	3	6	2	6	3	7	3	3	3	3	28
4	15121A04A6	3	3	2	6	3	6	3	7	3	3	3	3	28	3	3	2	6	3	6	3	7	3	3	3	3	28	2	2	3	6	2	6	3	7	3	3	3	3	27	3	3	3	6	3	8	3	7	3	3	3	3	30
5	16121A0401	2	2	3	8	2	4	3	7	3	3	3	3	27	3	3	3	8	3	6	3	7	3	3	3	3	30	3	3	3	6	3	8	3	7	3	3	3	3	30	3	3	3	6	3	8	3	7	3	3	3	3	30
6	16121A0402	3	3	2	6	3	6	3	7	3	3	3	3	28	3	3	3	8	3	6	1	3	3	3	3	3	26	2	2	3	6	2	6	3	7	3	3	3	3	27	3	3	3	6	3	8	3	7	3	3	3	3	30
7	16121A0403	3	3	2	6	3	6	3	7	3	3	3	3	28	3	3	3	8	3	6	1	3	3	3	3	3	26	3	3	3	6	3	8	3	7	3	3	3	3	30	3	3	3	6	3	8	3	7	3	3	3	3	30
8	16121A0405	3	3	3	8	3	6	3	7	3	3	3	3	30	2	2	3	8	3	6	3	7	3	3	3	3	29	3	3	3	6	3	8	3	7	3	3	3	3	30	3	3	3	6	3	8	3	7	3	3	3	3	30
9	16121A0406	3	3	3	8	2	4	3	7	3	3	3	3	28	3	3	3	8	3	6	3	7	3	3	3	3	30	3	3	3	6	3	8	3	7	3	3	3	3	30	3	3	3	6	3	8	3	7	3	3	3	3	30
10	16121A0408	2	2	3	8	3	6	3	7	3	3	3	3	29	3	3	3	8	3	6	3	7	3	3	3	3	30	3	3	3	6	3	8	3	7	3	3	3	3	30	3	3	3	6	3	8	3	7	3	3	3	3	30
11	16121A0409	3	3	3	8	3	6	3	7	3	3	3	3	30	3	3	3	8	3	6	3	7	3	3	3	3	30	3	3	3	6	3	8	3	7	3	3	3	3	30	3	3	3	6	3	8	3	7	3	3	3	3	30
12	16121A0410	3	3	3	8	3	6	3	7	3	3	3	3	30	3	3	2	6	3	6	3	7	3	3	3	3	28	3	3	3	6	1	3	3	7	3	3	3	3	25	3	3	3	6	3	8	3	7	3	3	3	3	30
13	16121A0411	3	3	2	6	3	6	2	5	3	3	3	3	26	3	3	3	8	3	6	3	7	3	3	3	3	30	3	3	3	6	3	8	3	7	3	3	3	3	30	3	3	3	6	3	8	3	7	3	3	3	3	30
14	16121A0412	3	3	3	8	3	6	3	7	3	3	3	3	30	3	3	3	8	3	6	3	7	3	3	3	3	30	3	3	3	6	3	8	3	7	3	3	3	3	30	3	3	3	6	3	8	3	7	3	3	3	3	30
15	16121A0413	3	3	2	6	3	6	3	7	3	3	3	3	28	3	3	3	8	3	6	3	7	3	3	3	3	30	3	3	3	6	3	8	3	7	3	3	3	3	30	3	3	3	6	3	8	3	7	3	3	3	3	30
16	16121A0414	3	3	3	8	3	6	3	7	3	3	3	3	30	2	2	1	3	3	6	3	7	3	3	3	3	24	3	3	3	6	3	8	3	7	3	3	3	3	30	3	3	3	6	3	8	3	7	3	3	3	3	30
17	16121A0415	2	2	3	8	3	6	3	7	3	3	3	3	29	3	3	2	6	3	6	3	7	3	3	3	3	28	3	3	3	6	3	8	3	7	3	3	3	3	30	3	3	3	6	3	8	3	7	3	3	3	3	30
18	16121A0416	2	2	3	8	3	6	3	7	3	3	3	3	29	3	3	3	8	3	6	3	7	3	3	3	3	30	3	3	3	6	3	8	3	7	3	3	3	3	30	3	3	3	6	3	8	2	5	3	3	3	3	28
19	16121A0417	3	3	3	8	3	6	3	7	3	3	3	3	30	3	3	3	8	3	6	3	7	3	3	3	3	30	3	3	3	6	3	8	3	7	2	2	3	3	29	3	3	2	4	3	8	3	7	3	3	3	3	28
20	16121A0418	3	3	3	8	1	2	3	7	3	3	3	3	26	3	3	3	8	3	6	3	7	3	3	3	3	30	2	2	2	4	3	8	3	7	3	3	3	3	27	2	2	3	6	3	8	2	5	3	3	3	3	27
21	16121A0419	3	3	2	6	3	6	3	7	3	3	3	3	28	3	3	2	6	3	6	3	7	3	3	3	3	28	3	3	3	6	3	8	3	7	3	3	3	3	30	3	3	3	6	2	6	3	7	3	3	3	3	28
22	16121A0420	3	3	2	6	2	4	3	7	3	3	3	3	26	3	3	3	8	3	6	3	7	3	3	3	3	30	2	2	3	6	3	8	3	7	3	3	3	3	29	3	3	3	6	2	6	3	7	3	3	3	3	28
23	16121A0421	3	3	3	8	3	6	3	7	3	3	3	3	30	3	3	3	8	3	6	3	7	3	3	3	3	30	3	3	3	6	3	8	3	7	3	3	3	3	30	3	3	3	6	3	8	3	7	3	3	3	3	30
24	16121A0422	0	0	3	8	2	4	3	7	3	3	3	3	25	3	3	3	8	3	6	3	7	3	3	3	3	30	3	3	3	6	3	8	3	7	3	3	3	3	30	3	3	3	6	3	8	3	7	3	3	3	3	30
25	16121A0423	1	1	3	8	3	6	2	5	3	3	3	3	26	3	3	3	8	3	6	3	7	3	3	3	3	30	3	3	3	6	3	8	3	7	3	3	3	3	30	3	3	3	6	3	8	3	7	3	3	3	3	30
26	16121A0424	3	3	2	6	3	6	3	7	2	2	3	3	27	3	3	3	8	3	6	3	7	3	3	3	3	30	3	3	3	6	3	8	3	7	3	3	3	3	30	2	2	3	6	2	6	2	5	2	2	3	3	24
27	16121A0425	3	3	3	8	3	6	3	7	3	3	3	3	30	3	3	3	8	3	6	3	7	3	3	3	3	30	3	3	3	6	3	8	2	5	3	3	3	3	28	2	2	3	6	3	8	2	5	3	3	3	3	27
28	16121A0426	3	3	3	8	3	6	3	7	3	3	3	3	30	3	3	3	8	2	4	3	7	3	3	3	3	28	3	3	3	6	3	8	3	7	3	3	3	3	30	3	3	3	6	3	8	3	7	1	1	3	3	28
29	16121A0427	3	3	1	3	3	6	3	7	3	3	3	3	25	3	3	3	8	2	4	3	7	2	2	3	3	27	3	3	3	6	3	8	3	7	3	3	3	3	30	3	3	2	4	3	8	3	7	3	3	3	3	28
30	16121A0428	3	3	3	8	3	6	3	7	3	3	3	3	30	3	3	3	8	3	6	3	7	3	3	3	3	30	3	3	3	6	3	8	3	7	3	3	3	3	30	3	3	3	6	3	8	3	7	3	3	3	3	30
31	16121A0429	3	3	3	8	3	6	3	7	3	3	3	3	30	1	1	2	6	3	6	3	7	3	3	3	3	26	3	3	3	6	3	8	3	7	3	3	3	3	30	3	3	3	6	3	8	3	7	3	3	3	3	30
32	16121A0430	3	3	3	8	3	6	3	7	3	3	3	3	30	3	3	3	8	3	6	3	7	3	3	3	3	30	3	3	3	6	2	6	1	3	3	3	3	3	24	3	3	3	6	3	8	3	7	3	3	3	3	30
33	16121A0431	3	3	2	6	3	6	3	7	3	3	3	3	28	3	3	2	6	3	6	3	7	3	3	3	3	28	2	2	3	6	3	8	3	7	3	3	3	3	29	3	3	3	6	2	6	3	7	3	3	3	3	28
34	16121A0432	2	2	2	6	3	6	2	5	3	3	3	3	25	2	2	3	8	3	6	3	7	3	3	3	3	29	0	0	3	6	2	6	3	7	3	3	2	2	24	3	3	3	6	2	6	3	7	3	3	3	3	28
35	16121A0433	3	3	2	6	3	6	3	7	3	3	3	3	28	3	3	3	8	3	6	3	7	3	3	3	3	30	3	3	3	6	3	8	3	7	3	3	3	3	30	3	3	3	6	3	8	2	5	3	3	3	3	28
36	16121A0434	3	3	3	8	3	6	3	7	3	3	3	3	30	3	3	3	8	3	6	3	7	3	3	3	3	30	3	3	3	6	2	6	3	7	3	3	3	3	28	3	3	3	6	3	8	2	5	3	3	3	3	28
37	16121A0435	3	3	3	8	3	6	3	7	3	3	3	3	30	3	3	3	8	3	6	3	7	3	3	3	3	30	3	3	3	6	3	8	2	5	3	3	3	3	28	3	3	3	6	3	8	3	7	3	3	3	3	30
38	16121A0436	3	3	3	8	3	6	3	7	3	3	3	3	30	3	3	3	8	3	6	3	7	3	3	3	3	30	2	2	3	6	3	8	3	7	3	3	2	2	28	3	3	3	6	3	8	3	7	3	3	3	3	30
39	16121A0437	3	3	3	8	3	6	3	7	2	2	3	3	29	3	3	3	8	3	6	3	7	3	3	3	3	30	3	3	3	6	3	8	3	7	3	3	3	3	30	3	3	3	6	3	8	3	7	3	3	3	3	30
40	16121A0438	3	3	3	8	3	6	3	7	3	3	3	3	30	3	3	3	8	3	6	3	7	3	3	3	3	30	3	3	1	2	3	8	3	7	3	3	3	3	26	3	3	3	6	3	8	3	7	3	3	3	3	30
41	16121A0439	3	3	1	3	3	6	2	5	3	3	3	3	23	2	2	3	8	3	6	3	7	3	3	3	3	29	3	3	3	6	3	8	2	5	3	3	3	3	28	3	3	3	6	3	8	2	5	3	3	3	3	28
42	16121A0440	3	3	3	8	3	6	3	7	3	3	3	3	30	3	3	3	8	3	6	3	7	3	3	3	3	30	3	3	3	6	3	8	3	7	3	3	3	3	30	3	3	3	6	3	8	3	7	3	3	3	3	30
43	16121A0441	3	3	3	8	3	6	3	7	3	3	3	3	30	3	3	3	8	3	6	3	7	3	3	3	3	30	3	3	3	6	3	8	3	7	3	3	3	3	30	3	3	3	6	3	8	3	7	3	3	3	3	30
44	16121A0442	0	0	3	8	3	6	1	3	3	3	3	3	23	3	3	3	8	3	6	3	7	3	3	3	3	30	3	3	3	6	3	8	3	7	3	3	3	3	30	3	3	3	6	3	8	3	7	3	3	3	3	30
45	16121A0443	3	3	3	8	3	6	3	7	3	3	3	3	30	3	3	3	8	3	6	3	7	3	3	3	3	30	3	3	3	6	3	8	3	7	3	3	3	3	30	3	3	3	6	3	8	3	7	3	3	3	3	30
46	16121A0444	3	3	3	8	3	6	3	7	3	3	3	3	30	3	3	3	8	3	6	3	7	3	3	3	3	30	3	3	3	6	3	8	3	7	3	3	3	3	30	3	3	3	6	3	8	3	7	3	3	3	3	30
47	16121A0445	3	3	3	8	1	2	3	7	3	3	3	3	26	3	3	3	8	3	6	3	7	3	3	3	3	30	3	3	3	6	3	8	3	7	3	3	3	3	30	3	3	3	6	3	8	3	7	3	3	3	3	30

48	16121A0446	3	3	3	8	3	6	3	7	3	3	3	3	30	2	2	3	8	3	6	3	7	3	3	3	3	29	3	3	3	6	3	8	3	7	3	3	3	3	30	2	2	2	4	3	8	3	7	3	3	3	3	27
49	16121A0447	3	3	3	8	3	6	3	7	3	3	3	3	30	3	3	3	8	3	6	3	7	3	3	3	3	30	3	3	3	6	3	8	3	7	3	3	3	3	30	3	3	3	6	3	8	3	7	3	3	3	3	30
50	16121A0448	1	1	2	6	3	6	3	7	3	3	3	3	26	3	3	1	3	3	6	3	7	3	3	3	3	25	3	3	2	4	2	6	2	5	3	3	3	3	24	2	2	3	6	2	6	3	7	3	3	3	3	27
51	16121A0449	3	3	3	8	3	6	3	7	3	3	3	3	30	3	3	3	8	3	6	3	7	3	3	3	3	30	3	3	3	6	3	8	3	7	3	3	3	3	30	3	3	3	6	3	8	3	7	3	3	3	3	30
52	16121A0450	3	3	3	8	3	6	3	7	3	3	3	3	30	3	3	3	8	3	6	3	7	3	3	3	3	30	3	3	3	6	3	8	3	7	3	3	3	3	30	3	3	3	6	3	8	3	7	3	3	3	3	30
53	16121A0451	3	3	3	8	3	6	3	7	3	3	3	3	30	3	3	3	8	3	6	3	7	3	3	3	3	30	3	3	3	6	3	8	3	7	3	3	3	3	30	3	3	3	6	3	8	3	7	3	3	3	3	30
54	16121A0452	3	3	3	8	3	6	3	7	3	3	3	3	30	3	3	3	8	3	6	3	7	3	3	3	3	30	3	3	3	6	3	8	3	7	3	3	3	3	30	3	3	3	6	3	8	3	7	3	3	3	3	30
55	16121A0453	3	3	3	8	3	6	3	7	3	3	3	3	30	3	3	3	8	3	6	3	7	3	3	3	3	30	3	3	2	4	3	8	3	7	3	3	3	3	28	3	3	3	6	3	8	3	7	3	3	3	3	30
56	16121A0454	3	3	3	8	3	6	3	7	3	3	3	3	30	3	3	3	8	3	6	3	7	3	3	3	3	30	3	3	3	6	3	8	3	7	3	3	3	3	30	3	3	3	6	3	8	3	7	3	3	3	3	30
57	16121A0455	3	3	3	8	3	6	3	7	3	3	3	3	30	3	3	3	8	3	6	3	7	3	3	3	3	30	3	3	3	6	3	8	3	7	3	3	3	3	30	3	3	3	6	3	8	2	5	3	3	3	3	28
58	16121A0456	2	2	2	6	3	6	3	7	3	3	3	3	27	3	3	2	6	3	6	3	7	3	3	3	3	28	2	2	3	6	3	8	3	7	3	3	3	3	29	3	3	3	6	3	8	3	7	3	3	3	3	30
59	16121A0457	3	3	3	8	3	6	3	7	3	3	3	3	30	3	3	3	8	3	6	3	7	3	3	3	3	30	3	3	3	6	3	8	3	7	3	3	3	3	30	1	1	3	6	3	8	3	7	3	3	3	3	28
60	16121A0458	3	3	3	8	3	6	3	7	3	3	3	3	30	3	3	3	8	3	6	3	7	3	3	3	3	30	3	3	3	6	3	8	3	7	3	3	3	3	30	3	3	3	6	3	8	3	7	3	3	3	3	30
61	16121A0459	3	3	3	8	3	6	3	7	3	3	3	3	30	3	3	3	8	3	6	3	7	3	3	3	3	30	3	3	3	6	3	8	3	7	3	3	3	3	30	3	3	3	6	3	8	3	7	3	3	3	3	30
62	16121A0460	3	3	2	6	2	4	3	7	3	3	3	3	26	2	2	3	8	3	6	3	7	1	1	3	3	27	3	3	3	6	3	8	3	7	3	3	3	3	30	3	3	3	6	3	8	3	7	3	3	3	3	30
63	16121A0461	3	3	2	6	3	6	2	5	3	3	3	3	26	3	3	3	8	3	6	3	7	3	3	3	3	30	3	3	3	6	3	8	3	7	3	3	3	3	30	2	2	3	6	3	8	3	7	3	3	3	3	29
64	16121A0462	3	3	3	8	3	6	3	7	3	3	3	3	30	3	3	3	8	3	6	3	7	3	3	3	3	30	3	3	3	6	3	8	3	7	3	3	3	3	30	3	3	3	6	3	8	3	7	3	3	3	3	30
65	16121A0463	3	3	3	8	3	6	3	7	3	3	3	3	30	3	3	3	8	3	6	3	7	3	3	3	3	30	2	2	3	6	3	8	3	7	3	3	3	3	29	3	3	3	6	3	8	3	7	3	3	3	3	30
66	16121A0464	1	1	3	8	3	6	3	7	3	3	3	3	28	2	2	3	8	3	6	3	7	3	3	3	3	29	3	3	3	6	2	6	3	7	3	3	3	3	28	1	1	3	6	2	6	3	7	3	3	3	3	26
67	16121A0465	3	3	3	8	3	6	3	7	3	3	3	3	30	3	3	3	8	3	6	3	7	3	3	3	3	30	3	3	3	6	3	8	3	7	3	3	3	3	30	3	3	3	6	2	6	3	7	3	3	3	3	28
68	16121A0466	3	3	3	8	3	6	3	7	3	3	3	3	30	3	3	3	8	3	6	3	7	3	3	3	3	30	3	3	3	6	3	8	3	7	3	3	3	3	30	3	3	3	6	3	8	3	7	3	3	3	3	30
69	16121A0467	3	3	3	8	3	6	3	7	3	3	3	3	30	3	3	3	8	3	6	3	7	3	3	3	3	30	3	3	3	6	3	8	3	7	3	3	3	3	30	3	3	3	6	2	6	3	7	3	3	3	3	28
70	16121A0468	3	3	2	6	3	6	2	5	3	3	3	3	26	3	3	3	8	3	6	3	7	3	3	3	3	30	3	3	3	6	3	8	3	7	3	3	3	3	30	3	3	3	6	3	8	3	7	3	3	3	3	30
71	16121A0469	3	3	2	6	2	4	3	7	3	3	3	3	26	3	3	3	8	3	6	3	7	3	3	3	3	30	3	3	3	6	3	8	3	7	3	3	3	3	30	3	3	3	6	3	8	3	7	3	3	3	3	30
72	16121A0470	3	3	3	8	3	6	3	7	3	3	3	3	30	3	3	3	8	3	6	3	7	3	3	3	3	30	3	3	3	6	3	8	3	7	3	3	3	3	30	3	3	3	6	3	8	3	7	3	3	3	3	30
73	16121A0471	3	3	3	8	2	4	3	7	3	3	3	3	28	3	3	3	8	3	6	3	7	3	3	3	3	30	3	3	3	6	3	8	3	7	3	3	3	3	30	3	3	3	6	3	8	3	7	3	3	3	3	30
74	16121A0472	3	3	3	8	3	6	3	7	3	3	3	3	30	3	3	3	8	3	6	3	7	3	3	3	3	30	3	3	3	6	3	8	3	7	3	3	3	3	30	3	3	3	6	3	8	3	7	3	3	3	3	30
75	16121A0473	1	1	3	8	3	6	3	7	2	2	3	3	27	3	3	3	8	3	6	3	7	3	3	3	3	30	2	2	3	6	3	8	3	7	3	3	3	3	29	3	3	3	6	3	8	3	7	3	3	3	3	30
76	16121A0474	3	3	2	6	3	6	3	7	3	3	3	3	28	3	3	3	8	3	6	3	7	3	3	3	3	30	3	3	3	6	2	6	2	5	3	3	3	3	28	2	2	3	6	2	6	2	5	3	3	3	3	25
77	16121A0475	3	3	3	8	3	6	3	7	3	3	3	3	30	2	2	1	3	3	6	2	5	3	3	2	2	21	3	3	1	2	2	6	3	7	3	3	3	3	24	3	3	3	6	2	6	3	7	3	3	3	3	28
78	16121A0476	3	3	2	6	2	4	1	3	3	3	3	3	22	3	3	2	6	3	6	3	7	3	3	3	3	28	3	3	3	6	3	8	3	7	3	3	3	3	30	0	0	1	2	2	6	3	7	3	3	3	3	21
79	16121A0477	3	3	2	6	2	4	3	7	3	3	3	3	26	3	3	3	8	3	6	1	3	3	3	3	3	26	3	3	3	6	3	8	3	7	3	3	3	3	30	2	2	3	6	3	8	3	7	3	3	3	3	29
80	16121A0478	3	3	2	6	2	4	3	7	3	3	3	3	26	3	3	3	8	3	6	3	7	3	3	3	3	30	0	0	3	6	2	6	2	5	3	3	3	3	23	3	3	3	6	3	8	3	7	3	3	3	3	30
81	16121A0479	2	2	3	8	3	6	2	5	2	2	3	3	26	3	3	2	6	3	6	2	5	3	3	3	3	26	3	3	3	6	2	6	3	7	3	3	3	3	28	3	3	3	6	3	8	3	7	1	1	3	3	28
82	16121A0480	3	3	3	8	3	6	3	7	3	3	3	3	30	3	3	3	8	3	6	3	7	3	3	3	3	30	2	2	3	6	2	6	2	5	3	3	3	3	25	3	3	3	6	3	8	3	7	3	3	3	3	30
83	16121A0481	3	3	3	8	3	6	3	7	3	3	3	3	30	3	3	3	8	3	6	2	5	3	3	3	3	28	3	3	3	6	3	8	3	7	3	3	3	3	30	3	3	3	6	3	8	3	7	3	3	3	3	30
84	16121A0482	3	3	3	8	2	4	3	7	3	3	3	3	28	3	3	3	8	3	6	3	7	3	3	3	3	30	3	3	3	6	3	8	3	7	3	3	3	3	30	3	3	3	6	3	8	3	7	3	3	3	3	30
85	16121A0483	3	3	2	6	3	6	2	5	3	3	3	3	26	2	2	3	8	3	6	3	7	3	3	3	3	29	3	3	2	4	2	6	3	7	2	2	3	3	25	3	3	2	4	3	8	3	7	3	3	3	3	28
86	16121A0484	1	1	3	8	3	6	3	7	3	3	3	3	28	2	2	3	8	3	6	2	5	3	3	3	3	27	3	3	3	6	3	8	3	7	3	3	3	3	30	3	3	3	6	2	6	3	7	2	2	3	3	27
87	16121A0485	3	3	3	8	2	4	2	5	3	3	3	3	26	3	3	2	6	3	6	2	5	3	3	3	3	26	3	3	3	6	3	8	3	7	3	3	3	3	30	3	3	3	6	3	8	1	3	3	3	3	3	26
88	16121A0486	3	3	3	8	3	6	3	7	3	3	3	3	30	3	3	3	8	3	6	3	7	3	3	3	3	30	3	3	3	6	3	8	3	7	3	3	3	3	30	3	3	3	6	3	8	3	7	3	3	3	3	30
89	16121A0487	3	3	3	8	3	6	1	3	1	1	3	3	24	2	2	2	6	3	6	3	7	3	3	3	3	27	3	3	3	6	2	6	2	5	3	3	3	3	26	3	3	3	6	3	8	3	7	3	3	3	3	30
90	16121A0488	3	3	3	8	3	6	3	7	3	3	3	3	30	3	3	2	6	3	6	3	7	3	3	3	3	28	3	3	3	6	3	8	3	7	3	3	3	3	30	3	3	3	6	3	8	3	7	3	3	3	3	30
91	16121A0489	3	3	2	6	2	4	3	7	3	3	3	3	26	3	3	3	8	3	6	3	7	3	3	3	3	30	3	3	3	6	3	8	3	7	3	3	3	3	30	3	3	3	6	2	6	3	7	3	3	3	3	28
92	16121A0490	3	3	3	8	3	6	3	7	3	3	3	3	30	2	2	2	6	3	6	3	7	3	3	3	3	27	1	1	3	6	3	8	3	7	3	3	3	3	28	2	2	3	6	3	8	2	5	3	3	3	3	27
93	16121A0491	3	3	2	6	3	6	3	7	3	3	3	3	28	3	3	3	8	3	6	3	7	3	3	3	3	30	3	3	3	6	3	8	3	7	3	3	3	3	30	3	3	3	6	3	8	3	7	3	3	3	3	30
94	16121A0492	3	3	2	6	2	4	3	7	3	3	3	3	26	3	3	3	8	3	6	3	7	3	3	3	3	30	0	0	1	2	3	8	3	7	3	3	3	3	23	2	2	2	4	2	6	2	5	3	3	3	3	23
95	16121A0493	3	3	3	8	3	6	3	7	3	3	3	3	30	3	3	3	8	3	6	3	7	3	3	3	3	30	3	3	3	6	3	8	3	7	3	3	3	3	30	1	1	3	6	3	8	1	3	3	3	3	3	24
96	16121A0494	3	3	3	8	3	6	3	7	3	3	3	3	30	3	3	3	8	2	4	3	7	3	3	3	3	28	3	3	3	6	3	8	3	7	3	3	3	3	30	3	3	3	6	3	8	3	7	3	3	3	3	30
97	16121A0495	3	3	3	8	3	6	3	7	3	3	3	3	30	3	3	3	8	3	6	3	7	3	3	3	3	30	3	3	3	6	3	8	3	7	3	3	3	3	30	3	3	3	6	3	8	3	7	3	3	3	3	30
98	16121A0496	3	3	3	8	2	4	3	7	3	3	3	3	28	3	3	3	8	3	6	2	5	3	3	3	3	28	3	3	3	6	2	6	2	5	3	3	3	3	26	3	3	3	6	3	8	2	5	3	3	3	3	28
99	16121A0497	3	3	3	8	3	6	3	7	3	3	3	3	30	3	3	3	8	3	6	3	7	3	3	3	3	30	3	3	3	6	3	8	3	7	3	3	3	3	30	3	3	3	6	3	8	3	7	3	3	3	3	30
100	16121A0498	3	3	3	8	3	6	3	7	3	3	3	3	30	3	3	3	8	3	6	3	7	3	3	3	3	30	3	3	3	6	3	8	3	7	3	3	3	3	30	3	3	2	4	3	8	3	7	3	3	3	3	28
101	16121A04A0	3	3	3	8	3	6	3	7	3	3	3	3	30	3	3	2	6	3	6	3	7	3	3	3	3	28	3	3	2	4	1	3	3	7	3	3	3	3	23	3	3	3	6	3	8	3	7	3	3	3	3	30
102	16121A04A1	3	3	3	8	3	6	3	7	3	3	3	3	30	3	3	3	8	3	6	3	7	3	3	3	3	30	3	3	3	6	3	8	3	7	3	3	3	3	30	3	3	3	6	3	8	3	7	3	3	3	3	30
103	16121A04A2	1	1	3	8	3	6	1	3	3	3	3	3	24	3	3	3	8	3	6	3	7	3	3	3	3	30	3	3	3	6	3	8	3	7	3	3	3	3	30	3	3	3	6	2	6	3	7	3	3	3	3	28
104	16121A04A3	3	3	3	8	3	6	3	7	3	3	3	3	30	3	3	3	8	3	6	3	7	3	3	3	3	30	3	3	3	6	2	6	2	5	3	3	3	3	26	3	3	2	4	3	8	3	7	3	3	3	3	28
105	16121A04A4	0	0	3	8	3	6	3	7	3	3	3	3	27	3	3	3	8	3	6	3	7	3	3	3	3	30	3	3	3	6	3	8	3	7	3	3	3	3	30	3	3	3	6	3	8	3	7	3	3	3	3	30
106	16121A04A5	1	1	2	6	3	6	3	7	3	3	3	3	26	3	3	2	6	2	4	2	5	3	3	3	3	24	3	3	3	6	2	6	3	7	3	3	3	3	28	3	3	3	6	3	8	3	7	3	3	3	3	30
107	16121A04A6	3	3	3	8	3	6	3	7	3	3	3	3	30	2	2	3	8	3	6	3	7	3	3	3	3	29	3	3	3	6	3	8	3	7	3	3	3	3	30	3	3	3	6	3	8	3	7	3	3	3	3	30
108	16121A04A7	3	3	3	8	3	6	3	7	3	3	3	3	30	3	3	3	8	3	6	3	7	3	3	3	3	30	3	3	3	6	3	8	3	7	3	3	3	3	30	3	3	3	6	3	8	3	7	3	3	3	3	30
109	16121A04A8	0	0	2	6	3	6	3	7	3	3	3	3	25	3	3	2	6	3	6	3	7	3	3	3	3	28	3	3	1	2	2	6	3	7	3	3	3	3	24	3	3	3	6	3	8	3	7	3	3	3	3	30
110	16121A04A9	3	3	2	6	3	6	2	5	3	3	3	3	26	3	3	3	8	3	6	2	5	3	3	1	1	26	2	2	3	6	3	8	2	5	3	3	3	3	27	3	3	3	6	3	8	3	7	3	3	3	3	30

111	16121A04B0	3	3	3	8	3	6	3	7	3	3	3	3	30	3	3	3	8	3	6	3	7	3	3	3	3	30	3	3	3	6	3	8	3	7	3	3	3	3	30	3	3	3	6	3	8	3	7	3	3	3	3	30
112	16121A04B1	3	3	3	8	3	6	2	5	3	3	2	2	27	3	3	3	8	3	6	3	7	3	3	3	3	30	3	3	2	4	3	8	3	7	3	3	3	3	28	3	3	3	6	3	8	3	7	3	3	3	3	30
113	16121A04B2	3	3	3	8	3	6	3	7	3	3	3	3	30	3	3	3	8	3	6	3	7	3	3	3	3	30	3	3	3	6	3	8	3	7	3	3	3	3	30	3	3	3	6	3	8	3	7	3	3	3	3	30
114	16121A04B3	3	3	3	8	3	6	3	7	3	3	3	3	30	3	3	3	8	3	6	3	7	3	3	3	3	30	3	3	3	6	3	8	3	7	3	3	3	3	30	3	3	3	6	3	8	3	7	3	3	3	3	30
115	16121A04B4	3	3	2	6	3	6	3	7	3	3	3	3	28	3	3	3	8	3	6	3	7	3	3	3	3	30	2	2	3	6	3	8	2	5	3	3	3	3	27	3	3	3	6	3	8	3	7	3	3	3	3	30
116	16121A04B5	3	3	3	8	3	6	3	7	3	3	3	3	30	3	3	3	8	3	6	3	7	3	3	3	3	30	3	3	3	6	3	8	3	7	3	3	3	3	30	3	3	3	6	3	8	3	7	3	3	3	3	30
117	16121A04B6	3	3	3	8	3	6	3	7	3	3	3	3	30	3	3	3	8	3	6	3	7	3	3	3	3	30	3	3	3	6	3	8	3	7	3	3	3	3	30	3	3	3	6	3	8	3	7	3	3	3	3	30
118	16121A04B7	3	3	3	8	3	6	3	7	3	3	3	3	30	3	3	3	8	3	6	3	7	3	3	3	3	30	3	3	3	6	3	8	3	7	3	3	3	3	30	3	3	3	6	3	8	3	7	3	3	3	3	30
119	16121A04B8	3	3	3	8	3	6	3	7	3	3	3	3	30	3	3	3	8	3	6	3	7	3	3	3	3	30	3	3	3	6	3	8	3	7	3	3	3	3	30	3	3	3	6	3	8	3	7	3	3	3	3	30
120	16121A04B9	3	3	3	8	3	6	3	7	3	3	3	3	30	3	3	3	8	3	6	3	7	3	3	3	3	30	3	3	3	6	3	8	3	7	3	3	3	3	30	3	3	3	6	3	8	3	7	3	3	3	3	30
121	16121A04C0	3	3	3	8	3	6	3	7	3	3	2	2	29	2	2	3	8	3	6	1	3	3	3	3	3	25	3	3	3	6	3	8	3	7	3	3	3	3	30	3	3	3	6	3	8	2	5	3	3	3	3	28
122	16121A04C1	3	3	3	8	3	6	3	7	3	3	3	3	30	3	3	3	8	3	6	3	7	3	3	3	3	30	3	3	3	6	3	8	3	7	3	3	3	3	30	1	1	3	6	3	8	3	7	3	3	3	3	28
123	16121A04C2	3	3	3	8	3	6	3	7	3	3	3	3	30	3	3	3	8	3	6	3	7	3	3	3	3	30	3	3	3	6	3	8	3	7	3	3	3	3	30	3	3	3	6	3	8	3	7	3	3	3	3	30
124	16121A04C3	3	3	3	8	3	6	3	7	3	3	3	3	30	3	3	3	8	3	6	3	7	3	3	3	3	30	3	3	3	6	3	8	3	7	3	3	3	3	30	3	3	3	6	3	8	3	7	3	3	3	3	30
125	16121A04C4	3	3	3	8	3	6	3	7	3	3	3	3	30	3	3	3	8	3	6	3	7	3	3	3	3	30	3	3	3	6	3	8	3	7	3	3	3	3	30	3	3	3	6	3	8	3	7	3	3	3	3	30
126	16121A04C5	3	3	3	8	3	6	3	7	3	3	3	3	30	3	3	3	8	3	6	3	7	3	3	3	3	30	3	3	3	6	3	8	3	7	3	3	3	3	30	3	3	3	6	3	8	3	7	3	3	3	3	30
127	16121A04C6	3	3	3	8	3	6	3	7	3	3	3	3	30	3	3	3	8	3	6	3	7	3	3	3	3	30	3	3	3	6	3	8	3	7	3	3	3	3	30	3	3	3	6	2	6	3	7	3	3	3	3	28
128	16121A04C7	3	3	3	8	3	6	3	7	3	3	3	3	30	3	3	3	8	3	6	3	7	3	3	3	3	30	3	3	3	6	3	8	2	5	3	3	3	3	28	3	3	3	6	3	8	3	7	3	3	3	3	30
129	16121A04C8	3	3	3	8	3	6	3	7	3	3	3	3	30	3	3	3	8	3	6	3	7	3	3	3	3	30	3	3	3	6	3	8	3	7	3	3	3	3	30	3	3	3	6	3	8	3	7	3	3	3	3	30
130	16121A04C9	3	3	3	8	3	6	3	7	3	3	3	3	30	3	3	3	8	3	6	3	7	3	3	3	3	30	3	3	3	6	3	8	3	7	3	3	3	3	30	3	3	3	6	3	8	3	7	3	3	3	3	30
131	16121A04D0	3	3	3	8	3	6	3	7	3	3	3	3	30	3	3	3	8	3	6	3	7	3	3	3	3	30	3	3	3	6	3	8	3	7	3	3	3	3	30	3	3	3	6	2	6	3	7	3	3	3	3	28
132	16121A04D1	3	3	3	8	3	6	3	7	3	3	3	3	30	3	3	3	8	3	6	3	7	3	3	3	3	30	2	2	3	6	3	8	2	5	3	3	2	2	26	3	3	3	6	3	8	3	7	3	3	3	3	30
133	16121A04D2	3	3	3	8	3	6	3	7	3	3	3	3	30	3	3	3	8	3	6	3	7	3	3	3	3	30	3	3	3	6	3	8	2	5	3	3	3	3	28	3	3	3	6	3	8	3	7	3	3	3	3	30
134	16121A04D3	2	2	3	8	3	6	3	7	3	3	3	3	29	3	3	3	8	3	6	3	7	3	3	3	3	30	3	3	3	6	2	6	2	5	3	3	3	3	26	3	3	3	6	2	6	2	5	3	3	3	3	26
135	16121A04D4	3	3	3	8	2	4	3	7	3	3	3	3	28	3	3	3	8	3	6	3	7	3	3	3	3	30	3	3	2	4	3	8	3	7	3	3	3	3	28	3	3	2	4	3	8	3	7	3	3	3	3	28
136	16121A04D5	2	2	3	8	3	6	3	7	3	3	3	3	29	3	3	3	8	3	6	3	7	3	3	3	3	30	3	3	3	6	3	8	3	7	3	3	3	3	30	3	3	3	6	3	8	3	7	3	3	3	3	30
137	16121A04D6	3	3	3	8	3	6	3	7	3	3	3	3	30	3	3	3	8	3	6	3	7	3	3	3	3	30	3	3	3	6	3	8	3	7	3	3	3	3	30	3	3	3	6	3	8	3	7	3	3	3	3	30
138	16121A04D7	3	3	3	8	3	6	2	5	3	3	3	3	28	3	3	3	8	3	6	3	7	3	3	3	3	30	3	3	3	6	2	6	3	7	3	3	3	3	28	3	3	3	6	3	8	3	7	3	3	3	3	30
139	16121A04D8	2	2	3	8	3	6	3	7	3	3	3	3	29	3	3	3	8	3	6	3	7	3	3	3	3	30	3	3	3	6	3	8	3	7	3	3	3	3	30	3	3	3	6	3	8	3	7	3	3	3	3	30
140	16121A04D9	3	3	3	8	3	6	3	7	3	3	3	3	30	3	3	3	8	3	6	3	7	3	3	3	3	30	3	3	3	6	3	8	3	7	3	3	3	3	30	3	3	3	6	3	8	3	7	3	3	3	3	30
141	16121A04E0	3	3	3	8	3	6	3	7	3	3	3	3	30	3	3	3	8	3	6	3	7	3	3	3	3	30	3	3	3	6	3	8	3	7	3	3	3	3	30	3	3	3	6	3	8	2	5	3	3	3	3	28
142	16121A04E1	3	3	2	6	3	6	1	3	3	3	3	3	24	3	3	3	8	3	6	3	7	3	3	3	3	30	3	3	3	6	3	8	3	7	3	3	3	3	30	3	3	3	6	3	8	2	5	3	3	3	3	28
143	16121A04E2	3	3	2	6	2	4	3	7	3	3	1	1	24	3	3	2	6	3	6	3	7	3	3	3	3	28	3	3	3	6	3	8	2	5	3	3	3	3	28	3	3	3	6	3	8	3	7	3	3	3	3	30
144	16121A04E3	3	3	3	8	3	6	3	7	3	3	3	3	30	3	3	3	8	3	6	3	7	3	3	3	3	30	3	3	3	6	3	8	3	7	3	3	3	3	30	3	3	3	6	3	8	3	7	3	3	3	3	30
145	16121A04E4	2	2	2	6	3	6	3	7	3	3	3	3	27	2	2	2	6	3	6	3	7	3	3	3	3	27	3	3	3	6	2	6	2	5	1	1	3	3	24	3	3	3	6	2	6	1	3	3	3	3	3	24
146	16121A04E5	3	3	3	8	3	6	3	7	3	3	3	3	30	3	3	3	8	3	6	3	7	3	3	3	3	30	3	3	3	6	3	8	2	5	3	3	3	3	28	3	3	3	6	3	8	3	7	3	3	3	3	30
147	16121A04E6	3	3	3	8	3	6	2	5	3	3	3	3	28	3	3	2	6	3	6	3	7	3	3	3	3	28	3	3	3	6	3	8	3	7	3	3	3	3	30	3	3	3	6	3	8	3	7	3	3	3	3	30
148	16121A04E7	0	0	2	6	3	6	3	7	3	3	3	3	25	2	2	2	6	3	6	3	7	3	3	3	3	27	3	3	3	6	3	8	3	7	3	3	3	3	30	3	3	3	6	3	8	3	7	3	3	3	3	30
149	16121A04E8	3	3	3	8	3	6	3	7	3	3	3	3	30	3	3	3	8	3	6	3	7	3	3	3	3	30	3	3	3	6	3	8	3	7	3	3	3	3	30	3	3	3	6	2	6	2	5	3	3	3	3	26
150	16121A04E9	3	3	3	8	3	6	3	7	3	3	3	3	30	2	2	3	8	3	6	2	5	3	3	3	3	27	2	2	3	6	3	8	3	7	3	3	3	3	29	3	3	3	6	2	6	3	7	0	0	3	3	25
151	16121A04F0	3	3	3	8	3	6	3	7	3	3	3	3	30	3	3	3	8	3	6	3	7	3	3	3	3	30	3	3	3	6	3	8	3	7	3	3	3	3	30	3	3	1	2	3	8	3	7	3	3	3	3	26
152	16121A04F1	3	3	2	6	3	6	1	3	3	3	3	3	24	3	3	3	8	3	6	3	7	3	3	3	3	30	2	2	3	6	1	3	3	7	3	3	3	3	24	2	2	3	6	2	6	3	7	3	3	3	3	27
153	16121A04F2	3	3	2	6	3	6	2	5	3	3	3	3	26	3	3	3	8	3	6	3	7	3	3	3	3	30	3	3	3	6	3	8	3	7	3	3	3	3	30	3	3	3	6	3	8	3	7	3	3	3	3	30
154	16121A04F4	3	3	3	8	3	6	2	5	3	3	3	3	28	3	3	3	8	3	6	3	7	3	3	3	3	30	3	3	3	6	3	8	3	7	3	3	3	3	30	3	3	3	6	3	8	3	7	3	3	3	3	30
155	16121A04F5	3	3	3	8	3	6	3	7	3	3	3	3	30	3	3	3	8	3	6	3	7	3	3	3	3	30	3	3	3	6	3	8	3	7	3	3	3	3	30	3	3	3	6	3	8	3	7	3	3	3	3	30
156	16121A04F6	3	3	2	6	3	6	2	5	3	3	2	2	25	3	3	3	8	3	6	3	7	3	3	3	3	30	3	3	3	6	2	6	3	7	3	3	3	3	28	3	3	3	6	3	8	3	7	3	3	3	3	30
157	16121A04F7	3	3	2	6	3	6	3	7	3	3	3	3	28	1	1	2	6	3	6	3	7	3	3	1	1	24	3	3	3	6	3	8	2	5	3	3	2	2	27	3	3	3	6	2	6	3	7	3	3	3	3	28
158	16121A04F8	3	3	2	6	3	6	2	5	3	3	3	3	26	3	3	3	8	3	6	3	7	3	3	3	3	30	3	3	3	6	2	6	3	7	3	3	3	3	28	1	1	3	6	3	8	3	7	3	3	3	3	28
159	16121A04F9	3	3	3	8	3	6	3	7	3	3	3	3	30	3	3	3	8	3	6	3	7	3	3	3	3	30	3	3	3	6	3	8	3	7	3	3	3	3	30	3	3	3	6	3	8	3	7	3	3	3	3	30
160	16121A04G0	3	3	3	8	3	6	3	7	3	3	3	3	30	3	3	3	8	3	6	3	7	3	3	3	3	30	3	3	3	6	3	8	3	7	3	3	3	3	30	3	3	3	6	3	8	3	7	3	3	3	3	30
161	16121A04G1	3	3	3	8	3	6	3	7	3	3	3	3	30	3	3	3	8	3	6	3	7	3	3	3	3	30	2	2	3	6	3	8	3	7	3	3	3	3	29	3	3	3	6	2	6	3	7	3	3	3	3	28
162	16121A04G2	3	3	3	8	3	6	3	7	3	3	3	3	30	3	3	3	8	3	6	3	7	3	3	3	3	30	3	3	3	6	2	6	3	7	2	2	3	3	27	3	3	3	6	3	8	3	7	3	3	3	3	30
163	16121A04G3	2	2	2	6	2	4	3	7	3	3	3	3	25	3	3	3	8	3	6	3	7	3	3	3	3	30	3	3	3	6	3	8	3	7	3	3	3	3	30	3	3	2	4	3	8	3	7	3	3	3	3	28
164	16121A04G4	3	3	3	8	3	6	3	7	3	3	3	3	30	3	3	3	8	3	6	3	7	3	3	3	3	30	3	3	3	6	3	8	3	7	3	3	3	3	30	3	3	3	6	3	8	3	7	3	3	3	3	30
165	16121A04G5	3	3	3	8	3	6	3	7	3	3	3	3	30	3	3	3	8	3	6	3	7	3	3	3	3	30	3	3	3	6	3	8	3	7	3	3	3	3	30	3	3	3	6	3	8	3	7	3	3	3	3	30
166	16121A04G6	3	3	3	8	3	6	3	7	3	3	3	3	30	3	3	2	6	3	6	3	7	3	3	3	3	28	3	3	3	6	3	8	3	7	3	3	3	3	30	3	3	2	4	2	6	3	7	3	3	3	3	26
167	16121A04G7	3	3	3	8	3	6	3	7	3	3	3	3	30	3	3	3	8	3	6	3	7	3	3	3	3	30	3	3	3	6	3	8	3	7	3	3	3	3	30	0	0	3	6	3	8	3	7	3	3	3	3	27
168	16121A04G9	3	3	3	8	3	6	3	7	3	3	3	3	30	2	2	2	6	3	6	3	7	3	3	3	3	27	3	3	3	6	3	8	3	7	3	3	3	3	30	1	1	3	6	3	8	3	7	3	3	3	3	28
169	16121A04H0	2	2	3	8	3	6	2	5	3	3	2	2	26	3	3	2	6	3	6	2	5	3	3	3	3	26	3	3	2	4	2	6	2	5	3	3	3	3	24	3	3	3	6	2	6	2	5	3	3	3	3	26
170	16121A04H1	3	3	3	8	3	6	3	7	3	3	3	3	30	3	3	3	8	3	6	3	7	3	3	3	3	30	3	3	3	6	3	8	3	7	3	3	3	3	30	3	3	3	6	3	8	3	7	3	3	3	3	30
171	16121A04H2	3	3	2	6	3	6	3	7	3	3	3	3	28	1	1	2	6	2	4	1	3	3	3	3	3	20	3	3	3	6	3	8	3	7	3	3	3	3	30	3	3	3	6	3	8	3	7	3	3	3	3	30
172	16121A04H3	3	3	3	8	3	6	3	7	3	3	3	3	30	3	3	3	8	3	6	3	7	3	3	3	3	30	3	3	3	6	3	8	3	7	3	3	3	3	30	3	3	3	6	3	8	3	7	3	3	3	3	30
173	16121A04H4	2	2	3	8	3	6	2	5	3	3	3	3	27	3	3	3	8	3	6	3	7	3	3	3	3	30	3	3	3	6	3	8	3	7	3	3	3	3	30	3	3	3	6	2	6	3	7	3	3	3	3	28

174	16121A04H5	3	3	2	6	3	6	3	7	3	3	3	3	28	3	3	3	8	3	6	3	7	3	3	3	3	30	3	3	3	6	3	8	3	7	3	3	3	3	30	3	3	3	6	3	8	3	7	3	3	3	3	30
175	16121A04H6	3	3	2	6	3	6	3	7	3	3	3	3	28	3	3	3	8	3	6	3	7	3	3	3	3	30	3	3	3	6	2	6	3	7	3	3	3	3	28	3	3	3	6	3	8	3	7	3	3	3	3	30
176	16121A04H7	3	3	3	8	2	4	1	3	2	2	2	2	22	1	1	3	8	3	6	3	7	3	3	3	3	28	2	2	2	4	3	8	3	7	3	3	3	3	27	1	1	3	6	2	6	3	7	3	3	3	3	26
177	16121A04H8	3	3	3	8	3	6	3	7	3	3	3	3	30	3	3	3	8	2	4	3	7	3	3	3	3	28	3	3	3	6	3	8	3	7	3	3	3	3	30	3	3	3	6	3	8	3	7	3	3	3	3	30
178	16121A04H9	3	3	3	8	3	6	3	7	3	3	3	3	30	3	3	3	8	3	6	3	7	3	3	3	3	30	3	3	3	6	3	8	3	7	2	2	3	3	29	3	3	3	6	3	8	3	7	3	3	3	3	30
179	16121A04J0	3	3	3	8	3	6	3	7	3	3	3	3	30	3	3	3	8	3	6	3	7	3	3	3	3	30	3	3	3	6	3	8	3	7	3	3	3	3	30	3	3	3	6	3	8	3	7	3	3	3	3	30
180	16121A04J1	3	3	3	8	3	6	3	7	3	3	3	3	30	3	3	3	8	3	6	3	7	3	3	3	3	30	3	3	3	6	3	8	3	7	3	3	3	3	30	3	3	3	6	3	8	3	7	3	3	3	3	30
181	16121A04J2	3	3	3	8	3	6	3	7	3	3	3	3	30	3	3	3	8	3	6	3	7	3	3	3	3	30	3	3	3	6	3	8	3	7	3	3	3	3	30	3	3	3	6	3	8	3	7	3	3	3	3	30
182	16121A04J3	2	2	2	6	3	6	2	5	2	2	3	3	24	3	3	3	8	3	6	3	7	3	3	3	3	30	3	3	3	6	3	8	3	7	3	3	3	3	30	3	3	3	6	3	8	3	7	3	3	3	3	30
183	16121A04J4	2	2	2	6	3	6	3	7	3	3	3	3	27	3	3	3	8	3	6	3	7	3	3	3	3	30	3	3	3	6	3	8	3	7	3	3	3	3	30	3	3	3	6	3	8	3	7	3	3	3	3	30
184	16121A04J5	3	3	2	6	2	4	3	7	3	3	3	3	26	3	3	3	8	3	6	3	7	3	3	3	3	30	3	3	3	6	3	8	3	7	3	3	3	3	30	3	3	3	6	3	8	3	7	3	3	3	3	30
185	16121A04J6	3	3	2	6	3	6	3	7	3	3	3	3	28	3	3	2	6	3	6	3	7	3	3	3	3	28	3	3	3	6	2	6	3	7	3	3	3	3	28	3	3	3	6	3	8	3	7	3	3	3	3	30
186	16121A04J8	2	2	2	6	3	6	3	7	3	3	3	3	27	3	3	3	8	3	6	3	7	3	3	3	3	30	3	3	3	6	2	6	3	7	3	3	3	3	28	3	3	3	6	3	8	3	7	3	3	3	3	30
187	16121A04J9	3	3	3	8	3	6	3	7	3	3	3	3	30	3	3	2	6	3	6	3	7	3	3	3	3	28	3	3	3	6	3	8	3	7	3	3	3	3	30	3	3	3	6	3	8	2	5	3	3	2	2	27
188	16121A04K0	3	3	1	3	3	6	3	7	3	3	3	3	25	3	3	3	8	3	6	3	7	3	3	3	3	30	3	3	3	6	3	8	3	7	3	3	3	3	30	3	3	3	6	3	8	3	7	3	3	3	3	30
189	16121A04K1	3	3	1	3	2	4	2	5	3	3	3	3	21	2	2	3	8	3	6	3	7	3	3	3	3	29	2	2	3	6	3	8	3	7	3	3	3	3	29	1	1	3	6	2	6	3	7	3	3	3	3	26
190	16121A04K3	2	2	2	6	3	6	3	7	3	3	3	3	27	3	3	3	8	3	6	3	7	3	3	3	3	30	3	3	3	6	3	8	3	7	3	3	3	3	30	2	2	3	6	3	8	3	7	3	3	3	3	29
191	16121A04K4	3	3	3	8	3	6	3	7	3	3	3	3	30	3	3	3	8	3	6	2	5	3	3	3	3	28	3	3	3	6	3	8	3	7	3	3	3	3	30	3	3	3	6	2	6	3	7	3	3	3	3	28
192	16121A04K5	3	3	2	6	3	6	3	7	2	2	3	3	27	2	2	3	8	3	6	3	7	3	3	3	3	29	3	3	3	6	2	6	3	7	3	3	3	3	28	3	3	3	6	3	8	3	7	3	3	3	3	30
193	16121A04K6	3	3	3	8	3	6	3	7	3	3	3	3	30	3	3	3	8	3	6	3	7	3	3	3	3	30	3	3	3	6	3	8	3	7	3	3	3	3	30	3	3	3	6	3	8	3	7	3	3	3	3	30
194	16121A04K7	1	1	3	8	2	4	2	5	3	3	3	3	24	3	3	2	6	3	6	3	7	3	3	3	3	28	3	3	3	6	3	8	3	7	3	3	3	3	30	3	3	3	6	3	8	3	7	3	3	3	3	30
195	16121A04K8	3	3	3	8	3	6	3	7	3	3	3	3	30	3	3	3	8	3	6	3	7	3	3	3	3	30	3	3	3	6	3	8	3	7	2	2	3	3	29	3	3	3	6	3	8	3	7	3	3	3	3	30
196	16121A04K9	2	2	3	8	3	6	3	7	3	3	3	3	29	3	3	3	8	3	6	3	7	3	3	3	3	30	3	3	3	6	3	8	3	7	3	3	3	3	30	2	2	3	6	3	8	3	7	3	3	3	3	29
197	16121A04L0	3	3	3	8	3	6	3	7	3	3	3	3	30	3	3	3	8	3	6	3	7	3	3	3	3	30	3	3	3	6	3	8	3	7	3	3	3	3	30	2	2	3	6	3	8	3	7	3	3	3	3	29
198	16121A04L1	3	3	3	8	3	6	3	7	3	3	3	3	30	3	3	3	8	3	6	3	7	3	3	3	3	30	3	3	3	6	3	8	3	7	3	3	3	3	30	3	3	3	6	3	8	3	7	3	3	3	3	30
199	16121A04L2	3	3	3	8	3	6	3	7	3	3	3	3	30	3	3	3	8	3	6	3	7	3	3	3	3	30	2	2	3	6	3	8	3	7	3	3	3	3	29	3	3	3	6	3	8	3	7	3	3	3	3	30
200	16121A04L3	3	3	3	8	3	6	2	5	3	3	3	3	28	2	2	3	8	3	6	3	7	3	3	3	3	29	3	3	3	6	3	8	3	7	3	3	3	3	30	3	3	3	6	2	6	3	7	3	3	3	3	28
201	16121A04L4	3	3	2	6	3	6	3	7	3	3	3	3	28	3	3	2	6	3	6	1	3	3	3	3	3	24	3	3	3	6	2	6	3	7	3	3	3	3	28	2	2	3	6	3	8	2	5	3	3	3	3	27
202	16121A04L5	3	3	3	8	3	6	3	7	3	3	3	3	30	3	3	3	8	3	6	3	7	3	3	3	3	30	3	3	3	6	3	8	3	7	3	3	3	3	30	3	3	3	6	3	8	3	7	3	3	3	3	30
203	16121A04L6	3	3	3	8	3	6	3	7	3	3	3	3	30	3	3	3	8	3	6	3	7	3	3	3	3	30	3	3	3	6	3	8	3	7	3	3	3	3	30	3	3	3	6	3	8	3	7	3	3	3	3	30
204	16121A04L7	2	2	1	3	2	4	3	7	3	3	3	3	22	3	3	3	8	3	6	3	7	3	3	3	3	30	3	3	3	6	3	8	3	7	3	3	3	3	30	3	3	3	6	3	8	3	7	3	3	3	3	30
205	16121A04L8	3	3	2	6	3	6	3	7	3	3	3	3	28	3	3	3	8	3	6	3	7	3	3	3	3	30	3	3	3	6	3	8	3	7	3	3	3	3	30	3	3	3	6	3	8	2	5	3	3	3	3	28
206	16121A04L9	1	1	2	6	3	6	2	5	3	3	3	3	24	2	2	2	6	3	6	3	7	3	3	3	3	27	3	3	3	6	1	3	3	7	3	3	3	3	25	3	3	3	6	2	6	3	7	3	3	3	3	28
207	16121A04M0	3	3	3	8	3	6	3	7	3	3	3	3	30	3	3	3	8	3	6	3	7	3	3	3	3	30	3	3	3	6	3	8	3	7	3	3	3	3	30	2	2	3	6	3	8	3	7	3	3	3	3	29
208	16121A04M1	3	3	3	8	3	6	2	5	3	3	2	2	27	3	3	2	6	3	6	3	7	3	3	3	3	28	3	3	3	6	3	8	3	7	3	3	3	3	30	3	3	3	6	3	8	2	5	3	3	3	3	28
209	16121A04M3	3	3	3	8	3	6	3	7	3	3	3	3	30	3	3	2	6	3	6	3	7	3	3	3	3	28	3	3	3	6	3	8	3	7	3	3	3	3	30	3	3	3	6	3	8	3	7	3	3	3	3	30
210	16121A04M4	3	3	3	8	3	6	3	7	3	3	3	3	30	3	3	3	8	3	6	3	7	3	3	3	3	30	3	3	3	6	3	8	3	7	3	3	3	3	30	3	3	3	6	2	6	3	7	3	3	3	3	28
211	16121A04M5	2	2	3	8	3	6	3	7	3	3	3	3	29	3	3	2	6	3	6	3	7	3	3	3	3	28	2	2	3	6	2	6	2	5	3	3	3	3	25	3	3	3	6	3	8	3	7	3	3	3	3	30
212	16121A04M6	1	1	2	6	3	6	2	5	3	3	3	3	24	3	3	2	6	3	6	3	7	2	2	3	3	27	3	3	1	2	3	8	2	5	3	3	3	3	24	3	3	3	6	3	8	1	3	3	3	3	3	26
213	16121A04M7	2	2	3	8	3	6	3	7	3	3	3	3	29	3	3	3	8	1	2	3	7	3	3	3	3	26	3	3	3	6	2	6	3	7	3	3	3	3	28	3	3	3	6	3	8	3	7	3	3	3	3	30
214	16121A04M8	2	2	3	8	3	6	3	7	3	3	3	3	29	2	2	3	8	3	6	2	5	2	2	2	2	25	3	3	3	6	3	8	3	7	3	3	3	3	30	3	3	3	6	2	6	2	5	3	3	3	3	26
215	16121A04M9	3	3	3	8	3	6	3	7	3	3	3	3	30	3	3	3	8	3	6	3	7	3	3	3	3	30	3	3	3	6	3	8	3	7	3	3	3	3	30	3	3	3	6	2	6	3	7	3	3	3	3	28
216	16121A04N0	2	2	3	8	3	6	3	7	3	3	3	3	29	3	3	3	8	3	6	3	7	3	3	2	2	29	3	3	3	6	3	8	2	5	3	3	3	3	28	3	3	3	6	3	8	3	7	3	3	3	3	30
217	16121A04N1	3	3	2	6	2	4	2	5	2	2	3	3	23	3	3	1	3	2	4	2	5	3	3	3	3	21	3	3	3	6	2	6	3	7	3	3	3	3	28	3	3	3	6	3	8	3	7	3	3	3	3	30
218	16121A04N2	0	0	3	8	3	6	2	5	3	3	3	3	25	2	2	3	8	3	6	3	7	3	3	3	3	29	2	2	2	4	3	8	3	7	3	3	3	3	27	3	3	3	6	3	8	3	7	3	3	3	3	30
219	16121A04N3	2	2	3	8	2	4	1	3	3	3	3	3	23	3	3	2	6	2	4	2	5	1	1	3	3	22	0	0	3	6	3	8	2	5	3	3	3	3	25	3	3	3	6	3	8	1	3	3	3	3	3	26
220	16121A04N4	3	3	3	8	3	6	3	7	3	3	3	3	30	3	3	3	8	3	6	3	7	3	3	3	3	30	3	3	3	6	3	8	3	7	3	3	3	3	30	3	3	3	6	3	8	3	7	3	3	3	3	30
221	16121A04N5	3	3	3	8	3	6	2	5	2	2	2	2	26	3	3	3	8	3	6	3	7	3	3	3	3	30	3	3	3	6	3	8	3	7	3	3	3	3	30	3	3	2	4	2	6	3	7	3	3	3	3	26
222	16121A04N6	3	3	3	8	3	6	3	7	3	3	3	3	30	3	3	3	8	3	6	3	7	3	3	3	3	30	3	3	3	6	3	8	3	7	3	3	3	3	30	3	3	3	6	3	8	3	7	3	3	3	3	30
223	16121A04N7	0	0	2	6	3	6	2	5	2	2	0	0	19	3	3	1	3	3	6	3	7	3	3	3	3	25	3	3	3	6	2	6	1	3	3	3	3	3	24	3	3	3	6	1	3	2	5	3	3	3	3	23
224	16121A04N8	0	0	3	8	2	4	2	5	3	3	3	3	23	3	3	3	8	3	6	3	7	3	3	3	3	30	3	3	3	6	3	8	3	7	3	3	3	3	30	3	3	3	6	3	8	3	7	3	3	3	3	30
225	16121A04N9	3	3	2	6	1	2	3	7	1	1	3	3	22	2	2	2	6	2	4	3	7	3	3	3	3	25	3	3	3	6	3	8	3	7	3	3	3	3	30	3	3	3	6	3	8	3	7	3	3	3	3	30
226	16121A04P0	3	3	3	8	3	6	3	7	3	3	3	3	30	3	3	3	8	3	6	3	7	3	3	3	3	30	3	3	3	6	3	8	3	7	3	3	3	3	30	3	3	3	6	3	8	3	7	3	3	3	3	30
227	16121A04P1	3	3	2	6	3	6	3	7	3	3	3	3	28	3	3	2	6	2	4	2	5	3	3	3	3	24	3	3	2	4	3	8	3	7	3	3	3	3	28	2	2	3	6	1	3	3	7	3	3	3	3	24
228	16121A04P2	3	3	3	8	3	6	3	7	3	3	3	3	30	3	3	3	8	3	6	3	7	3	3	3	3	30	3	3	3	6	3	8	3	7	3	3	3	3	30	3	3	3	6	3	8	3	7	3	3	3	3	30
229	16121A04P3	3	3	3	8	3	6	3	7	3	3	3	3	30	3	3	3	8	3	6	3	7	3	3	3	3	30	3	3	3	6	3	8	3	7	3	3	3	3	30	3	3	3	6	3	8	3	7	3	3	3	3	30
230	16121A04P4	3	3	3	8	3	6	3	7	3	3	3	3	30	3	3	3	8	3	6	2	5	3	3	3	3	28	3	3	3	6	3	8	3	7	3	3	3	3	30	3	3	3	6	3	8	3	7	3	3	3	3	30
231	16121A04P5	3	3	3	8	3	6	3	7	3	3	3	3	30	3	3	3	8	3	6	3	7	3	3	3	3	30	3	3	3	6	3	8	3	7	3	3	3	3	30	3	3	3	6	3	8	3	7	3	3	3	3	30
232	16121A04P6	3	3	2	6	3	6	2	5	3	3	3	3	26	3	3	3	8	3	6	3	7	3	3	3	3	30	3	3	3	6	3	8	3	7	3	3	3	3	30	2	2	3	6	3	8	3	7	3	3	3	3	29
233	16121A04P8	3	3	3	8	3	6	3	7	3	3	3	3	30	3	3	3	8	3	6	3	7	3	3	3	3	30	2	2	3	6	3	8	2	5	3	3	3	3	27	3	3	3	6	3	8	3	7	3	3	3	3	30
234	16121A04P9	3	3	2	6	3	6	2	5	3	3	3	3	26	3	3	0	0	3	6	2	5	3	3	3	3	20	3	3	3	6	3	8	3	7	3	3	3	3	30	1	1	3	6	2	6	2	5	3	3	3	3	24
235	17125A0401	3	3	3	8	3	6	3	7	3	3	3	3	30	3	3	3	8	3	6	3	7	3	3	3	3	30	3	3	3	6	3	8	3	7	3	3	3	3	30	3	3	3	6	3	8	3	7	3	3	3	3	30
236	17125A0402	3	3	3	8	3	6	3	7	3	3	3	3	30	3	3	3	8	3	6	3	7	3	3	3	3	30	3	3	3	6	3	8	3	7	3	3	3	3	30	3	3	3	6	3	8	3	7	3	3	3	3	30

237	17125A0403	3	3	2	6	3	6	2	5	3	3	3	3	26	2	2	3	8	3	6	2	5	3	3	3	3	27	3	3	3	6	3	8	3	7	3	3	3	3	30	2	2	3	6	3	8	3	7	3	3	3	3	29
238	17125A0404	3	3	3	8	3	6	3	7	3	3	3	3	30	3	3	3	8	3	6	3	7	3	3	3	3	30	3	3	3	6	3	8	3	7	3	3	3	3	30	3	3	3	6	3	8	3	7	3	3	3	3	30
239	17125a0405	3	3	3	8	3	6	3	7	3	3	3	3	30	3	3	3	8	3	6	3	7	3	3	3	3	30	3	3	3	6	3	8	3	7	3	3	3	3	30	3	3	3	6	3	8	3	7	3	3	3	3	30
240	17125A0406	3	3	3	8	3	6	3	7	3	3	3	3	30	3	3	3	8	3	6	3	7	3	3	3	3	30	3	3	3	6	3	8	3	7	3	3	3	3	30	3	3	3	6	3	8	3	7	3	3	3	3	30
241	17125A0407	2	2	2	6	3	6	2	5	3	3	3	3	25	3	3	3	8	3	6	3	7	3	3	3	3	30	3	3	3	6	3	8	3	7	3	3	3	3	30	3	3	3	6	3	8	3	7	3	3	3	3	30
242	17125A0408	2	2	3	8	3	6	3	7	3	3	3	3	29	3	3	3	8	3	6	3	7	3	3	3	3	30	3	3	2	4	3	8	3	7	3	3	3	3	28	2	2	3	6	3	8	3	7	3	3	3	3	29
243	17125A0409	2	2	2	6	0	0	3	7	3	3	2	2	20	2	2	2	6	3	6	2	5	3	3	3	3	25	3	3	3	6	1	3	0	0	3	3	3	3	18	3	3	2	4	2	6	1	3	2	2	3	3	21
244	17125A0410	3	3	2	6	3	6	3	7	3	3	3	3	28	1	1	3	8	3	6	2	5	3	3	3	3	26	3	3	3	6	2	6	3	7	3	3	3	3	28	3	3	3	6	3	8	3	7	3	3	3	3	30
245	17125A0411	3	3	1	3	3	6	3	7	3	3	3	3	25	3	3	2	6	3	6	3	7	3	3	3	3	28	3	3	3	6	3	8	3	7	3	3	3	3	30	3	3	3	6	3	8	3	7	3	3	3	3	30
246	17125A0412	3	3	2	6	3	6	2	5	1	1	3	3	24	3	3	3	8	3	6	2	5	3	3	3	3	28	3	3	3	6	3	8	2	5	3	3	3	3	28	3	3	3	6	3	8	3	7	3	3	2	2	29
247	17125A0413	3	3	3	8	3	6	3	7	3	3	3	3	30	3	3	3	8	3	6	3	7	3	3	3	3	30	3	3	3	6	3	8	3	7	3	3	3	3	30	3	3	3	6	3	8	3	7	3	3	3	3	30
248	17125A0414	3	3	3	8	3	6	3	7	3	3	3	3	30	3	3	3	8	3	6	3	7	3	3	3	3	30	3	3	3	6	3	8	3	7	3	3	3	3	30	3	3	3	6	3	8	3	7	3	3	3	3	30
249	17125A0415	3	3	3	8	3	6	2	5	3	3	3	3	28	3	3	3	8	3	6	3	7	3	3	3	3	30	3	3	3	6	3	8	3	7	3	3	3	3	30	3	3	3	6	3	8	3	7	3	3	3	3	30
250	17125A0416	2	2	3	8	3	6	1	3	3	3	3	3	25	3	3	3	8	3	6	3	7	3	3	3	3	30	3	3	2	4	3	8	1	3	3	3	3	3	24	3	3	2	4	2	6	3	7	3	3	3	3	26
251	17125A0417	3	3	2	6	3	6	3	7	3	3	3	3	28	2	2	3	8	3	6	3	7	3	3	3	3	29	3	3	3	6	3	8	3	7	3	3	3	3	30	3	3	3	6	3	8	3	7	3	3	3	3	30
252	17125A0418	3	3	3	8	2	4	3	7	3	3	3	3	28	1	1	3	8	2	4	3	7	2	2	3	3	25	3	3	2	4	2	6	2	5	3	3	3	3	24	2	2	3	6	3	8	3	7	3	3	3	3	29
253	17125A0419	2	2	2	6	3	6	3	7	3	3	3	3	27	3	3	3	8	3	6	3	7	3	3	3	3	30	3	3	3	6	3	8	3	7	3	3	3	3	30	3	3	3	6	2	6	3	7	3	3	3	3	28
254	17125A0420	3	3	3	8	3	6	3	7	3	3	3	3	30	3	3	3	8	3	6	3	7	3	3	3	3	30	3	3	3	6	3	8	3	7	3	3	3	3	30	3	3	3	6	3	8	3	7	3	3	3	3	30
255	17125A0421	3	3	3	8	3	6	3	7	3	3	3	3	30	3	3	3	8	3	6	3	7	3	3	3	3	30	3	3	3	6	3	8	3	7	3	3	3	3	30	3	3	3	6	3	8	3	7	3	3	3	3	30
256	17125A0422	0	0	1	3	2	4	3	7	2	2	3	3	19	3	3	3	8	3	6	1	3	3	3	3	3	26	0	0	2	4	2	6	2	5	2	2	3	3	20	3	3	3	6	2	6	1	3	3	3	3	3	24
257	17125A0423	3	3	3	8	3	6	3	7	3	3	3	3	30	3	3	3	8	2	4	3	7	3	3	3	3	28	2	2	3	6	3	8	3	7	3	3	3	3	29	3	3	3	6	3	8	2	5	3	3	3	3	28
258	17125A0424	3	3	3	8	3	6	1	3	3	3	3	3	26	3	3	3	8	2	4	2	5	3	3	3	3	26	2	2	2	4	3	8	3	7	3	3	3	3	27	3	3	3	6	3	8	3	7	3	3	3	3	30
259	17125A0425	1	1	2	6	3	6	3	7	3	3	3	3	26	3	3	3	8	3	6	3	7	3	3	3	3	30	3	3	3	6	3	8	3	7	3	3	3	3	30	3	3	3	6	3	8	3	7	3	3	3	3	30
260	17125A0427	3	3	2	6	3	6	3	7	2	2	3	3	27	3	3	3	8	3	6	2	5	3	3	3	3	28	3	3	3	6	3	8	3	7	3	3	3	3	30	3	3	3	6	3	8	3	7	3	3	3	3	30
261	17125A0428	3	3	3	8	3	6	3	7	3	3	3	3	30	3	3	3	8	3	6	3	7	3	3	3	3	30	3	3	3	6	3	8	3	7	3	3	3	3	30	3	3	3	6	3	8	3	7	3	3	3	3	30
262	17125A0429	1	1	3	8	3	6	3	7	3	3	3	3	28	3	3	3	8	3	6	3	7	3	3	3	3	30	3	3	3	6	1	3	3	7	3	3	3	3	25	3	3	3	6	3	8	3	7	3	3	3	3	30
263	17125A0430	3	3	3	8	3	6	3	7	3	3	3	3	30	3	3	3	8	3	6	3	7	3	3	3	3	30	3	3	3	6	3	8	3	7	3	3	3	3	30	3	3	3	6	3	8	3	7	3	3	3	3	30
264	17125A0431	3	3	2	6	3	6	3	7	3	3	3	3	28	3	3	2	6	3	6	3	7	3	3	3	3	28	3	3	3	6	3	8	3	7	3	3	3	3	30	3	3	3	6	3	8	3	7	3	3	3	3	30
265	17125A0432	3	3	2	6	2	4	2	5	3	3	3	3	24	3	3	3	8	3	6	3	7	3	3	3	3	30	3	3	3	6	2	6	3	7	3	3	3	3	28	2	2	3	6	3	8	3	7	3	3	3	3	29
266	17125A0433	3	3	3	8	3	6	3	7	3	3	3	3	30	3	3	3	8	3	6	3	7	3	3	3	3	30	3	3	3	6	3	8	3	7	3	3	3	3	30	3	3	3	6	3	8	3	7	3	3	3	3	30
267	17125A0434	3	3	3	8	3	6	3	7	3	3	3	3	30	3	3	3	8	3	6	3	7	3	3	3	3	30	3	3	3	6	3	8	3	7	3	3	3	3	30	3	3	3	6	3	8	3	7	3	3	3	3	30
268	17125A0435	3	3	3	8	3	6	3	7	3	3	3	3	30	3	3	3	8	3	6	3	7	3	3	3	3	30	3	3	3	6	3	8	3	7	3	3	3	3	30	3	3	3	6	3	8	3	7	3	3	3	3	30
269	17125A0436	3	3	3	8	2	4	3	7	3	3	3	3	28	3	3	3	8	3	6	3	7	3	3	3	3	30	3	3	3	6	3	8	3	7	3	3	3	3	30	3	3	3	6	3	8	3	7	3	3	3	3	30
270	17125A0437	3	3	3	8	3	6	3	7	3	3	3	3	30	3	3	3	8	3	6	3	7	3	3	3	3	30	3	3	3	6	3	8	3	7	3	3	3	3	30	3	3	3	6	3	8	3	7	3	3	3	3	30
271	17125A0438	3	3	3	8	3	6	3	7	3	3	3	3	30	3	3	3	8	3	6	3	7	3	3	3	3	30	3	3	3	6	3	8	3	7	3	3	3	3	30	3	3	3	6	3	8	3	7	3	3	3	3	30
272	17125A0439	3	3	3	8	3	6	3	7	3	3	3	3	30	3	3	3	8	3	6	3	7	3	3	3	3	30	3	3	3	6	3	8	3	7	3	3	3	3	30	3	3	3	6	3	8	3	7	3	3	3	3	30
273	17125A0440	3	3	3	8	3	6	3	7	3	3	3	3	30	3	3	3	8	3	6	3	7	3	3	3	3	30	3	3	3	6	3	8	3	7	3	3	3	3	30	3	3	3	6	3	8	3	7	3	3	3	3	30
274	17125A0441	3	3	2	6	3	6	3	7	3	3	3	3	28	2	2	2	6	3	6	2	5	3	3	3	3	25	3	3	3	6	3	8	3	7	3	3	3	3	30	3	3	3	6	2	6	3	7	3	3	3	3	28
275	17125A0442	2	2	2	6	3	6	3	7	3	3	2	2	26	3	3	3	8	3	6	3	7	3	3	3	3	30	3	3	2	4	3	8	2	5	3	3	3	3	26	3	3	3	6	3	8	2	5	3	3	2	2	27
276	17125A0443	3	3	3	8	3	6	2	5	3	3	3	3	28	3	3	3	8	3	6	3	7	3	3	3	3	30	3	3	3	6	3	8	3	7	3	3	3	3	30	3	3	3	6	3	8	3	7	3	3	3	3	30
277	17125A0444	3	3	3	8	3	6	3	7	3	3	3	3	30	3	3	3	8	3	6	3	7	3	3	3	3	30	3	3	3	6	3	8	3	7	3	3	3	3	30	3	3	3	6	3	8	3	7	3	3	3	3	30
278	17125A0445	3	3	3	8	3	6	3	7	3	3	3	3	30	3	3	3	8	3	6	3	7	3	3	3	3	30	3	3	3	6	3	8	3	7	3	3	3	3	30	3	3	3	6	3	8	3	7	3	3	3	3	30
279	17125A0446	3	3	3	8	3	6	3	7	3	3	3	3	30	3	3	3	8	3	6	3	7	3	3	3	3	30	3	3	3	6	3	8	3	7	3	3	3	3	30	3	3	3	6	3	8	3	7	3	3	3	3	30
280	17125A0447	3	3	3	8	3	6	3	7	3	3	3	3	30	3	3	3	8	3	6	3	7	3	3	3	3	30	3	3	3	6	3	8	3	7	3	3	3	3	30	3	3	3	6	3	8	3	7	3	3	3	3	30
281	17125A0448	3	3	2	6	3	6	3	7	3	3	3	3	28	3	3	3	8	3	6	3	7	3	3	3	3	30	3	3	3	6	3	8	3	7	3	3	3	3	30	3	3	3	6	3	8	3	7	3	3	3	3	30
No of Students		281													281													281													281												
No. of students >60%			260		274		277		271		277		279			275		275		280		273		279		279			275		276		274		277		274		277			248		279		279		273		278		278	
% of students 60%		92.53		0	97.51		98.58		96.44		98.58		99.29			97.86		97.86		99.64		97.15		99.29		99.29			97.86		98.22		97.51		98.58		97.51		98.58			88.26		99.29		99.29		97.15		98.93		98.93	
Corresponding Rubrics			R1		R2		R3		R4		R5		R6			R1		R2		R3		R4		R5		R6			R1		R2		R3		R4		R5		R6			R1		R2		R3		R4		R5		R6	
Course Outcomes			CO 01		CO 02		CO 04		CO 05, CO 06		CO 07, CO 08, CO 09		CO 01		**Tot.**	CO 01		CO 02		CO 04		CO 05, CO 06		CO 07, CO 08, CO 09		CO 01		**Tot.**	CO 01		CO 02		CO 04		CO 05, CO 06		CO 07, CO 08, CO 09		CO 01		Tot.	CO 01		CO 02		CO 04		CO 05, CO 06		CO 07, CO 08, CO 09		CO 01	
Program Outcomes			PO1		PO2		PO4		PO5, PO6		PO8, PO9, PO10		PO1			PO1		PO2		PO4		PO5, PO6		PO8, PO9, PO10		PO1			PO1		PO2		PO4		PO5, PO6		PO8, PO9, PO10		PO1			PO1		PO2		PO4		PO5, PO6		PO8, PO9,		PO1	

Course Outcomes	**CO1**	**CO2**	**CO3**	**CO4**	**CO5**	**CO6**	**CO7**	**CO8**	**CO9**
Program Outcomes	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO8**	**PO9**	**PO10**
Overall Attainment(%)	**98**	**99**	**96**	**94**	**98**	**98**	**99**	**99**	**99**

SREE VIDYANIKETHAN ENGINEERING COLLEGE (Autonomous)

Sree Sainath Nagar, Tirupati – 517 102

Department of Electronics & Communication Engineering

IV B.Tech I Sem. ECE - A,B,C,D AY: 2019-20

ANTENNAS AND MICROWAVE ENGINEERING LAB (16BT70431) Evaluation Sheet (Internal)

Awarded Marks =Awarded Weight x Max. Marks /Max. Weight

Excellent (Weight=3); Good (Weight=2); Satisfactory (Weight=1); W=Weight; M= Max.Marks

Faculty Handling Course: Ms.K.Neelima

Exp5													Exp6												
R1		R2		R3		R4		R5		R6		Tot.	R1		R2		R3		R4		R5		R6		Tot.
CO1		CO2		CO4		CO5,CO6		CO7,CO8,CO9		CO1			CO1		CO2		CO4		CO5,CO6		CO7,CO8,CO9		CO1		
W	M	W	M	W	M	W	M	W	M	W	M	30	W	M	W	M	W	M	W	M	W	M	W	M	30
3	**3**	**3**	**6**	**3**	**8**	**3**	**7**	**3**	**3**	**3**	**3**		**3**	**3**	**3**	**8**	**3**	**7**	**3**	**6**	**3**	**3**	**3**	**3**	
1	1	3	6	1	3	2	5	3	3	3	3	21	1	1	2	6	3	7	3	6	3	3	3	3	26
3	3	3	6	3	8	3	7	3	3	3	3	30	3	3	3	8	3	7	3	6	3	3	3	3	30
3	3	3	6	3	8	3	7	3	3	3	3	30	2	2	3	8	2	5	2	4	3	3	3	3	25
3	3	3	6	3	8	3	7	3	3	3	3	30	3	3	3	8	1	3	3	6	3	3	3	3	26
3	3	3	6	3	8	3	7	3	3	3	3	30	3	3	3	8	3	7	3	6	3	3	3	3	30
3	3	3	6	3	8	3	7	3	3	3	3	30	2	2	3	8	2	5	3	6	3	3	3	3	27
3	3	3	6	3	8	3	7	3	3	3	3	30	3	3	2	6	2	5	3	6	3	3	3	3	26
3	3	3	6	3	8	3	7	3	3	3	3	30	3	3	3	8	3	7	3	6	3	3	3	3	30
3	3	3	6	3	8	3	7	3	3	3	3	30	3	3	3	8	3	7	3	6	3	3	3	3	30
3	3	3	6	3	8	3	7	3	3	3	3	30	2	2	3	8	2	5	3	6	3	3	3	3	27
3	3	3	6	3	8	3	7	3	3	3	3	30	3	3	3	8	3	7	3	6	3	3	3	3	30
3	3	3	6	3	8	3	7	3	3	3	3	30	3	3	3	8	3	7	3	6	3	3	3	3	30
3	3	3	6	3	8	3	7	3	3	3	3	30	3	3	3	8	3	7	3	6	3	3	3	3	30
3	3	3	6	3	8	3	7	3	3	3	3	30	3	3	3	8	3	7	3	6	3	3	3	3	30
3	3	3	6	3	8	3	7	3	3	3	3	30	3	3	3	8	3	7	3	6	3	3	3	3	30
3	3	3	6	3	8	3	7	3	3	3	3	30	3	3	3	8	3	7	3	6	3	3	3	3	30
3	3	3	6	3	8	3	7	3	3	3	3	30	3	3	3	8	3	7	3	6	3	3	2	2	29
3	3	3	6	3	8	2	5	3	3	3	3	28	3	3	2	6	3	7	3	6	3	3	3	3	28
2	2	3	6	3	8	3	7	3	3	3	3	29	3	3	3	8	3	7	3	6	3	3	3	3	30
3	3	3	6	3	8	2	5	3	3	3	3	28	3	3	3	8	3	7	3	6	3	3	3	3	30
3	3	3	6	3	8	3	7	3	3	3	3	30	3	3	2	6	3	7	3	6	3	3	3	3	28
3	3	3	6	3	8	3	7	3	3	3	3	30	3	3	2	6	3	7	3	6	3	3	3	3	28
3	3	3	6	3	8	3	7	3	3	3	3	30	3	3	3	8	3	7	3	6	3	3	3	3	30
3	3	3	6	3	8	3	7	3	3	3	3	30	3	3	2	6	3	7	3	6	3	3	2	2	27
3	3	3	6	3	8	3	7	3	3	3	3	30	3	3	3	8	3	7	3	6	3	3	3	3	30
3	3	3	6	2	6	3	7	1	1	3	3	26	3	3	3	8	3	7	3	6	3	3	3	3	30
2	2	3	6	2	6	3	7	3	3	3	3	27	1	1	2	6	3	7	3	6	2	2	2	2	24
3	3	3	6	3	8	2	5	3	3	3	3	28	3	3	3	8	3	7	3	6	3	3	3	3	30
3	3	3	6	2	6	3	7	3	3	3	3	28	3	3	2	6	3	7	3	6	3	3	3	3	28
3	3	3	6	3	8	3	7	3	3	3	3	30	3	3	3	8	3	7	3	6	3	3	3	3	30
3	3	3	6	3	8	3	7	3	3	3	3	30	3	3	3	8	3	7	3	6	3	3	3	3	30
3	3	3	6	3	8	3	7	3	3	3	3	30	3	3	3	8	3	7	3	6	3	3	3	3	30
3	3	3	6	2	6	3	7	3	3	3	3	28	3	3	3	8	3	7	3	6	3	3	3	3	30
3	3	3	6	3	8	2	5	3	3	3	3	28	3	3	3	8	3	7	3	6	3	3	3	3	30
3	3	3	6	3	8	2	5	3	3	3	3	28	2	2	3	8	3	7	2	4	3	3	3	3	27
2	2	3	6	3	8	3	7	3	3	3	3	29	3	3	3	8	3	7	3	6	3	3	3	3	30
3	3	3	6	3	8	3	7	3	3	3	3	30	3	3	3	8	3	7	3	6	3	3	3	3	30
3	3	3	6	3	8	3	7	3	3	3	3	30	0	0	3	8	3	7	2	4	3	3	3	3	25
3	3	3	6	3	8	3	7	3	3	3	3	30	3	3	3	8	3	7	3	6	3	3	3	3	30
3	3	3	6	3	8	3	7	3	3	3	3	30	3	3	3	8	2	5	3	6	3	3	3	3	28
3	3	3	6	3	8	3	7	3	3	3	3	30	2	2	3	8	2	5	2	4	2	2	3	3	24
3	3	3	6	3	8	3	7	3	3	3	3	30	3	3	3	8	3	7	3	6	3	3	3	3	30
3	3	3	6	3	8	3	7	3	3	3	3	30	3	3	3	8	3	7	3	6	3	3	3	3	30
3	3	3	6	3	8	3	7	3	3	3	3	30	3	3	3	8	3	7	3	6	3	3	3	3	30
3	3	3	6	3	8	3	7	3	3	3	3	30	3	3	3	8	3	7	3	6	3	3	3	3	30
3	3	3	6	3	8	3	7	3	3	3	3	30	3	3	3	8	3	7	3	6	3	3	3	3	30
3	3	3	6	3	8	3	7	3	3	3	3	30	3	3	3	8	3	7	3	6	3	3	3	3	30

Exp7															Exp8														
R1		R2		R3		R4		R5		R6		R7		Tot.	R1		R2		R3		R4		R5		R6		R7		Tot.
CO1		CO2		CO3		CO4		CO5,CO6		CO7,CO8,CO9		CO1			CO1		CO2		CO3		CO4		CO5,CO6		CO7,CO8,CO9		CO1		
W	M	W	M	W	M	W	M	W	M	W	M	W	M	30	W	M	W	M	W	M	W	M	W	M	W	M	W	M	30
3	**2**	**3**	**5**	**3**	**7**	**3**	**6**	**3**	**5**	**3**	**3**	**3**	**2**		**3**	**2**	**3**	**5**	**3**	**7**	**3**	**6**	**3**	**5**	**3**	**3**	**3**	**2**	
3	2	3	5	1	3	1	2	1	2	2	2	3	2	18	3	2	2	4	2	5	3	6	3	5	3	3	3	2	27
3	2	3	5	3	7	3	6	3	5	3	3	3	2	30	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30
2	2	3	5	2	5	3	6	3	5	3	3	3	2	28	3	2	1	2	3	7	3	6	3	5	3	3	3	2	27
3	2	1	2	3	7	3	6	3	5	3	3	3	2	27	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30
3	2	3	5	3	7	3	6	2	4	3	3	3	2	29	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30
3	2	3	5	2	5	2	4	3	5	3	3	3	2	26	3	2	2	4	3	7	3	6	2	4	2	2	3	2	27
3	2	3	5	3	7	3	6	3	5	3	3	3	2	30	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30
3	2	3	5	3	7	3	6	3	5	3	3	3	2	30	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30
3	2	3	5	3	7	3	6	3	5	3	3	3	2	30	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30
3	2	3	5	3	7	3	6	3	5	3	3	3	2	30	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30
3	2	3	5	3	7	3	6	3	5	3	3	3	2	30	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30
3	2	3	5	3	7	3	6	3	5	3	3	3	2	30	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30
3	2	3	5	3	7	3	6	3	5	3	3	3	2	30	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30
3	2	3	5	3	7	3	6	3	5	3	3	3	2	30	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30
3	2	3	5	3	7	3	6	3	5	3	3	3	2	30	3	2	2	4	3	7	3	6	3	5	3	3	3	2	29
3	2	3	5	2	5	3	6	3	5	3	3	3	2	28	2	2	3	5	1	3	2	4	3	5	3	3	3	2	24
3	2	3	5	3	7	3	6	3	5	3	3	3	2	30	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30
3	2	3	5	3	7	3	6	3	5	3	3	3	2	30	3	2	3	5	2	5	3	6	3	5	3	3	3	2	28
3	2	3	5	3	7	3	6	3	5	3	3	3	2	30	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30
3	2	3	5	3	7	3	6	2	4	3	3	3	2	29	3	2	3	5	3	7	2	4	3	5	3	3	3	2	28
3	2	3	5	3	7	3	6	3	5	3	3	3	2	30	2	2	3	5	3	7	2	4	3	5	3	3	3	2	28
3	2	3	5	1	3	3	6	3	5	3	3	3	2	26	0	0	3	5	2	5	3	6	3	5	3	3	3	2	26
3	2	3	5	3	7	3	6	3	5	3	3	3	2	30	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30
3	2	3	5	3	7	3	6	3	5	3	3	3	2	30	3	2	1	2	3	7	2	4	3	5	3	3	3	2	25
3	2	3	5	3	7	3	6	3	5	3	3	3	2	30	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30
3	2	1	2	3	7	3	6	2	4	3	3	3	2	26	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30
3	2	3	5	3	7	2	4	1	2	3	3	3	2	25	3	2	3	5	2	5	2	4	2	4	3	3	3	2	25
3	2	3	5	3	7	3	6	3	5	3	3	3	2	30	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30
3	2	3	5	3	7	3	6	3	5	3	3	3	2	30	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30
3	2	3	5	3	7	3	6	3	5	3	3	3	2	30	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30
3	2	3	5	3	7	3	6	3	5	3	3	3	2	30	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30
3	2	3	5	3	7	3	6	3	5	3	3	3	2	30	3	2	2	4	2	5	3	6	3	5	3	3	3	2	27
3	2	3	5	3	7	2	4	3	5	3	3	3	2	28	3	2	3	5	0	0	3	6	3	5	3	3	3	2	23
3	2	3	5	2	5	3	6	3	5	3	3	3	2	28	3	2	3	5	1	3	3	6	3	5	3	3	3	2	26
3	2	3	5	3	7	2	4	1	2	3	3	3	2	25	3	2	2	4	3	7	3	6	2	4	3	3	3	2	28
3	2	3	5	3	7	3	6	3	5	3	3	3	2	30	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30
3	2	3	5	3	7	3	6	3	5	3	3	3	2	30	3	2	3	5	2	5	3	6	3	5	3	3	3	2	28
2	2	3	5	3	7	3	6	3	5	3	3	3	2	30	2	2	3	5	2	5	2	4	2	4	3	3	2	2	25
3	2	3	5	2	5	3	6	3	5	3	3	3	2	28	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30
3	2	3	5	3	7	3	6	3	5	3	3	3	2	30	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30
3	2	2	4	2	5	2	4	3	5	3	3	3	2	25	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30
3	2	3	5	3	7	3	6	3	5	3	3	3	2	30	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30
3	2	3	5	3	7	3	6	3	5	3	3	3	2	30	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30
3	2	3	5	3	7	3	6	3	5	3	3	3	2	30	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30
3	2	3	5	3	7	3	6	3	5	3	3	3	2	30	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30
3	2	3	5	3	7	3	6	3	5	3	3	3	2	30	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30
3	2	3	5	3	7	3	6	3	5	3	3	3	2	30	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30

1	1	3	6	3	8	3	7	3	3	3	3	28	3	3	3	8	3	7	3	6	3	3	3	3	30	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30
3	3	3	6	3	8	3	7	3	3	3	3	30	1	1	3	8	3	7	3	6	3	3	3	3	28	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30	3	2	2	4	1	3	3	6	3	5	3	3	3	2	25
3	3	2	4	3	8	3	7	3	3	3	3	28	3	3	3	8	3	7	3	6	3	3	3	3	30	2	2	3	5	2	5	3	6	3	5	3	3	3	2	28	3	2	3	5	2	5	3	6	2	4	3	3	3	2	27
3	3	3	6	3	8	3	7	3	3	3	3	30	2	2	3	8	2	5	3	6	3	3	3	3	27	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30
3	3	3	6	3	8	3	7	3	3	3	3	30	3	3	2	6	3	7	2	4	3	3	3	3	26	3	2	3	5	3	7	2	4	3	5	3	3	3	2	28	3	2	2	4	3	7	2	4	3	5	3	3	3	2	27
3	3	3	6	3	8	3	7	3	3	3	3	30	3	3	3	8	3	7	3	6	3	3	3	3	30	3	2	3	5	3	7	1	2	2	4	3	3	3	2	25	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30
3	3	3	6	3	8	3	7	3	3	3	3	30	3	3	3	8	3	7	3	6	3	3	3	3	30	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30
3	3	3	6	3	8	3	7	3	3	3	3	30	3	3	2	6	3	7	3	6	3	3	3	3	28	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30
3	3	3	6	3	8	3	7	3	3	3	3	30	3	3	3	8	3	7	3	6	3	3	3	3	30	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30
3	3	3	6	3	8	2	5	3	3	3	3	28	3	3	3	8	2	5	3	6	3	3	3	3	28	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30
3	3	3	6	3	8	3	7	3	3	3	3	30	3	3	3	8	3	7	3	6	3	3	3	3	30	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30
2	2	3	6	3	8	3	7	3	3	3	3	29	2	2	3	8	3	7	3	6	3	3	2	2	28	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30
3	3	3	6	3	8	3	7	3	3	3	3	30	3	3	3	8	3	7	3	6	3	3	3	3	30	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30
3	3	3	6	3	8	3	7	3	3	3	3	30	3	3	3	8	3	7	3	6	3	3	3	3	30	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30
3	3	3	6	3	8	3	7	3	3	3	3	30	3	3	3	8	3	7	3	6	3	3	3	3	30	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30
3	3	3	6	3	8	3	7	3	3	3	3	30	2	2	3	8	3	7	3	6	3	3	3	3	29	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30	3	2	3	5	2	5	3	6	3	5	3	3	3	2	28
3	3	3	6	3	8	3	7	3	3	3	3	30	3	3	3	8	3	7	3	6	3	3	3	3	30	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30
3	3	3	6	3	8	3	7	3	3	3	3	30	3	3	3	8	3	7	3	6	3	3	3	3	30	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30	2	2	3	5	3	7	3	6	3	5	3	3	3	2	30
3	3	2	4	3	8	3	7	3	3	3	3	28	3	3	3	8	3	7	2	4	3	3	2	2	27	3	2	2	4	3	7	3	6	3	5	3	3	3	2	29	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30
3	3	3	6	3	8	3	7	3	3	3	3	30	3	3	3	8	3	7	3	6	3	3	3	3	30	3	2	2	4	2	5	3	6	3	5	3	3	3	2	27	3	2	3	5	2	5	3	6	3	5	3	3	3	2	28
3	3	3	6	3	8	3	7	3	3	3	3	30	3	3	3	8	3	7	3	6	3	3	3	3	30	3	2	1	2	3	7	3	6	3	5	3	3	3	2	27	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30
3	3	2	4	3	8	3	7	3	3	3	3	28	3	3	2	6	3	7	3	6	3	3	3	3	28	3	2	3	5	3	7	2	4	3	5	3	3	3	2	28	2	2	3	5	3	7	3	6	2	4	3	3	3	2	29
3	3	3	6	3	8	3	7	3	3	3	3	30	3	3	3	8	3	7	3	6	3	3	3	3	30	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30
3	3	3	6	3	8	3	7	3	3	3	3	30	2	2	3	8	3	7	3	6	3	3	3	3	29	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30
3	3	3	6	3	8	3	7	3	3	3	3	30	3	3	3	8	3	7	3	6	3	3	3	3	30	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30
3	3	3	6	3	8	3	7	3	3	3	3	30	3	3	3	8	3	7	3	6	3	3	3	3	30	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30	3	2	3	5	3	7	3	6	3	5	2	2	3	2	29
3	3	3	6	3	8	3	7	3	3	3	3	30	3	3	3	8	2	5	3	6	3	3	3	3	28	3	2	3	5	2	5	3	6	3	5	3	3	3	2	28	3	2	2	4	3	7	3	6	3	5	3	3	3	2	29
3	3	3	6	3	8	3	7	3	3	3	3	30	3	3	3	8	3	7	3	6	3	3	3	3	30	3	2	2	4	1	3	3	6	2	4	3	3	3	2	24	3	2	2	4	3	7	1	2	2	4	3	3	3	2	24
2	2	3	6	2	6	2	5	3	3	3	3	25	3	3	2	6	3	7	1	2	3	3	3	3	24	3	2	3	5	2	5	3	6	3	5	3	3	3	2	28	3	2	3	5	2	5	3	6	3	5	3	3	3	2	28
3	3	3	6	3	8	3	7	3	3	1	1	28	1	1	2	6	3	7	3	6	3	3	3	3	26	3	2	2	4	1	3	3	6	3	5	3	3	3	2	25	2	2	2	4	3	7	3	6	3	5	3	3	3	2	29
2	2	2	4	1	3	3	7	3	3	3	3	22	3	3	3	8	3	7	3	6	3	3	3	3	30	2	2	3	5	3	7	3	6	2	4	3	3	3	2	29	0	0	3	5	3	7	2	4	3	5	3	3	3	2	26
3	3	3	6	3	8	3	7	3	3	3	3	30	2	2	2	6	3	7	3	6	3	3	3	3	27	3	2	2	4	2	5	3	6	3	5	3	3	3	2	27	3	2	2	4	2	5	2	4	2	4	3	3	3	2	24
3	3	3	6	3	8	3	7	3	3	3	3	30	3	3	2	6	3	7	3	6	3	3	3	3	28	2	2	2	4	2	5	2	4	2	4	2	2	3	2	23	2	2	3	5	3	7	3	6	2	4	3	3	3	2	29
3	3	3	6	3	8	2	5	3	3	3	3	28	3	3	3	8	3	7	3	6	3	3	3	3	30	3	2	2	4	3	7	3	6	3	5	3	3	3	2	29	3	2	3	5	1	3	3	6	2	4	3	3	3	2	25
3	3	3	6	3	8	3	7	3	3	3	3	30	3	3	1	3	3	7	3	6	3	3	3	3	25	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30	3	2	2	4	3	7	2	4	3	5	3	3	3	2	27
3	3	3	6	3	8	3	7	3	3	3	3	30	3	3	3	8	3	7	3	6	3	3	3	3	30	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30
3	3	3	6	3	8	3	7	3	3	3	3	30	3	3	3	8	3	7	3	6	3	3	3	3	30	3	2	3	5	2	5	3	6	3	5	3	3	3	2	28	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30
2	2	3	6	3	8	3	7	3	3	3	3	29	3	3	3	8	3	7	3	6	3	3	3	3	30	3	2	2	4	2	5	3	6	3	5	3	3	3	2	27	2	2	3	5	3	7	3	6	2	4	3	3	3	2	29
3	3	2	4	3	8	3	7	3	3	3	3	28	2	2	2	6	3	7	2	4	3	3	3	3	25	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30
3	3	3	6	2	6	2	5	3	3	3	3	26	3	3	3	8	3	7	3	6	3	3	3	3	30	2	2	3	5	2	5	3	6	2	4	3	3	3	2	27	2	2	3	5	2	5	3	6	3	5	3	3	3	2	28
3	3	3	6	3	8	3	7	3	3	3	3	30	3	3	3	8	2	5	3	6	3	3	2	2	27	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30	3	2	3	5	2	5	3	6	3	5	3	3	3	2	28
3	3	3	6	3	8	3	7	3	3	3	3	30	3	3	2	6	3	7	3	6	3	3	3	3	28	3	2	3	5	2	5	3	6	3	5	3	3	3	2	28	2	2	3	5	3	7	2	4	2	4	3	3	3	2	27
3	3	3	6	3	8	3	7	3	3	3	3	30	3	3	3	8	3	7	3	6	3	3	3	3	30	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30	3	2	3	5	3	7	3	6	2	4	3	3	3	2	29
3	3	3	6	2	6	3	7	3	3	3	3	28	3	3	3	8	3	7	3	6	3	3	3	3	30	3	2	3	5	3	7	2	4	1	2	3	3	3	2	25	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30
3	3	2	4	3	8	3	7	3	3	3	3	28	2	2	2	6	3	7	3	6	3	3	3	3	27	3	2	3	5	2	5	3	6	2	4	3	3	3	2	27	0	0	3	5	3	7	2	4	3	5	3	3	3	2	26
3	3	3	6	3	8	3	7	3	3	3	3	30	3	3	3	8	3	7	3	6	3	3	3	3	30	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30
2	2	2	4	3	8	2	5	3	3	3	3	25	3	3	3	8	3	7	3	6	3	3	3	3	30	3	2	2	4	3	7	3	6	3	5	3	3	3	2	29	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30
1	1	3	6	3	8	2	5	3	3	3	3	26	3	3	3	8	3	7	3	6	3	3	3	3	30	3	2	2	4	3	7	3	6	3	5	3	3	3	2	29	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30
3	3	3	6	3	8	3	7	3	3	3	3	30	3	3	3	8	3	7	3	6	3	3	2	2	29	2	2	2	4	3	7	3	6	3	5	3	3	3	2	29	3	2	3	5	2	5	3	6	2	4	3	3	3	2	27
3	3	3	6	3	8	3	7	3	3	3	3	30	3	3	3	8	3	7	3	6	3	3	3	3	30	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30
2	2	3	6	3	8	3	7	3	3	3	3	29	3	3	3	8	3	7	3	6	3	3	3	3	30	3	2	3	5	2	5	2	4	1	2	3	3	3	2	23	0	0	3	5	3	7	2	4	3	5	3	3	3	2	26
3	3	3	6	3	8	3	7	3	3	3	3	30	3	3	3	8	3	7	3	6	3	3	3	3	30	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30	3	2	3	5	3	7	2	4	1	2	3	3	3	2	25
3	3	3	6	3	8	2	5	3	3	3	3	28	3	3	3	8	2	5	3	6	3	3	3	3	28	3	2	3	5	2	5	3	6	3	5	3	3	3	2	28	3	2	3	5	3	7	1	2	2	4	2	2	3	2	24
3	3	3	6	3	8	3	7	3	3	3	3	30	3	3	3	8	3	7	3	6	3	3	3	3	30	3	2	2	4	2	5	3	6	2	4	1	1	3	2	24	3	2	2	4	2	5	3	6	3	5	3	3	3	2	27
3	3	3	6	3	8	3	7	3	3	3	3	30	3	3	3	8	3	7	3	6	3	3	3	3	30	2	2	2	4	2	5	3	6	3	5	1	1	3	2	25	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30
3	3	3	6	2	6	3	7	3	3	3	3	28	1	1	2	6	3	7	3	6	3	3	2	2	25	3	2	2	4	3	7	2	4	3	5	3	3	3	2	27	3	2	2	4	2	5	3	6	3	5	3	3	3	2	27
2	2	3	6	3	8	3	7	3	3	3	3	29	3	3	3	8	3	7	3	6	3	3	3	3	30	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30
3	3	3	6	3	8	3	7	3	3	3	3	30	3	3	3	8	3	7	3	6	3	3	2	2	29	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30
3	3	3	6	3	8	3	7	3	3	3	3	30	3	3	3	8	3	7	3	6	3	3	3	3	30	3	2	3	5	3	7	3	6	3	5	2	2	3	2	29	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30
3	3	3	6	3	8	3	7	3	3	3	3	30	3	3	3	8	3	7	3	6	3	3	3	3	30	3	2	3	5	2	5	3	6	3	5	3	3	3	2	28	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30
3	3	3	6	3	8	3	7	3	3	3	3	30	3	3	3	8	3	7	3	6	3	3	3	3	30	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30
3	3	3	6	3	8	3	7	3	3	3	3	30	3	3	3	8	3	7	2	4	3	3	3	3	28	3	2	3	5	3	7	2	4	3	5	3	3	3	2	28	3	2	3	5	2	5	3	6	3	5	3	3	3	2	28
3	3	3	6	3	8	3	7	3	3	3	3	30	3	3	2	6	2	5	3	6	3	3	3	3	26	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30	3	2	3	5	3	7	2	4	3	5	3	3	3	2	28

3	3	3	6	3	8	3	7	3	3	3	3	30	3	3	3	8	3	7	3	6	3	3	3	3	30	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30
3	3	3	6	3	8	3	7	3	3	3	3	30	3	3	3	8	3	7	3	6	3	3	3	3	30	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30
3	3	3	6	3	8	3	7	3	3	3	3	30	3	3	3	8	3	7	3	6	3	3	3	3	30	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30
3	3	3	6	3	8	3	7	3	3	3	3	30	3	3	3	8	3	7	3	6	3	3	3	3	30	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30
3	3	3	6	3	8	3	7	3	3	3	3	30	3	3	2	6	2	5	3	6	3	3	3	3	26	3	2	2	4	2	5	3	6	2	4	3	3	3	2	26	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30
3	3	3	6	3	8	3	7	3	3	3	3	30	3	3	3	8	3	7	3	6	3	3	3	3	30	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30
3	3	3	6	3	8	3	7	3	3	3	3	30	3	3	3	8	3	7	3	6	3	3	3	3	30	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30
3	3	3	6	3	8	3	7	3	3	3	3	30	3	3	3	8	3	7	3	6	3	3	3	3	30	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30
3	3	3	6	3	8	3	7	3	3	3	3	30	3	3	3	8	3	7	3	6	3	3	3	3	30	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30
3	3	3	6	3	8	3	7	3	3	3	3	30	3	3	3	8	3	7	3	6	3	3	3	3	30	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30
3	3	3	6	2	6	3	7	3	3	3	3	28	2	2	1	3	3	7	3	6	3	3	3	3	24	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30
3	3	3	6	2	6	3	7	3	3	3	3	28	3	3	3	8	3	7	3	6	3	3	3	3	30	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30
3	3	3	6	3	8	3	7	3	3	3	3	30	3	3	3	8	3	7	3	6	3	3	3	3	30	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30
3	3	3	6	3	8	3	7	3	3	3	3	30	3	3	3	8	3	7	3	6	3	3	3	3	30	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30
3	3	3	6	3	8	3	7	3	3	3	3	30	3	3	3	8	3	7	3	6	3	3	3	3	30	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30
3	3	3	6	3	8	3	7	3	3	3	3	30	3	3	3	8	3	7	3	6	3	3	3	3	30	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30
2	2	3	6	3	8	3	7	3	3	3	3	29	3	3	3	8	3	7	3	6	3	3	3	3	30	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30
3	3	3	6	3	8	3	7	3	3	3	3	30	3	3	3	8	3	7	3	6	3	3	3	3	30	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30
3	3	3	6	3	8	3	7	3	3	3	3	30	3	3	3	8	3	7	3	6	3	3	3	3	30	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30
3	3	3	6	3	8	3	7	3	3	3	3	30	3	3	3	8	3	7	3	6	3	3	3	3	30	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30
3	3	3	6	2	6	3	7	3	3	3	3	28	3	3	3	8	3	7	3	6	3	3	3	3	30	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30
3	3	3	6	3	8	3	7	3	3	3	3	30	3	3	3	8	3	7	3	6	3	3	3	3	30	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30
3	3	3	6	3	8	3	7	3	3	3	3	30	3	3	2	6	3	7	3	6	3	3	3	3	28	3	2	3	5	3	7	2	4	3	5	3	3	3	2	28	3	2	3	5	3	7	2	4	3	5	3	3	3	2	28
3	3	3	6	2	6	3	7	3	3	3	3	28	3	3	2	6	3	7	3	6	3	3	3	3	28	2	2	1	2	3	7	3	6	3	5	3	3	3	2	27	2	2	3	5	2	5	2	4	3	5	3	3	3	2	26
3	3	3	6	2	6	3	7	3	3	3	3	28	1	1	3	8	3	7	3	6	3	3	3	3	28	3	2	3	5	3	7	2	4	3	5	3	3	3	2	28	3	2	3	5	1	3	3	6	3	5	2	2	3	2	25
3	3	3	6	3	8	3	7	3	3	3	3	30	3	3	2	6	3	7	3	6	3	3	3	3	28	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30	3	2	2	4	3	7	3	6	3	5	3	3	3	2	29
3	3	3	6	3	8	3	7	3	3	3	3	30	3	3	2	6	3	7	3	6	3	3	3	3	28	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30
3	3	3	6	3	8	3	7	3	3	3	3	30	3	3	3	8	3	7	3	6	3	3	3	3	30	3	2	3	5	3	7	3	6	2	4	3	3	3	2	29	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30
3	3	3	6	3	8	3	7	3	3	3	3	30	1	1	3	8	3	7	2	4	3	3	3	3	26	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30
3	3	3	6	3	8	3	7	3	3	3	3	30	3	3	3	8	3	7	3	6	3	3	3	3	30	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30
1	1	3	6	3	8	3	7	3	3	3	3	28	2	2	3	8	3	7	3	6	3	3	3	3	29	3	2	2	4	3	7	3	6	3	5	3	3	3	2	29	3	2	3	5	3	7	3	6	2	4	3	3	3	2	29
3	3	3	6	3	8	2	5	3	3	3	3	28	3	3	3	8	3	7	3	6	3	3	3	3	30	3	2	3	5	2	5	3	6	2	4	3	3	3	2	27	3	2	2	4	3	7	3	6	3	5	3	3	3	2	29
3	3	3	6	3	8	3	7	3	3	3	3	30	3	3	3	8	1	3	3	6	3	3	3	3	26	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30	3	2	3	5	3	7	2	4	1	2	3	3	3	2	25
3	3	3	6	3	8	3	7	3	3	3	3	30	3	3	3	8	3	7	3	6	3	3	3	3	30	3	2	2	4	2	5	3	6	3	5	3	3	3	2	27	2	2	3	5	3	7	2	4	3	5	3	3	3	2	28
2	2	3	6	2	6	3	7	3	3	3	3	27	3	3	2	6	3	7	2	4	3	3	3	3	26	0	0	1	2	1	3	3	6	2	4	2	2	2	2	19	3	2	3	5	1	3	3	6	2	4	2	2	3	2	24
3	3	3	6	3	8	3	7	3	3	3	3	30	3	3	3	8	3	7	3	6	3	3	3	3	30	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30	3	2	3	5	3	7	2	4	3	5	3	3	3	2	28
3	3	3	6	3	8	3	7	3	3	3	3	30	3	3	3	8	3	7	3	6	3	3	3	3	30	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30	3	2	2	4	3	7	3	6	3	5	3	3	3	2	29
3	3	3	6	3	8	3	7	3	3	3	3	30	3	3	3	8	3	7	3	6	3	3	3	3	30	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30
2	2	3	6	3	8	2	5	3	3	3	3	27	3	3	3	8	3	7	3	6	3	3	3	3	30	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30	3	2	3	5	2	5	3	6	2	4	3	3	3	2	27
3	3	2	4	3	8	2	5	3	3	3	3	26	3	3	3	8	3	7	3	6	3	3	3	3	30	0	0	2	4	3	7	3	6	3	5	1	1	3	2	25	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30
1	1	3	6	2	6	3	7	3	3	3	3	26	3	3	3	8	3	7	3	6	3	3	3	3	30	3	2	3	5	3	7	3	6	2	4	3	3	3	2	29	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30
3	3	3	6	2	6	3	7	3	3	3	3	28	3	3	3	8	3	7	3	6	3	3	3	3	30	3	2	2	4	2	5	3	6	1	2	3	3	3	2	24	3	2	2	4	3	7	3	6	2	4	3	3	3	2	28
3	3	3	6	3	8	3	7	3	3	3	3	30	3	3	3	8	3	7	3	6	3	3	3	3	30	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30
3	3	3	6	3	8	3	7	3	3	3	3	30	3	3	3	8	3	7	3	6	3	3	3	3	30	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30
3	3	3	6	3	8	3	7	3	3	3	3	30	3	3	3	8	3	7	3	6	3	3	3	3	30	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30
3	3	3	6	3	8	3	7	3	3	3	3	30	3	3	3	8	1	3	3	6	3	3	3	3	26	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30	3	2	3	5	3	7	2	4	3	5	3	3	3	2	28
2	2	3	6	3	8	3	7	3	3	3	3	29	3	3	3	8	3	7	3	6	3	3	3	3	30	3	2	1	2	3	7	3	6	2	4	3	3	3	2	26	3	2	3	5	1	3	3	6	2	4	3	3	2	2	25
1	1	3	6	3	8	3	7	3	3	3	3	28	3	3	3	8	3	7	3	6	3	3	3	3	30	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30	3	2	2	4	3	7	3	6	3	5	3	3	3	2	29
3	3	3	6	3	8	3	7	3	3	3	3	30	3	3	3	8	3	7	3	6	3	3	3	3	30	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30
3	3	3	6	3	8	3	7	3	3	3	3	30	3	3	3	8	3	7	3	6	3	3	3	3	30	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30	3	2	3	5	2	5	3	6	3	5	3	3	3	2	28
3	3	3	6	3	8	3	7	3	3	3	3	30	3	3	3	8	3	7	3	6	3	3	3	3	30	3	2	3	5	2	5	3	6	3	5	3	3	3	2	28	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30
3	3	3	6	3	8	3	7	3	3	3	3	30	3	3	3	8	3	7	3	6	3	3	3	3	30	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30
3	3	2	4	3	8	3	7	3	3	3	3	28	3	3	3	8	3	7	3	6	3	3	3	3	30	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30
3	3	3	6	3	8	3	7	3	3	3	3	30	3	3	3	8	3	7	3	6	3	3	3	3	30	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30
3	3	3	6	3	8	3	7	3	3	3	3	30	3	3	3	8	3	7	3	6	3	3	3	3	30	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30
3	3	3	6	2	6	3	7	3	3	3	3	28	3	3	3	8	3	7	3	6	3	3	3	3	30	3	2	2	4	3	7	3	6	3	5	3	3	3	2	29	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30
2	2	3	6	3	8	2	5	3	3	3	3	27	3	3	3	8	3	7	2	4	3	3	3	3	28	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30
3	3	3	6	2	6	3	7	3	3	3	3	28	3	3	3	8	3	7	3	6	3	3	3	3	30	3	2	3	5	3	7	2	4	2	4	3	3	3	2	27	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30
3	3	1	2	3	8	3	7	3	3	3	3	26	3	3	3	8	3	7	3	6	3	3	3	3	30	3	2	1	2	3	7	3	6	3	5	3	3	2	2	27	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30
3	3	3	6	3	8	3	7	3	3	3	3	30	3	3	3	8	3	7	3	6	3	3	3	3	30	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30
3	3	3	6	3	8	3	7	3	3	3	3	30	1	1	3	8	2	5	3	6	3	3	3	3	26	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30	3	2	3	5	3	7	2	4	2	4	3	3	3	2	27
3	3	3	6	3	8	3	7	3	3	3	3	30	3	3	3	8	3	7	3	6	3	3	3	3	30	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30
1	1	3	6	3	8	3	7	3	3	3	3	28	3	3	3	8	3	7	3	6	3	3	3	3	30	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30

3	3	3	6	3	8	3	7	3	3	3	3	30	3	3	3	8	3	7	3	6	3	3	3	3	30	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30
3	3	3	6	3	8	3	7	3	3	3	3	30	3	3	3	8	3	7	3	6	3	3	3	3	30	3	2	1	2	3	7	3	6	2	4	3	3	3	2	26	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30
3	3	3	6	2	6	3	7	3	3	3	3	28	3	3	3	8	3	7	3	6	3	3	3	3	30	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30	3	2	3	5	3	7	1	2	3	5	3	3	3	2	26
3	3	3	6	3	8	3	7	3	3	3	3	30	3	3	3	8	3	7	3	6	3	3	3	3	30	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30
3	3	3	6	3	8	3	7	3	3	3	3	30	2	2	3	8	3	7	3	6	3	3	3	3	29	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30	3	2	3	5	3	7	2	4	3	5	3	3	3	2	28
3	3	3	6	3	8	3	7	3	3	3	3	30	3	3	3	8	3	7	3	6	3	3	3	3	30	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30
3	3	3	6	3	8	3	7	3	3	3	3	30	3	3	3	8	3	7	3	6	3	3	3	3	30	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30
3	3	3	6	3	8	3	7	3	3	3	3	30	3	3	3	8	3	7	3	6	3	3	3	3	30	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30
3	3	3	6	3	8	3	7	3	3	3	3	30	3	3	3	8	3	7	3	6	3	3	3	3	30	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30
3	3	3	6	3	8	3	7	3	3	3	3	30	3	3	3	8	3	7	3	6	3	3	3	3	30	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30	3	2	2	4	3	7	3	6	2	4	3	3	3	2	28
3	3	3	6	3	8	3	7	3	3	3	3	30	3	3	2	6	3	7	3	6	3	3	3	3	28	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30
3	3	3	6	3	8	3	7	3	3	3	3	30	3	3	2	6	3	7	3	6	3	3	3	3	28	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30	3	2	3	5	2	5	3	6	1	2	3	3	3	2	25
3	3	3	6	3	8	3	7	3	3	3	3	30	3	3	2	6	2	5	3	6	3	3	3	3	26	3	2	3	5	3	7	1	2	3	5	3	3	3	2	26	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30
1	1	3	6	3	8	3	7	3	3	3	3	28	3	3	3	8	3	7	2	4	1	1	3	3	26	3	2	2	4	2	5	3	6	2	4	3	3	3	2	26	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30
3	3	3	6	3	8	3	7	3	3	3	3	30	2	2	3	8	3	7	3	6	3	3	3	3	29	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30
2	2	3	6	3	8	2	5	3	3	3	3	27	3	3	2	6	3	7	3	6	3	3	3	3	28	3	2	2	4	3	7	2	4	3	5	3	3	3	2	27	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30
3	3	3	6	3	8	3	7	3	3	3	3	30	3	3	3	8	3	7	3	6	3	3	3	3	30	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30
2	2	3	6	3	8	3	7	3	3	3	3	29	2	2	2	6	2	5	3	6	3	3	3	3	25	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30	3	2	3	5	2	5	3	6	3	5	3	3	3	2	28
3	3	3	6	3	8	3	7	3	3	3	3	30	3	3	3	8	3	7	3	6	3	3	3	3	30	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30
3	3	3	6	3	8	3	7	3	3	3	3	30	3	3	3	8	3	7	3	6	3	3	3	3	30	3	2	3	5	2	5	3	6	2	4	3	3	3	2	27	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30
3	3	3	6	3	8	3	7	3	3	3	3	30	3	3	3	8	3	7	3	6	3	3	3	3	30	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30
3	3	3	6	3	8	3	7	3	3	3	3	30	3	3	3	8	3	7	3	6	3	3	3	3	30	2	2	3	5	3	7	3	6	3	5	2	2	3	2	29	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30
3	3	3	6	3	8	3	7	3	3	3	3	30	3	3	3	8	3	7	3	6	3	3	3	3	30	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30
3	3	3	6	3	8	3	7	3	3	3	3	30	3	3	3	8	3	7	3	6	3	3	3	3	30	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30
3	3	3	6	3	8	3	7	3	3	3	3	30	3	3	3	8	3	7	3	6	3	3	3	3	30	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30
3	3	3	6	3	8	3	7	3	3	3	3	30	2	2	2	6	2	5	3	6	3	3	3	3	25	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30
3	3	3	6	3	8	3	7	3	3	3	3	30	3	3	3	8	3	7	3	6	3	3	3	3	30	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30	3	2	1	2	3	7	3	6	3	5	3	3	3	2	27
3	3	3	6	2	6	3	7	3	3	3	3	28	3	3	2	6	3	7	2	4	3	3	3	3	26	3	2	3	5	3	7	3	6	2	4	3	3	3	2	29	3	2	3	5	2	5	3	6	2	4	3	3	3	2	27
3	3	3	6	3	8	3	7	3	3	3	3	30	3	3	3	8	3	7	3	6	3	3	3	3	30	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30
3	3	3	6	3	8	3	7	3	3	3	3	30	3	3	3	8	3	7	3	6	3	3	3	3	30	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30
3	3	3	6	3	8	3	7	3	3	3	3	30	3	3	3	8	3	7	3	6	3	3	3	3	30	3	2	3	5	2	5	3	6	3	5	3	3	3	2	28	3	2	1	2	3	7	2	4	3	5	3	3	3	2	25
3	3	3	6	3	8	2	5	3	3	3	3	28	3	3	3	8	2	5	3	6	3	3	3	3	28	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30
3	3	3	6	3	8	3	7	3	3	3	3	30	3	3	2	6	3	7	1	2	3	3	3	3	24	3	2	3	5	3	7	3	6	2	4	2	2	3	2	28	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30
2	2	3	6	3	8	3	7	3	3	3	3	29	3	3	3	8	3	7	3	6	3	3	3	3	30	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30	3	2	2	4	2	5	3	6	3	5	3	3	3	2	27
2	2	3	6	3	8	3	7	3	3	3	3	29	3	3	3	8	3	7	3	6	3	3	3	3	30	3	2	3	5	2	5	3	6	3	5	3	3	3	2	28	3	2	2	4	3	7	3	6	3	5	3	3	3	2	29
3	3	3	6	3	8	3	7	3	3	3	3	30	2	2	3	8	3	7	3	6	3	3	3	3	29	3	2	3	5	2	5	3	6	3	5	3	3	3	2	28	3	2	3	5	3	7	2	4	3	5	3	3	3	2	28
3	3	3	6	2	6	3	7	3	3	3	3	28	3	3	2	6	3	7	3	6	3	3	3	3	28	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30
3	3	3	6	3	8	3	7	3	3	3	3	30	3	3	1	3	3	7	3	6	3	3	3	3	25	3	2	2	4	2	5	3	6	2	4	3	3	3	2	26	0	0	3	5	3	7	3	6	3	5	3	3	3	2	28
3	3	2	4	3	8	3	7	2	2	3	3	27	3	3	3	8	3	7	3	6	3	3	3	3	30	2	2	3	5	0	0	3	6	2	4	3	3	3	2	22	3	2	2	4	3	7	1	2	3	5	3	3	3	2	25
3	3	3	6	3	8	3	7	3	3	3	3	30	3	3	3	8	3	7	3	6	3	3	3	3	30	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30
3	3	3	6	3	8	2	5	3	3	3	3	28	2	2	3	8	3	7	3	6	3	3	3	3	29	3	2	3	5	3	7	2	4	3	5	3	3	3	2	28	3	2	2	4	2	5	3	6	3	5	3	3	3	2	27
3	3	3	6	3	8	3	7	3	3	3	3	30	3	3	3	8	3	7	3	6	3	3	3	3	30	3	2	3	5	3	7	2	4	3	5	3	3	3	2	28	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30
3	3	3	6	3	8	3	7	3	3	3	3	30	3	3	3	8	3	7	3	6	3	3	3	3	30	3	2	2	4	3	7	3	6	3	5	2	2	3	2	28	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30
3	3	3	6	3	8	3	7	3	3	3	3	30	1	1	3	8	2	5	2	4	1	1	3	3	22	3	2	3	5	2	5	2	4	2	4	3	3	3	2	25	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30
3	3	3	6	3	8	3	7	3	3	3	3	30	3	3	3	8	3	7	3	6	3	3	3	3	30	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30
3	3	3	6	2	6	3	7	3	3	3	3	28	2	2	3	8	3	7	2	4	2	2	3	3	26	3	2	2	4	1	3	3	6	1	2	3	3	2	2	22	3	2	2	4	1	3	2	4	3	5	3	3	3	2	23
3	3	3	6	3	8	3	7	3	3	3	3	30	3	3	3	8	3	7	3	6	3	3	3	3	30	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30
3	3	3	6	2	6	3	7	3	3	3	3	28	3	3	3	8	3	7	3	6	3	3	3	3	30	2	2	3	5	3	7	2	4	2	4	3	3	3	2	27	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30
3	3	3	6	3	8	3	7	3	3	3	3	30	3	3	3	8	3	7	3	6	3	3	3	3	30	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30
2	2	1	2	2	6	3	7	3	3	3	3	23	3	3	1	3	1	3	3	6	3	3	3	3	21	3	2	3	5	3	7	2	4	3	5	3	3	3	2	28	3	2	3	5	3	7	3	6	2	4	3	3	3	2	29
3	3	3	6	3	8	3	7	3	3	3	3	30	3	3	2	6	3	7	2	4	3	3	3	3	26	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30
3	3	3	6	3	8	3	7	3	3	3	3	30	3	3	2	6	2	5	3	6	3	3	3	3	26	2	2	2	4	2	5	3	6	3	5	3	3	3	2	27	3	2	2	4	1	3	3	6	3	5	3	3	3	2	25
3	3	3	6	3	8	3	7	3	3	3	3	30	3	3	3	8	3	7	3	6	3	3	3	3	30	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30
2	2	3	6	2	6	3	7	3	3	3	3	27	2	2	3	8	3	7	3	6	3	3	3	3	29	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30	3	2	2	4	3	7	3	6	3	5	3	3	3	2	29
3	3	3	6	3	8	3	7	3	3	3	3	30	3	3	3	8	3	7	3	6	3	3	3	3	30	2	2	3	5	3	7	2	4	3	5	3	3	3	2	28	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30
3	3	3	6	3	8	3	7	3	3	3	3	30	3	3	3	8	3	7	3	6	3	3	3	3	30	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30
3	3	3	6	3	8	3	7	3	3	3	3	30	3	3	3	8	3	7	3	6	3	3	3	3	30	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30	3	2	2	4	3	7	3	6	3	5	3	3	3	2	29
3	3	3	6	3	8	3	7	3	3	3	3	30	3	3	3	8	3	7	3	6	3	3	3	3	30	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30
3	3	3	6	3	8	3	7	3	3	3	3	30	3	3	3	8	3	7	3	6	3	3	3	3	30	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30
3	3	3	6	3	8	3	7	3	3	3	3	30	3	3	2	6	2	5	3	6	3	3	3	3	26	3	2	3	5	3	7	3	6	2	4	3	3	3	2	29	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30
2	2	2	4	2	6	3	7	3	3	3	3	25	3	3	2	6	3	7	3	6	3	3	3	3	28	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30	2	2	3	5	3	7	3	6	2	4	3	3	3	2	29
3	3	3	6	3	8	3	7	3	3	3	3	30	3	3	3	8	3	7	3	6	3	3	3	3	30	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30
3	3	3	6	3	8	3	7	3	3	3	3	30	3	3	3	8	3	7	3	6	3	3	3	3	30	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30

3	3	3	6	3	8	3	7	3	3	3	3	30	3	3	2	6	2	5	3	6	2	2	2	2	24	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30	3	2	2	4	3	7	2	4	3	5	3	3	3	2	27
3	3	3	6	3	8	3	7	3	3	3	3	30	3	3	3	8	3	7	3	6	3	3	3	3	30	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30
3	3	3	6	3	8	3	7	3	3	3	3	30	3	3	3	8	3	7	3	6	3	3	3	3	30	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30
3	3	3	6	3	8	3	7	3	3	3	3	30	3	3	3	8	3	7	3	6	3	3	3	3	30	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30
3	3	3	6	3	8	3	7	3	3	3	3	30	3	3	3	8	3	7	3	6	3	3	3	3	30	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30
3	3	3	6	3	8	3	7	3	3	3	3	30	3	3	3	8	3	7	3	6	3	3	3	3	30	3	2	3	5	3	7	3	6	2	4	3	3	3	2	29	0	0	2	4	1	3	3	6	3	5	3	3	3	2	23
2	2	2	4	2	6	2	5	3	3	3	3	23	2	2	1	3	3	7	2	4	1	1	3	3	20	0	0	3	5	2	5	2	4	2	4	1	1	3	2	21	2	2	2	4	2	5	2	4	3	5	3	3	3	2	25
3	3	3	6	3	8	3	7	3	3	3	3	30	3	3	3	8	2	5	2	4	2	2	3	3	25	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30	3	2	3	5	3	7	2	4	2	4	3	3	3	2	27
3	3	3	6	3	8	3	7	3	3	3	3	30	3	3	3	8	3	7	3	6	3	3	3	3	30	3	2	3	5	2	5	3	6	3	5	3	3	3	2	28	3	2	3	5	3	7	2	4	3	5	3	3	3	2	28
3	3	3	6	3	8	3	7	3	3	3	3	30	3	3	3	8	3	7	3	6	3	3	3	3	30	3	2	3	5	2	5	3	6	1	2	3	3	3	2	25	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30
3	3	3	6	3	8	3	7	3	3	3	3	30	3	3	3	8	3	7	3	6	3	3	3	3	30	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30
3	3	3	6	3	8	3	7	3	3	3	3	30	3	3	3	8	3	7	3	6	3	3	3	3	30	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30
3	3	3	6	3	8	3	7	3	3	3	3	30	3	3	3	8	3	7	2	4	3	3	3	3	28	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30	3	2	3	5	3	7	3	6	1	2	3	3	3	2	27
3	3	3	6	3	8	2	5	3	3	3	3	28	3	3	3	8	3	7	3	6	3	3	3	3	30	0	0	2	4	2	5	3	6	2	4	3	3	3	2	24	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30
3	3	3	6	3	8	3	7	3	3	3	3	30	3	3	3	8	3	7	3	6	3	3	3	3	30	3	2	3	5	3	7	2	4	3	5	3	3	3	2	28	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30
3	3	3	6	3	8	3	7	3	3	3	3	30	3	3	3	8	3	7	3	6	3	3	3	3	30	3	2	2	4	3	7	3	6	3	5	3	3	3	2	29	3	2	3	5	3	7	2	4	3	5	3	3	3	2	28
3	3	3	6	3	8	3	7	3	3	3	3	30	3	3	3	8	3	7	3	6	3	3	3	3	30	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30
3	3	3	6	3	8	3	7	3	3	3	3	30	3	3	3	8	3	7	3	6	3	3	3	3	30	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30
3	3	3	6	3	8	3	7	3	3	3	3	30	3	3	3	8	3	7	3	6	3	3	3	3	30	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30
3	3	3	6	2	6	1	3	3	3	3	3	24	2	2	1	3	3	7	3	6	3	3	3	3	24	0	0	3	5	1	3	0	0	2	4	2	2	3	2	16	3	2	3	5	0	0	1	2	1	2	2	2	3	2	15
3	3	3	6	2	6	3	7	3	3	3	3	28	3	3	3	8	1	3	3	6	3	3	3	3	26	3	2	2	4	3	7	3	6	3	5	3	3	3	2	29	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30
3	3	3	6	3	8	3	7	3	3	3	3	30	3	3	3	8	3	7	3	6	3	3	3	3	30	3	2	2	4	3	7	2	4	2	4	1	1	3	2	24	3	2	3	5	3	7	3	6	2	4	3	3	3	2	29
3	3	3	6	3	8	3	7	3	3	3	3	30	3	3	3	8	3	7	3	6	3	3	3	3	30	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30
3	3	3	6	3	8	3	7	3	3	3	3	30	3	3	3	8	3	7	3	6	3	3	3	3	30	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30	0	0	3	5	3	7	3	6	3	5	3	3	3	2	28
3	3	3	6	3	8	3	7	3	3	3	3	30	3	3	3	8	3	7	3	6	3	3	3	3	30	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30
3	3	3	6	3	8	3	7	3	3	3	3	30	1	1	3	8	2	5	2	4	3	3	3	3	24	3	2	2	4	2	5	3	6	3	5	3	3	3	2	27	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30
3	3	3	6	3	8	3	7	3	3	3	3	30	3	3	3	8	3	7	3	6	3	3	3	3	30	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30
3	3	3	6	3	8	3	7	3	3	3	3	30	3	3	3	8	3	7	3	6	3	3	3	3	30	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30
3	3	3	6	3	8	3	7	3	3	3	3	30	3	3	3	8	3	7	3	6	3	3	3	3	30	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30
3	3	3	6	3	8	3	7	3	3	3	3	30	3	3	3	8	3	7	3	6	3	3	3	3	30	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30
3	3	3	6	3	8	3	7	3	3	3	3	30	3	3	3	8	3	7	3	6	3	3	3	3	30	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30
3	3	3	6	3	8	3	7	3	3	3	3	30	3	3	3	8	3	7	3	6	3	3	3	3	30	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30
3	3	3	6	3	8	3	7	3	3	3	3	30	3	3	3	8	3	7	3	6	3	3	3	3	30	3	2	3	5	3	7	3	6	2	4	3	3	3	2	29	2	2	3	5	3	7	3	6	3	5	3	3	3	2	30
3	3	3	6	3	8	3	7	3	3	3	3	30	3	3	3	8	3	7	3	6	3	3	3	3	30	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30
3	3	3	6	3	8	3	7	3	3	3	3	30	3	3	3	8	3	7	3	6	3	3	3	3	30	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30
3	3	3	6	3	8	3	7	3	3	3	3	30	3	3	3	8	3	7	3	6	3	3	3	3	30	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30
3	3	3	6	3	8	3	7	3	3	3	3	30	3	3	3	8	3	7	3	6	3	3	3	3	30	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30
2	2	3	6	3	8	3	7	3	3	3	3	29	3	3	2	6	3	7	3	6	3	3	3	3	28	3	2	3	5	2	5	2	4	2	4	3	3	3	2	25	3	2	2	4	3	7	3	6	2	4	3	3	3	2	28
3	3	3	6	3	8	2	5	3	3	3	3	28	1	1	2	6	3	7	3	6	1	1	3	3	24	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30	3	2	2	4	2	5	1	2	2	4	3	3	3	2	22
3	3	3	6	3	8	3	7	3	3	3	3	30	3	3	2	6	3	7	3	6	3	3	3	3	28	3	2	3	5	2	5	3	6	3	5	3	3	3	2	28	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30
3	3	3	6	3	8	3	7	3	3	3	3	30	3	3	3	8	3	7	3	6	3	3	3	3	30	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30
3	3	3	6	3	8	3	7	3	3	3	3	30	3	3	3	8	3	7	3	6	3	3	3	3	30	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30
3	3	3	6	3	8	3	7	3	3	3	3	30	3	3	3	8	3	7	3	6	3	3	3	3	30	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30	3	2	3	5	1	3	3	6	3	5	3	3	3	2	26
3	3	3	6	3	8	3	7	3	3	3	3	30	3	3	3	8	3	7	3	6	3	3	3	3	30	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30
3	3	3	6	3	8	3	7	3	3	3	3	30	3	3	3	8	3	7	3	6	3	3	3	3	30	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30
281													281													281															281														
	249		279		279		281		279		280			269		275		276		279		277		281			276		273		273		251		273		276		281			274		277		268		244		276		281		281	
	88.61		99.29		99.29		100		99.29		99.64			95.73		97.86		98.22		99.29		98.58		100			98.22		97.15		97.15		89.32		97.15		98.22		100			97.51		98.58		95.37		86.83		98.22		100		100	
	R1		R2		R3		R4		R5		R6			R1		R2		R3		R4		R5		R6			R1		R2		R3		R4		R5		R6		R7			R1		R2		R3		R4		R5		R6		R7	
Tot.	CO 01		CO 02		CO 04		CO 05, CO 06		CO 07, CO 08, CO 09		CO 01		Tot.	CO 01		CO 02		CO 04		CO 05, CO 06		CO 07, CO 08, CO 09		CO 01		Tot.	CO 01		CO 02		CO 03		CO 04		CO 05, CO 06		CO 07, CO 08, CO 09		CO 01		Tot.	CO 01		CO 02		CO 03		CO 04		CO 05, CO 06		CO 07, CO 08, CO 09		CO 01	
	PO1		PO2		PO4		PO5, PO6		PO8, PO9, PO10		PO1			PO1		PO2		PO4		PO5, PO6		PO8, PO9, PO10		PO1			PO1		PO2		PO3		PO4		PO5,PO6		PO8,PO9,PO10		PO1			PO1		PO2		PO3		PO4		PO5,PO6		PO8,PO9,PO10		PO1	

SREE VIDYANIKETHAN ENGINEERING COLLEGE (Autonomous)

Sree Sainath Nagar, Tirupati – 517 102

Department of Electronics & Communication Engineering

IV B.Tech I Sem. ECE - A,B,C,D AY: 2019-20

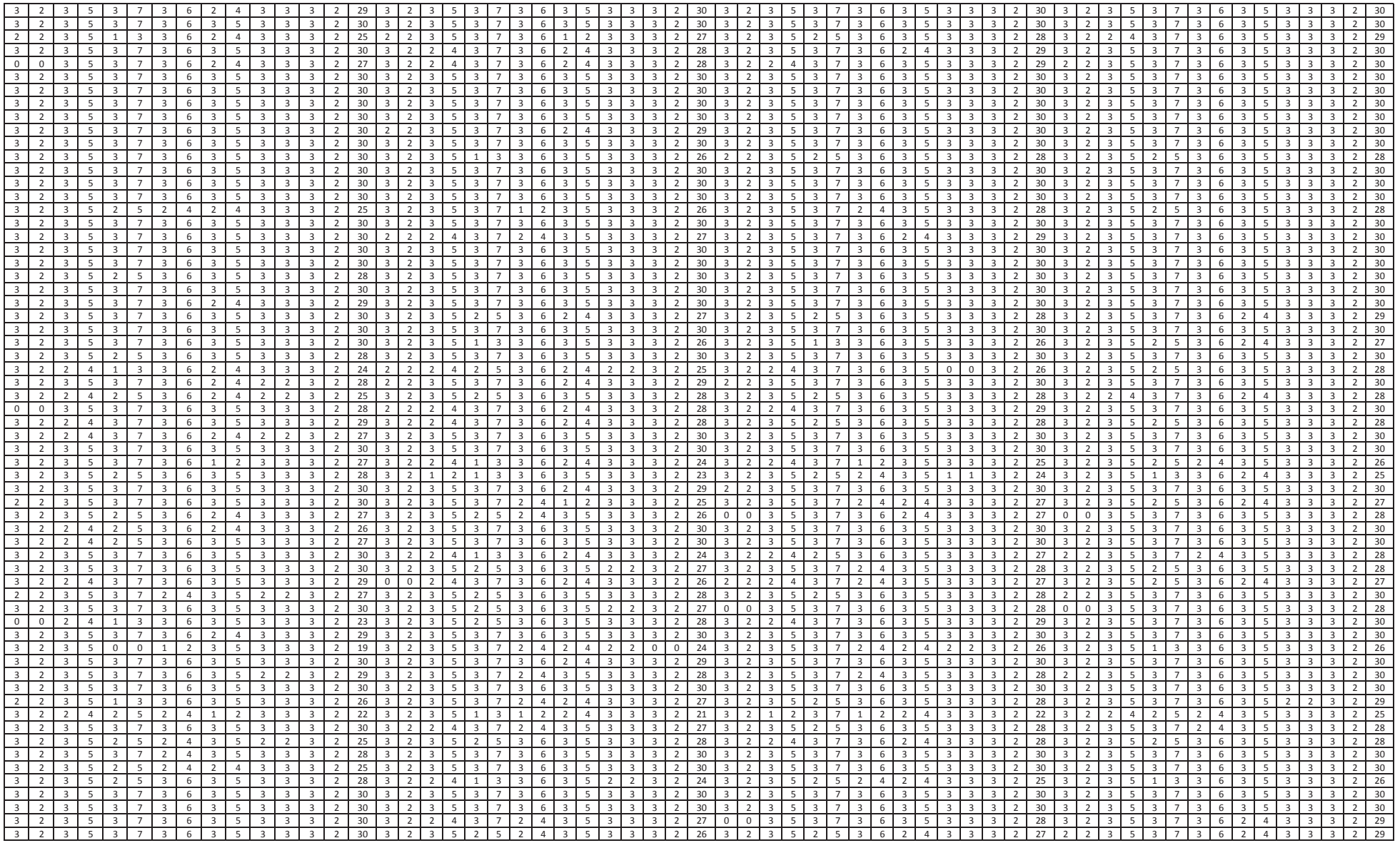
ANTENNAS AND MICROWAVE ENGINEERING LAB (16BT70431) Evaluation Sheet (Internal)

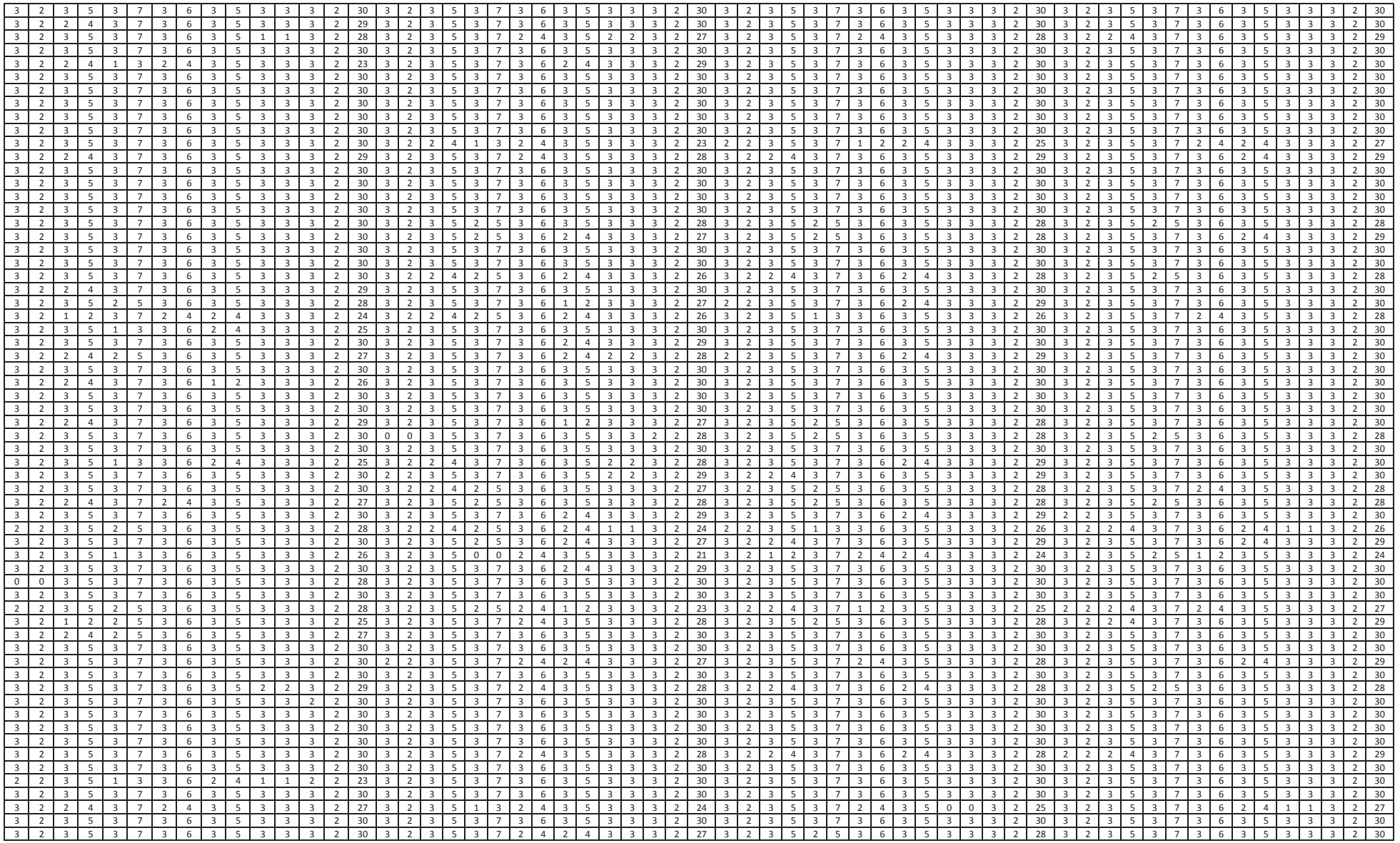
Awarded Marks =Awarded Weight x Max. Marks /Max. Weight

Awarded Marks =Awarded Weight x Max. Marks /Max. Weight

Faculty Handling Course: Ms.K.Neelima

Exp9															Exp10															Exp11															Exp12														
R1		R2		R3		R4		R5		R6		R7		Tot.	R1		R2		R3		R4		R5		R6		R7		Tot.	R1		R2		R3		R4		R5		R6		R7		Tot.	R1		R2		R3		R4		R5		R6		R7		Tot.
CO1		CO2		CO3		CO4		CO5,CO6		CO7,CO8,CO9		CO1			CO1		CO2		CO3		CO4		CO5,CO6		CO7,CO8,CO9		CO1			CO1		CO2		CO3		CO4		CO5,CO6		CO7,CO8,CO9		CO1			CO1		CO2		CO3		CO4		CO5,CO6		CO7,CO8,CO9		CO1		
W	**M**	**W**	**M**	**W**	**M**	**W**	**M**	**W**	**M**	**W**	**M**	**W**	**M**	**30**	**W**	**M**	**W**	**M**	**W**	**M**	**W**	**M**	**W**	**M**	**W**	**M**	**W**	**M**	**30**	**W**	**M**	**W**	**M**	**W**	**M**	**W**	**M**	**W**	**M**	**W**	**M**	**W**	**M**	**30**	**W**	**M**	**W**	**M**	**W**	**M**	**W**	**M**	**W**	**M**	**W**	**M**	**W**	**M**	**30**
3	**2**	**3**	**5**	**3**	**7**	**3**	**6**	**3**	**5**	**3**	**3**	**3**	**2**		**3**	**2**	**3**	**5**	**3**	**7**	**3**	**6**	**3**	**5**	**3**	**3**	**3**	**2**		**3**	**2**	**3**	**5**	**3**	**7**	**3**	**6**	**3**	**5**	**3**	**3**	**3**	**2**		**3**	**2**	**3**	**5**	**3**	**7**	**3**	**6**	**3**	**5**	**3**	**3**	**3**	**2**	
3	2	3	5	3	7	3	6	2	4	3	3	3	2	29	0	0	3	5	2	5	3	6	3	5	3	3	3	2	26	3	2	3	5	3	7	3	6	1	2	3	3	3	2	27	3	2	3	5	2	5	3	6	3	5	3	3	3	2	28
3	2	3	5	3	7	3	6	3	5	3	3	3	2	30	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30
3	2	2	4	2	5	2	4	3	5	3	3	3	2	25	3	2	2	4	2	5	2	4	3	5	3	3	3	2	25	2	2	2	4	2	5	3	6	3	5	3	3	3	2	27	2	2	2	4	3	7	3	6	2	4	3	3	3	2	28
0	0	1	2	3	7	3	6	3	5	3	3	3	2	25	2	2	2	4	3	7	3	6	2	4	3	3	3	2	28	3	2	3	5	2	5	3	6	3	5	3	3	3	2	28	3	2	3	5	3	7	2	4	3	5	3	3	3	2	28
3	2	3	5	3	7	3	6	3	5	3	3	3	2	30	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30
3	2	3	5	3	7	2	4	2	4	0	0	3	2	24	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30
3	2	3	5	3	7	3	6	2	4	3	3	3	2	29	3	2	2	4	2	5	3	6	3	5	3	3	3	2	27	3	2	3	5	3	7	2	4	3	5	3	3	3	2	28	3	2	3	5	2	5	3	6	3	5	3	3	3	2	28
3	2	2	4	3	7	3	6	2	4	3	3	3	2	28	3	2	3	5	3	7	1	2	3	5	3	3	3	2	26	3	2	2	4	2	5	3	6	3	5	3	3	3	2	27	3	2	2	4	3	7	3	6	3	5	3	3	3	2	29
3	2	3	5	3	7	3	6	3	5	3	3	3	2	30	3	2	3	5	2	5	3	6	3	5	3	3	3	2	28	3	2	3	5	2	5	3	6	3	5	3	3	3	2	28	2	2	3	5	3	7	3	6	3	5	3	3	3	2	30
0	0	2	4	3	7	3	6	3	5	1	1	3	2	25	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30
3	2	3	5	3	7	3	6	3	5	3	3	3	2	30	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30
2	2	3	5	3	7	1	2	2	4	3	3	3	2	25	3	2	3	5	1	3	3	6	2	4	3	3	3	2	25	3	2	2	4	3	7	3	6	1	2	3	3	3	2	26	3	2	3	5	2	5	2	4	3	5	3	3	3	2	26
3	2	3	5	3	7	3	6	3	5	3	3	3	2	30	3	2	3	5	1	3	3	6	3	5	3	3	3	2	26	2	2	3	5	2	5	3	6	3	5	3	3	3	2	28	3	2	3	5	3	7	3	6	2	4	3	3	3	2	29
3	2	3	5	3	7	3	6	3	5	3	3	3	2	30	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30
3	2	3	5	3	7	3	6	3	5	3	3	3	2	30	3	2	3	5	1	3	3	6	3	5	3	3	3	2	26	3	2	3	5	3	7	2	4	2	4	3	3	3	2	27	3	2	3	5	3	7	2	4	3	5	3	3	3	2	28
3	2	3	5	1	3	2	4	2	4	3	3	3	2	23	2	2	3	5	3	7	3	6	2	4	3	3	3	2	29	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30
2	2	3	5	3	7	2	4	3	5	3	3	3	2	28	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30
3	2	3	5	3	7	3	6	3	5	3	3	3	2	30	2	2	3	5	2	5	1	2	3	5	3	3	3	2	24	3	2	2	4	3	7	3	6	2	4	1	1	3	2	26	3	2	3	5	3	7	2	4	3	5	3	3	3	2	28
3	2	3	5	3	7	3	6	3	5	3	3	3	2	30	3	2	3	5	3	7	2	4	3	5	2	2	3	2	27	3	2	2	4	3	7	2	4	3	5	3	3	3	2	27	3	2	3	5	3	7	3	6	2	4	3	3	3	2	29
3	2	3	5	3	7	3	6	3	5	3	3	3	2	30	0	0	3	5	2	5	3	6	3	5	3	3	3	2	26	3	2	2	4	3	7	2	4	3	5	3	3	3	2	27	3	2	3	5	3	7	3	6	2	4	3	3	3	2	29
2	2	3	5	3	7	3	6	3	5	3	3	3	2	30	3	2	2	4	3	7	3	6	3	5	3	3	3	2	29	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30
2	2	2	4	2	5	3	6	3	5	3	3	3	2	27	3	2	2	4	2	5	3	6	3	5	3	3	3	2	27	3	2	2	4	3	7	3	6	3	5	3	3	3	2	29	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30
3	2	3	5	3	7	3	6	3	5	3	3	3	2	30	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30
3	2	3	5	3	7	3	6	3	5	3	3	3	2	30	2	2	2	4	3	7	3	6	2	4	3	3	3	2	28	3	2	2	4	3	7	3	6	3	5	3	3	3	2	29	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30
3	2	3	5	3	7	3	6	3	5	3	3	3	2	30	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30
3	2	3	5	3	7	3	6	2	4	3	3	3	2	29	3	2	3	5	2	5	2	4	3	5	3	3	3	2	26	3	2	3	5	3	7	2	4	2	4	3	3	3	2	27	3	2	3	5	2	5	3	6	3	5	3	3	3	2	28
3	2	3	5	3	7	3	6	3	5	3	3	3	2	30	3	2	2	4	2	5	3	6	1	2	3	3	3	2	24	3	2	2	4	3	7	2	4	2	4	1	1	3	2	24	2	2	2	4	1	3	3	6	3	5	3	3	3	2	25
3	2	2	4	3	7	3	6	3	5	3	3	3	2	29	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30
3	2	2	4	2	5	3	6	3	5	3	3	3	2	27	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30
3	2	3	5	3	7	3	6	3	5	3	3	3	2	30	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30
3	2	2	4	3	7	3	6	3	5	3	3	3	2	29	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30
3	2	3	5	3	7	3	6	3	5	3	3	0	0	28	3	2	3	5	1	3	2	4	2	4	3	3	3	2	23	2	2	3	5	3	7	2	4	1	2	3	3	3	2	25	3	2	3	5	3	7	3	6	1	2	3	3	0	0	25
3	2	3	5	3	7	3	6	3	5	3	3	3	2	30	3	2	3	5	2	5	2	4	2	4	3	3	3	2	25	3	2	3	5	3	7	2	4	2	4	3	3	3	2	27	3	2	3	5	3	7	3	6	2	4	3	3	3	2	29
3	2	3	5	3	7	3	6	3	5	3	3	3	2	30	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30
3	2	3	5	2	5	3	6	2	4	3	3	3	2	27	0	0	3	5	2	5	2	4	3	5	3	3	3	2	24	2	2	3	5	3	7	3	6	2	4	1	1	3	2	27	3	2	3	5	3	7	2	4	2	4	3	3	3	2	27
0	0	1	2	3	7	3	6	2	4	3	3	3	2	24	3	2	2	4	2	5	3	6	3	5	3	3	3	2	27	3	2	2	4	3	7	2	4	3	5	3	3	3	2	27	3	2	3	5	3	7	3	6	2	4	3	3	0	0	27
3	2	3	5	3	7	3	6	3	5	3	3	3	2	30	3	2	3	5	3	7	3	6	1	2	3	3	3	2	27	2	2	2	4	3	7	3	6	3	5	3	3	3	2	29	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30
3	2	3	5	2	5	3	6	3	5	2	2	3	2	27	3	2	3	5	2	5	3	6	3	5	3	3	3	2	28	3	2	3	5	3	7	2	4	3	5	3	3	3	2	28	3	2	3	5	3	7	3	6	2	4	3	3	3	2	29
3	2	3	5	3	7	3	6	3	5	3	3	3	2	30	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30
3	2	3	5	3	7	3	6	3	5	3	3	3	2	30	3	2	2	4	1	3	3	6	3	5	3	3	3	2	25	2	2	3	5	2	5	3	6	3	5	3	3	3	2	28	3	2	3	5	3	7	3	6	2	4	3	3	3	2	29
3	2	3	5	2	5	3	6	3	5	2	2	3	2	27	0	0	2	4	2	5	3	6	2	4	3	3	3	2	24	3	2	3	5	1	3	3	6	2	4	3	3	3	2	25	3	2	2	4	3	7	2	4	2	4	3	3	3	2	26
3	2	3	5	3	7	3	6	3	5	3	3	3	2	30	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30
3	2	3	5	3	7	3	6	3	5	3	3	3	2	30	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30
3	2	2	4	3	7	3	6	3	5	3	3	3	2	29	3	2	3	5	2	5	3	6	3	5	3	3	3	2	28	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30
3	2	3	5	3	7	3	6	3	5	3	3	3	2	30	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30
3	2	3	5	3	7	3	6	3	5	3	3	3	2	30	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30
2	2	3	5	3	7	3	6	2	4	3	3	3	2	29	3	2	3	5	3	7	2	4	3	5	3	3	3	2	28	3	2	3	5	2	5	3	6	3	5	3	3	3	2	28	3	2	3	5	3	7	2	4	3	5	3	3	3	2	28





2	2	3	5	1	3	2	4	2	4	3	3	3	2	23	2	2	3	5	1	3	3	6	3	5	3	3	3	2	26	3	2	2	4	3	7	2	4	3	5	3	3	3	2	27	2	2	3	5	3	7	3	6	2	4	3	3	3	2	29
3	2	3	5	3	7	3	6	2	4	3	3	3	2	29	3	2	3	5	3	7	2	4	3	5	3	3	3	2	28	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30
3	2	3	5	3	7	3	6	3	5	3	3	3	2	30	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30
3	2	3	5	3	7	3	6	3	5	3	3	3	2	30	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30
3	2	3	5	3	7	3	6	3	5	3	3	3	2	30	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30
3	2	3	5	3	7	3	6	3	5	3	3	3	2	30	3	2	3	5	3	7	2	4	3	5	3	3	3	2	28	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30
3	2	2	4	2	5	2	4	3	5	3	3	3	2	25	3	2	2	4	1	3	1	2	3	5	3	3	3	2	21	2	2	2	4	2	5	2	4	3	5	3	3	2	2	25	3	2	3	5	3	7	2	4	2	4	3	3	3	2	27
3	2	3	5	3	7	3	6	3	5	3	3	3	2	30	2	2	2	4	3	7	2	4	3	5	3	3	3	2	27	3	2	2	4	3	7	3	6	3	5	3	3	3	2	29	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30
3	2	3	5	3	7	3	6	3	5	3	3	3	2	30	3	2	3	5	3	7	1	2	3	5	3	3	3	2	26	3	2	3	5	3	7	3	6	1	2	3	3	3	2	27	3	2	2	4	2	5	3	6	3	5	3	3	3	2	27
3	2	3	5	2	5	3	6	3	5	3	3	3	2	28	3	2	3	5	3	7	2	4	3	5	3	3	3	2	28	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30
3	2	3	5	3	7	3	6	3	5	3	3	3	2	30	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30
3	2	3	5	3	7	3	6	3	5	3	3	3	2	30	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30
3	2	3	5	3	7	3	6	3	5	3	3	3	2	30	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30
3	2	3	5	3	7	3	6	3	5	3	3	3	2	30	3	2	3	5	3	7	2	4	3	5	3	3	3	2	28	3	2	2	4	3	7	3	6	3	5	3	3	3	2	29	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30
3	2	3	5	3	7	3	6	2	4	3	3	3	2	29	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30
3	2	3	5	1	3	2	4	3	5	3	3	3	2	24	3	2	3	5	2	5	3	6	3	5	3	3	3	2	28	3	2	2	4	3	7	3	6	3	5	3	3	3	2	29	3	2	3	5	3	7	3	6	2	4	3	3	3	2	29
3	2	3	5	3	7	3	6	3	5	3	3	3	2	30	3	2	3	5	1	3	3	6	3	5	3	3	3	2	26	3	2	3	5	3	7	3	6	2	4	3	3	3	2	29	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30
3	2	3	5	3	7	3	6	3	5	3	3	3	2	30	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30
3	2	3	5	3	7	3	6	3	5	3	3	3	2	30	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30
0	0	3	5	1	3	2	4	2	4	3	3	3	2	21	3	2	2	4	3	7	2	4	3	5	3	3	3	2	27	2	2	3	5	3	7	3	6	3	5	3	3	3	2	30	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30
2	2	3	5	3	7	3	6	3	5	3	3	3	2	30	3	2	2	4	2	5	2	4	3	5	3	3	3	2	25	2	2	3	5	3	7	1	2	3	5	3	3	3	2	26	2	2	3	5	2	5	3	6	2	4	3	3	3	2	27
3	2	3	5	3	7	3	6	3	5	3	3	3	2	30	3	2	2	4	3	7	3	6	2	4	3	3	3	2	28	3	2	3	5	3	7	3	6	2	4	3	3	3	2	29	3	2	2	4	3	7	3	6	3	5	3	3	3	2	29
3	2	3	5	3	7	3	6	3	5	3	3	3	2	30	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30
3	2	3	5	3	7	3	6	3	5	3	3	3	2	30	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30
3	2	3	5	3	7	3	6	3	5	3	3	3	2	30	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30
3	2	3	5	3	7	3	6	3	5	3	3	3	2	30	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30
3	2	3	5	3	7	3	6	3	5	3	3	3	2	30	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30
3	2	3	5	3	7	3	6	3	5	3	3	3	2	30	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30
3	2	3	5	3	7	3	6	3	5	3	3	3	2	30	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30
3	2	3	5	3	7	3	6	3	5	3	3	3	2	30	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30
3	2	3	5	3	7	3	6	3	5	3	3	3	2	30	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30
3	2	3	5	3	7	3	6	3	5	3	3	3	2	30	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30
3	2	3	5	3	7	3	6	3	5	3	3	3	2	30	3	2	3	5	3	7	3	6	1	2	3	3	3	2	27	3	2	3	5	2	5	3	6	3	5	3	3	3	2	28	3	2	3	5	3	7	2	4	3	5	3	3	3	2	28
3	2	3	5	3	7	3	6	3	5	3	3	3	2	30	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30
3	2	3	5	3	7	3	6	3	5	3	3	3	2	30	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30
3	2	3	5	3	7	3	6	3	5	3	3	3	2	30	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30
3	2	3	5	3	7	3	6	3	5	3	3	3	2	30	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30
3	2	3	5	2	5	2	4	2	4	2	2	3	2	24	3	2	2	4	2	5	3	6	3	5	3	3	3	2	27	3	2	3	5	3	7	2	4	3	5	3	3	3	2	28	3	2	2	4	3	7	3	6	3	5	3	3	3	2	29
3	2	3	5	3	7	3	6	3	5	3	3	3	2	30	3	2	2	4	1	3	2	4	2	4	3	3	3	2	22	2	2	1	2	3	7	3	6	1	2	3	3	3	2	24	3	2	2	4	1	3	3	6	3	5	3	3	3	2	25
3	2	3	5	3	7	3	6	3	5	3	3	3	2	30	3	2	3	5	2	5	3	6	3	5	3	3	3	2	28	3	2	2	4	3	7	3	6	2	4	3	3	3	2	28	2	2	3	5	3	7	3	6	3	5	3	3	3	2	30
3	2	3	5	3	7	3	6	3	5	3	3	3	2	30	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30
3	2	3	5	3	7	3	6	3	5	3	3	3	2	30	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30
3	2	3	5	3	7	3	6	3	5	3	3	3	2	30	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30
3	2	3	5	3	7	3	6	3	5	3	3	3	2	30	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30	3	2	3	5	3	7	3	6	3	5	3	3	3	2	30
3	2	3	5	3	7	3	6	3	5	3	3	3	2	30	0	0	3	5	3	7	3	6	3	5	3	3	2	2	28	3	2	3	5	2	5	3	6	3	5	3	3	3	2	28	3	2	3	5	2	5	3	6	3	5	3	3	3	2	28

281								281								281								281							
	273	277	266	251	278	276	279		274	280	258	234	270	279	280		277	277	277	247	276	274	281		279	280	275	262	279	279	279
	97.15	98.58	94.66	89.32	98.93	98	99		97.51	99.64	91.81	83.27	96.09	99	100		98.58	98.58	98.58	87.90	98.22	98	100		99.29	99.64	97.86	93.24	99.29	99	99
	R1	R2	R3	R4	R5	R6	R7		R1	R2	R3	R4	R5	R6	R7		R1	R2	R3	R4	R5	R6	R7		R1	R2	R3	R4	R5	R6	R7
Tot.	CO 01	CO 02	CO 03	CO 04	CO 05, CO 06	CO 07, CO 08, CO 09	CO 01	Tot.	CO 01	CO 02	CO 03	CO 04	CO 05, CO 06	CO 07, CO 08,	CO 01	Tot.	CO 01	CO 02	CO 03	CO 04	CO 05, CO 06	CO 07, CO 08,	CO 01	Tot.	CO 01	CO 02	CO 03	CO 04	CO 05, CO 06	CO 07, CO 08,	CO 01
	PO1	PO2	PO3	PO4	PO5,PO6	PO8,PO9,PO10	PO1		PO1	PO2	PO3	PO4	PO5,PO6	PO8,PO9, PO10	PO1		PO1	PO2	PO3	PO4	PO5,PO6	PO8,PO9, PO10	PO1		PO1	PO2	PO3	PO4	PO5,PO6	PO8,PO9, PO10	PO1

Neelima

ASSESSMENT MANUAL

B.Tech. Program

SREE VIDYANIKETHAN ENGINEERING COLLEGE

(AUTONOMOUS)

SREE SAINATH NAGAR, TIRUPATI – 517 102, A.P

JUNE 2016

CONTENTS

1. INTRODUCTION

Assessment:

Assessment is one or more processes, carried out by the institution, that identify, collect, and prepare data to evaluate the achievement of program educational objectives and program outcomes.

This manual presents the assessment system for **B.Tech** program at Sree Vidyanikethan Engineering College. The assessment systems designed have been planned in line with the NBA accreditation criteria. The scope of this assessment procedure is to monitor the performance of the program, to ensure its program educational objectives, assess the program outcomes and to use the data collected for continuous improvement of the program. The manual is intended to provide members of faculty to evolve uniform assessment practices across all the programs and courses and will guide future program improvements.

2. BACKGROUND

Paradigm shift in Education Delivery from Traditional Education to Outcome Based Education (OBE)

Traditional Education

- Teachers focus on 'covering the content' giving much less thought to the 'learning by the student' and 'teaching methodology'.
- The content-driven approach to teaching has been referred to as a teacher-centered approach.
- Instructional objectives and learning outcomes are not comprehensively planned and informed to students.
- Student involvement is at very low level.
- Too much technical content at the expense of a broader and liberal education.
- Stress on lower order thinking skills.
- Student assessment is not aligned to program outcomes.

3. OUTCOME BASED EDUCATION (OBE)

- Outcome Based Education (OBE) is an educational approach that focuses on the graduate attributes or outcomes after completing an academic program.
- Outcome based approach means knowing what you want to achieve and then taking the steps to do so.
- The desired outcomes are determined first and then program curriculum, teaching and learning methodology and supporting facilities are designed to support the intended outcomes.

Scope of OBE

Focuses on the goals and objectives of the program

- More directed and coherent curriculum.
- Graduates will be more "relevant" to industry and other stakeholders
- Continuous Quality Improvement (CQI) is in place.
- Evidence of measurements to feed a quality improvement process
- 'Learner Centric', rather than the traditional 'Teacher Centric'.

4. MISSION OF NATIONAL BOARD OF ACCREDITATION:

"To stimulate the quality of teaching, self–evaluation, and accountability in the higher education system, which help institutions realize their academic objectives and adopt teaching practices that enable them to produce high- quality professionals and to assess and accredit the programs offered by the colleges or the institutions, or both, imparting technical and professional education."

5. VISION AND MISSION OF THE INSTITUTION

Vision: To be one of the Nations' premier Engineering Colleges by achieving the highest order of excellence in Teaching and Research.

Mission: Through multidimensional excellence, we value intellectual curiosity, pursuit of knowledge building and dissemination, academic freedom and integrity to enable the students to realize their potential. We promote technical mastery of Progressive Technologies, understanding their ramifications in the future society and nurture the next generation of skilled professionals to compete in an increasingly complex world, which requires practical and critical understanding of all aspects.

6. VISION AND MISSION OF THE DEPARTMENT

To be defined by the departments in line with Institute vision and mission

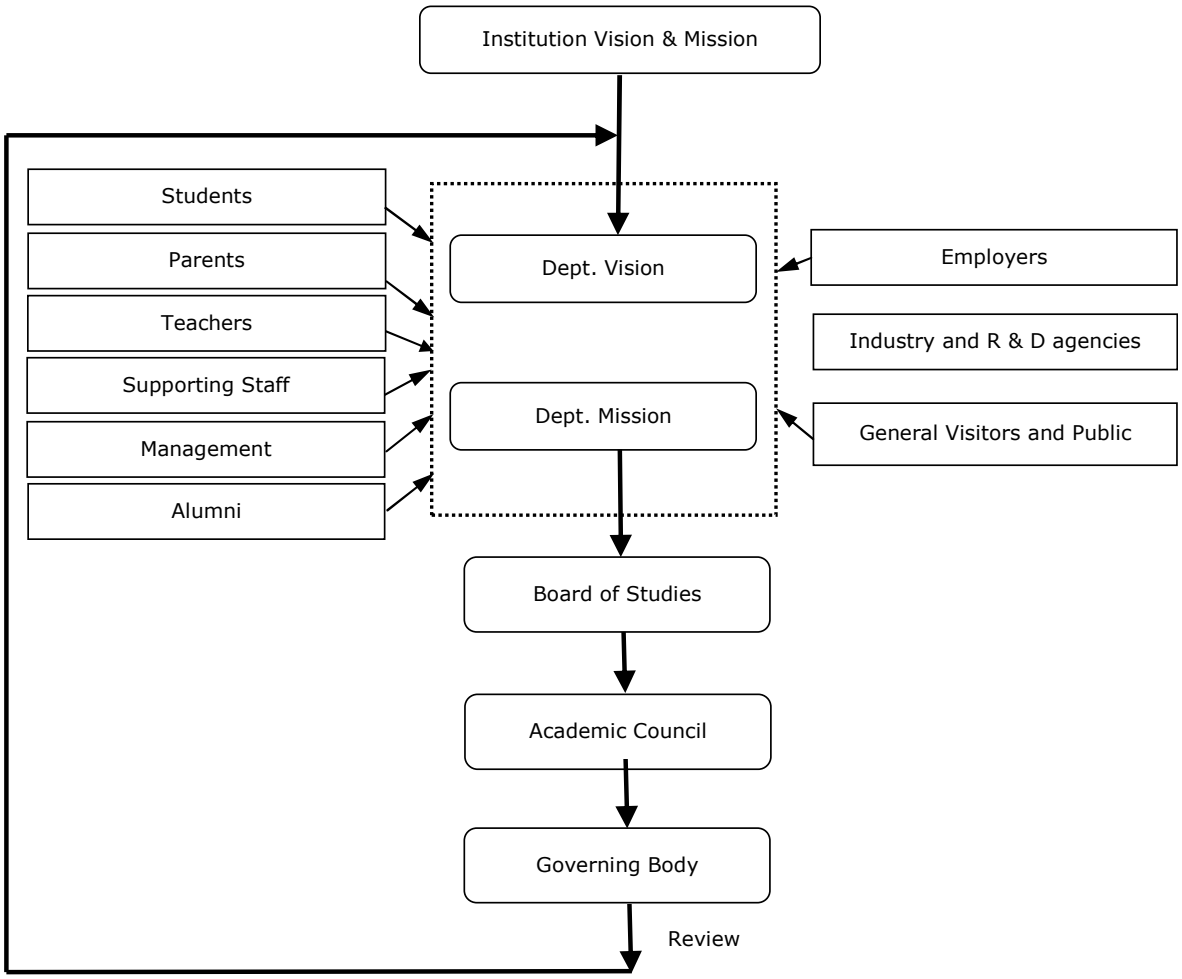


Fig. Process for Defining Vision and Mission of the Department

7. PROGRAM EDUCATIONAL OBJECTIVES (PEOs)

The Program Educational Objectives (PEOs) are broad statements that describe the career and professional accomplishments that the program is preparing graduates to accomplish. PEOs should be measurable, appropriate, realistic, time bound and achievable. The program educational objectives are formulated on the basis of stakeholders needs and approved by the statutory bodies of the institution.

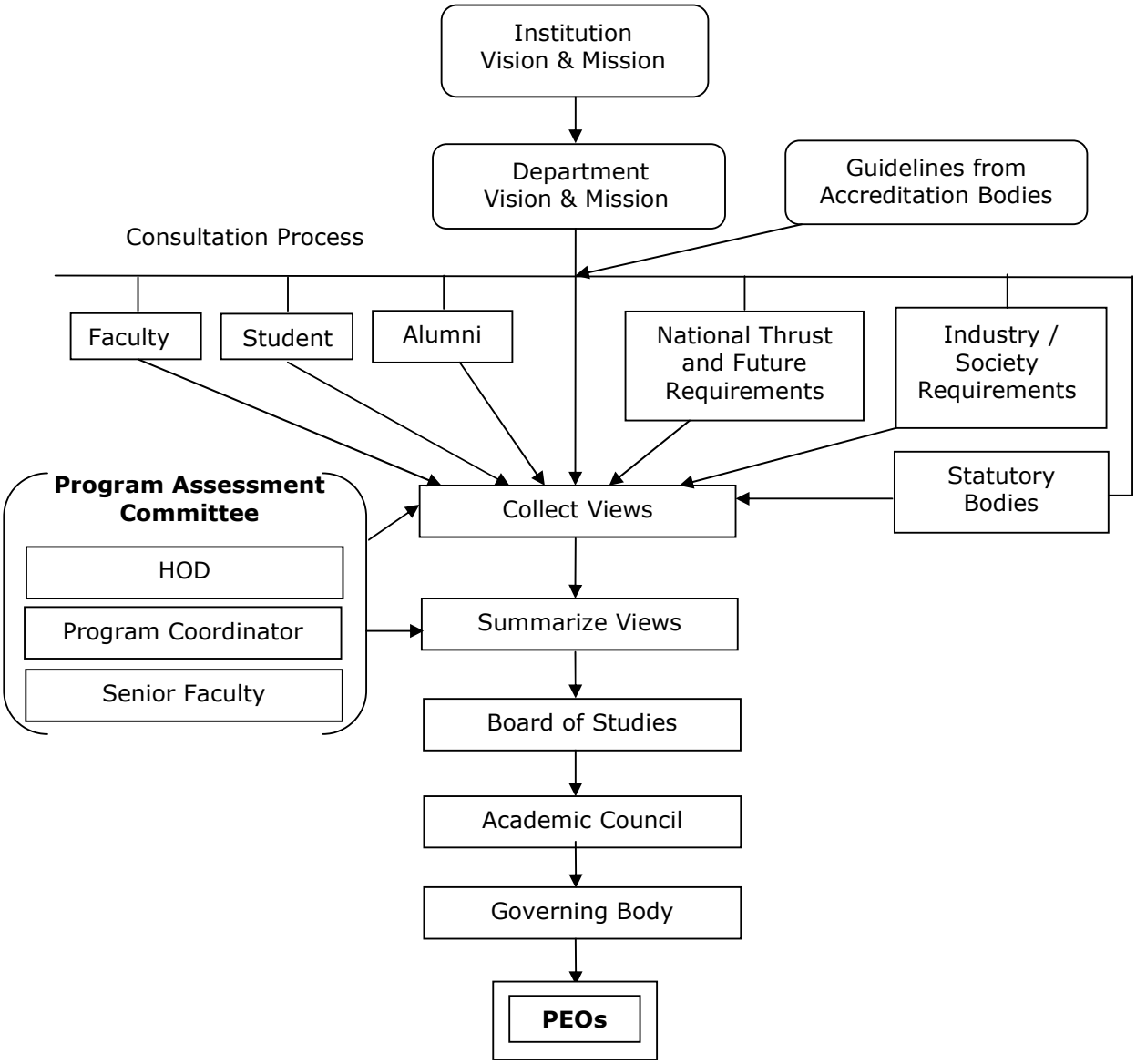


Fig.: Process of Establishing PEOs

Redefining of PEOs

The PEOs shall be redefined by obtaining the inputs from Alumni survey. The quantified data shall be thoroughly analyzed and review the results for redefining the PEOs, curriculum, Teaching-Learning methodologies, student evaluation methods, learning resources and faculty and student development programs.

The following flow chart illustrates the process of redefining PEOs.

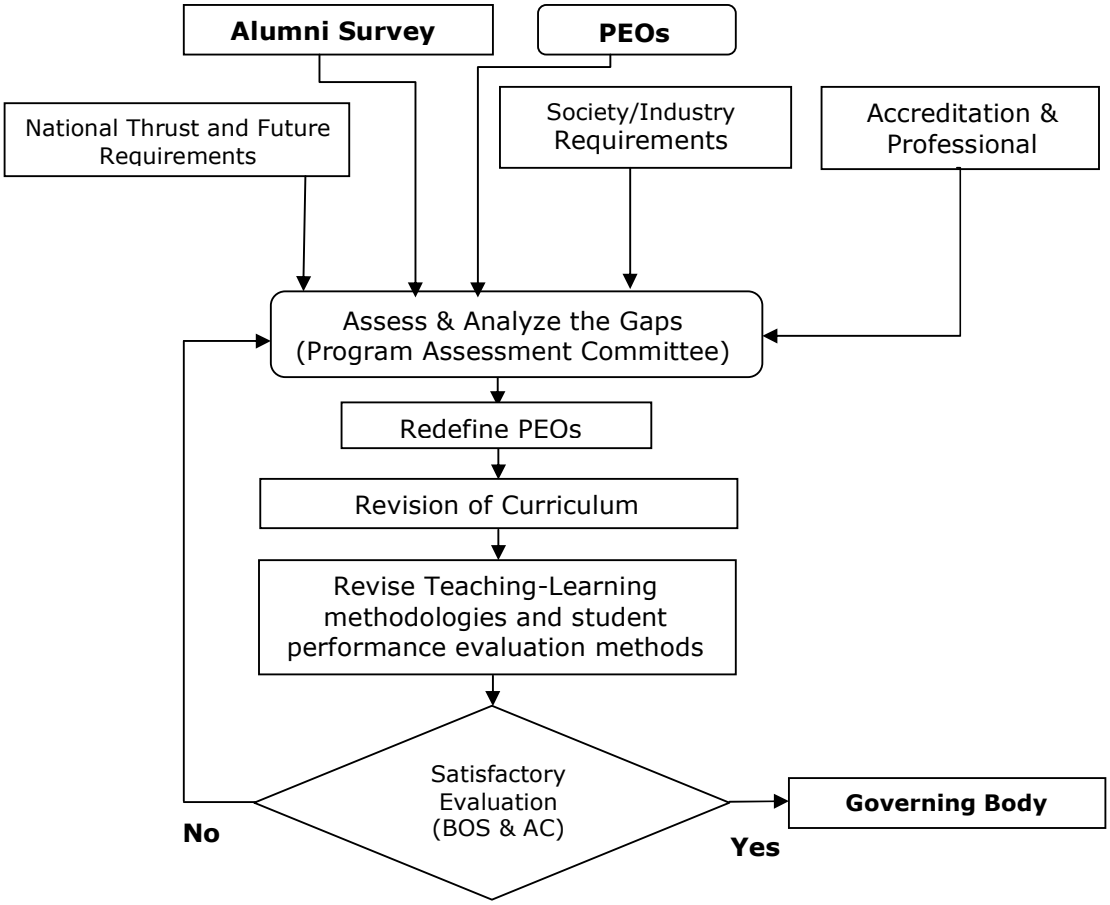


Fig. Process for Redefining PEOs

8. PROGRAM OUTCOMES (POs)

Program Outcomes are narrower statements that describe what students are expected to know and be able to do upon the graduation. These relate to the skills, knowledge, and behavior that students acquire in their matriculation through the program

After Successful completion of the Programme, Graduates will be able to:

PO1: **Engineering knowledge**: Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.

PO2: **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.

PO3: **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.

PO4: **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

PO5: **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.

PO6: **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.

PO7: **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.

PO8: **Ethics**: Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.

PO9: **Individual and team work**: Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.

PO10: **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.

PO11: **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.

PO12: **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.

9. PROGRAM SPECIFIC OUTCOMES (PSOs)

Program Specific Outcomes are the statements that describe the ability of the graduates of a specific engineering program.

Sample PSOs for B.Tech. Civil Engineering Program is given below:

PSO1: Apply knowledge of Construction Engineering, Environmental Engineering, Geotechnical Engineering, Structural Engineering, Surveying, Transportation Engineering and Water Resources Engineering in real time.

PSO2: Analyse a system, component or process in sub-disciplines of civil engineering in real time problems.

PSO3: Design a system, component, or process in more than one Civil Engineering context.

PSO4: Conduct investigations and address complex civil engineering problems; Utilize and develop novel tools and techniques that are appropriate in civil engineering practice.

10. COURSE OUTCOMES (COs)

Course Outcomes are the statements that describe what students are expected to know, and be able to do at the end of each course. These relate to the skills, knowledge, and behaviour that students acquire in their matriculation through the courses.

11. ASSESSMENT METHODS

Assessment shall be done using Direct and Indirect methods.

Direct Assessment: Direct assessment is for the direct examination or observation of student knowledge or skills against measurable learning outcomes.

Indirect Assessment: Indirect assessment is based on the Course End survey and Graduate Exit survey

12. CO, PO and PSO Assessment

Direct Method:

The internal and external marks of a batch of students secured in a course shall be tabulated as detailed below for assessment of CO, PO and PSO of a course.

The procedure for assessment of a course is illustrated below:

S. No.	Roll No.	MID-I (30M)					MID-II (30M)					Sem End Exam (70M)
		Q1 (6M)	Q2 (8M)	Q3 (8M)	Q4 (8M)	Q5 (8M)	Q1 (6M)	Q2 (8M)	Q3 (8M)	Q4 (8M)	Q5 (8M)	
		CO1	***CO1***	***CO2***	***CO3***	***CO4***	***CO1***	***CO1***	***CO2***	***CO3***	***CO4***	
1.	16121AXX01	6	5	3	7	5	3	1	7		4	42
2.	16121AXX02	5	7	4	8	2	5	4	3	8	2	53
3.	16121AXX03	1		6	2	1	4	3	4	6		28
4.	16121AXX04	4	2		7	2	3	3		3	3	18
. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
60	16121AXX60	4	3		6	8	2	4	6		8	46
No. of students Attempted(**N**)		45	43	39	40	39	40	43	49	8	14	45
No. of students secured marks 60% and above (**A**)		35	38	28	25	32	25	40	33	2	2	36
% of students above 60% =**(A/N)*100**		77.78	88.37	71.79	62.50	82.05	62.50	93.02	67.35	25.00	14.29	80.00

Mapping of Course to Program Outcomes and Program Specific Outcomes:

	PO1	PO2	PO3	PO5	PSO1	PSO2	PSO3	PSO5
CO1	**3**				**3**			
CO2		**3**				**3**		
CO3			**3**				**3**	
CO4				**3**				**3**

Course Outcome Assessment:

Course Outcomes		Questions	Percentage of students who got 60% and above marks			
			CO1	**CO2**	**CO3**	**C04**
CO1	Gain Knowledge in: Mode theory of optical communication, Various losses occurring in optical fibers, Optical sources and detectors, Power Launching and coupling techniques, Optical links, WDM concepts & Optical Networks.	M1Q1 M1Q2 M2Q1 M2Q2	77.78 88.37 62.50 93.02			
CO2	Analyze single & multimode fibers and analog & digital links.	M1Q3 M2Q3		71.79 67.35		
CO3	Design and develop Optical sources, Detectors and links.	M1Q4 M2Q4			62.50 67.35	
CO4	Solve problems in optical fibers, sources and detectors for better optical communication systems.	M1Q5 M2Q5				82.05 14.29
CO Attainment through CIE			80.42	69.57	65	48.17
CO Attainment through SEE			80	80	80	80
Overall CO Attainment=(CIE+SEE)/2			80.21	74.79	72.50	64.09
Course Attainment (Average of all CO attainment)			**72.90**			

Course Outcomes	CO1	CO2	CO3	C04
Target for Attainment (%)	60	60	60	60
CO Attainment (%)	80.21	74.79	72.50	64.09
Outcome Attainment (Yes/No)	**Yes**	**Yes**	**Yes**	**Yes**

Program Outcome and Program Specific Outcomes Assessment:

	PO1	PO2	PO3	PO5	PSO1	PSO2	PSO3	PSO5
CO1	80.21				80.21			
CO2		74.79				74.79		
CO3			72.50				72.50	
CO4				64.09				64.09
Average PO Attainment (%)	80.21	74.79	72.50	64.09	80.21	74.79	72.50	64.09
Target for Attainment (%)	60	60	60	60	60	60	60	60
Outcome Attainment (Yes/No)	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**

The process of converting CO/PO/PSO attainment percentage into correlation levels is illustrated in the table below:

COs/POs/PSOs attainment %		Correlation Level
≥ 75	:	3
≥ 60 to < 75	:	2
< 60	:	1

CO Attainment level

	CO1	CO2	CO3	CO4
CO1	3			
CO2		2		
CO3			2	
CO4				2

PO and PSO Attainment level

	PO1	PO2	PO3	PO5	PSO1	PSO2	PSO3	PSO5
CO1	3				3			
CO2		2				2		
CO3			2				2	
CO4				2				2

Comments and Recommendations

Based on the CO attainment levels the course faculty shall provide the comments and recommendations for improvement.

Assessment of COs, POs & PSOs for Practical, Seminar, Project Work etc., Courses

The performance of students in the courses like Practical, Seminar, Project Work, etc., shall be evaluated through rubrics (Annexure –I). Evaluation rubrics shall be prepared for these courses on a 3-point scale. Each rubric should be mapped to corresponding CO. To assess the COs, rubric weights should be converted into marks.

The assessment of COs, POs and PSOs of these courses shall be assessed by adopting the same procedure used for Theory courses.

Indirect Method:

Indirect assessment shall be made through Graduate Exit Survey and Alumni Survey. Sample survey forms are given in Annexure –II.

13. OVERALL PO AND PSO ASSESSMENT

The attainment of the POs and PSOs for a batch of students in the program of study shall be obtained through Direct and Indirect methods. The following table illustrates the weightage applied to arrive at the final PO and PSO attainment of the program.

In Direct method, average of each PO and PSOs of the courses shall be taken. In Indirect method, the average of the surveys on the POs and PSOs shall be calculated as shown in the table below:

Assessment Method	Weightage	
Direct Assessment	Internal Evaluation (40%)	80%
	External Evaluation (40%)	
Indirect Assessment	Graduate Exit Survey (10%)	20%
	Alumni Survey (10%)	

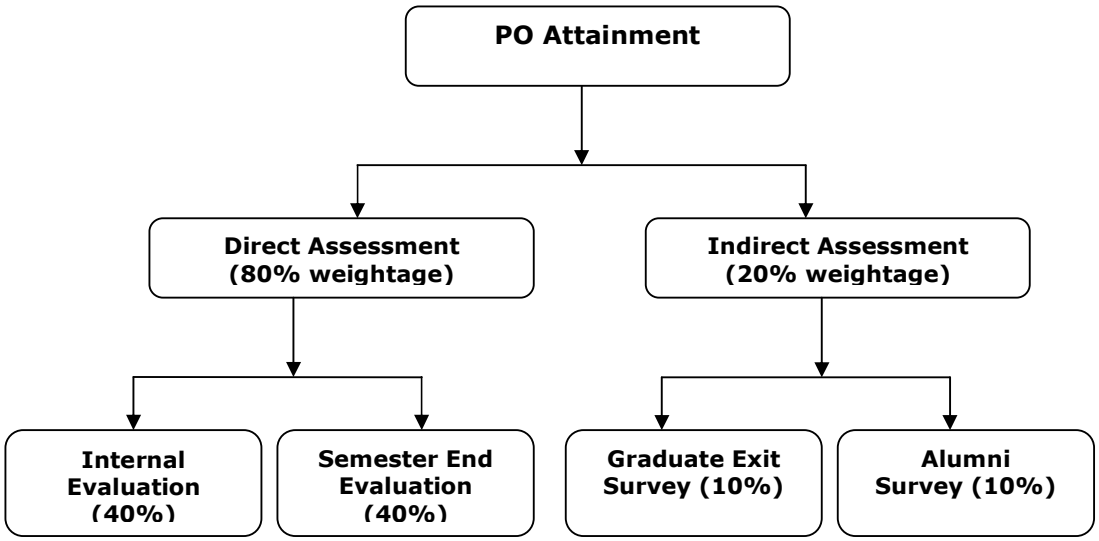


Fig. Weightage for Direct and Indirect assessment

Targets for attainment of COs, POs and PSOs

The targets for attainment of COs, POs and PSOs shall be decided by the Program Assessment Committee and BoS Chairperson of the respective program of study based on the quality of the student input, performance of the students of current batch, attainments of the previous batches.

Impact Analysis

The impact analysis on the results of evaluation of each of the COs, POs & PSOs shall be conducted by the Program Assessment Committee and BoS Chairperson. The weaknesses shall be identified and appropriate measures shall be suggested for improvements in curriculum design, pedagogical initiatives, support system, and student's performance evaluation.

ANNEXURE-I

ASSESSMENT RUBRICS FOR PROJECT WORK

Rubric	Excellent (Wt = 3)	Good (Wt = 2)	Fair (Wt = 1)
Review-1			
Selection of Topic	Selected a latest topic through complete knowledge of facts and concepts	Selected a topic through partial knowledge of facts and concepts	Selected a topic through improper knowledge of facts and concepts
Analysis and Synthesis	Thorough comprehension through analysis/ synthesis	Reasonable comprehension through analysis/ synthesis	Improper comprehension through analysis/ synthesis
Literature Survey	Extensive literature survey with standard references	Considerable literature survey with standard references	Incomplete literature survey with substandard references
Ethical Attitude	Clearly understands ethical and social practices.	Moderate understanding of ethical and social practices.	Insufficient understanding of ethical and social practices.
Independent Learning	Did literature survey and selected topic with little guidance	Did literature survey and selected topic with considerable guidance	Selected a topic as suggested by the supervisor
Oral Presentation	Presentation in logical sequence with key points, clear conclusion and excellent language	Presentation with key points, conclusion and good language	Presentation with insufficient key points and improper conclusion
Report Writing	Status report with clear and logical sequence of chapters using excellent language	Status report with logical sequence of chapters using understandable language	Status report not properly organized
Continuous Learning	Highly enthusiastic towards continuous learning	Interested in continuous learning	Inadequate interest in continuous learning
Review-2			
Analysis and Synthesis	Thorough comprehension through analysis/ synthesis	Reasonable comprehension through analysis/ synthesis	Improper comprehension through analysis/ synthesis
Design Skills	Best design/modeling for the selected topic	Good design/ modeling for the selected topic	Moderate design/modeling for the selected topic
Literature Survey	Thorough comprehension about what is proposed in the literature papers	Reasonable comprehension about what is proposed in the literature papers	Improper comprehension about what is proposed in the literature
Usage of Techniques & Tools	Clearly identified and has complete knowledge of techniques & tools used in the project work	Identified and has sufficient knowledge of techniques & tools used in the project work	Identified and has inadequate knowledge of techniques & tools used in the project work
Project work impact on Society	Conclusion of project work has strong impact on society	Conclusion of project work has considerable impact on society	Conclusion of project work has feeble impact on society

Rubric	Excellent (Wt = 3)	Good (Wt = 2)	Fair (Wt = 1)
Project work impact on Environment	Conclusion of project work has strong impact on Environment	Conclusion of project work has considerable impact on environment	Conclusion of project work has feeble impact on environment
Ethical attitude	Clearly understands ethical and social practices.	Moderate understanding of ethical and social practices.	Insufficient understanding of ethical and social practices.
Independent Learning	Did literature survey and selected topic with little guidance	Did literature survey and selected topic with considerable guidance	Selected a topic as suggested by the supervisor
Oral Presentation	Presentation in logical sequence with key points, clear conclusion and excellent language	Presentation with key points, conclusion and good language	Presentation with insufficient key points and improper conclusion
Report Writing	Status report with clear and logical sequence of chapters using excellent language	Status report with logical sequence of chapters using understandable language	Status report not properly organized
Time and Cost Analysis	Comprehensive time and cost analysis	Moderate time and cost analysis	Reasonable time and cost analysis
Continuous learning	Highly enthusiastic towards continuous learning	Interested in continuous learning	Inadequate interest in continuous learning
External Examination			
Selection of Topic	Selected a latest topic through complete knowledge of facts and concepts	Selected a topic through partial knowledge of facts and concepts	Selected a topic through improper knowledge of facts and concepts
Analysis and Synthesis	Thorough comprehension through analysis/ synthesis	Reasonable comprehension through analysis/ synthesis	Improper comprehension through analysis/ synthesis
Design Skills	Best design/modeling for the selected topic	Good design/ modeling for the selected topic	Moderate design/modeling for the selected topic
Literature Survey	Thorough comprehension about what is proposed in the literature papers	Reasonable comprehension about what is proposed in the literature papers	Improper comprehension about what is proposed in the literature
Usage of Techniques & Tools	Clearly identified and has complete knowledge of techniques & tools used in the project work	Identified and has sufficient knowledge of techniques & tools used in the project work	Identified and has inadequate knowledge of techniques & tools used in project work
Project work impact on Society	Conclusion of project work has strong impact on society	Conclusion of project work has considerable impact on society	Conclusion of project work has feeble impact on society
Project work impact on Environment	Conclusion of project work has strong impact on Environment	Conclusion of project work has considerable impact on environment	Conclusion of project work has feeble impact on environment
Ethical attitude	Clearly understands ethical and social practices.	Moderate understanding of ethical and social	Insufficient understanding of ethical and social practices.

Rubric	Excellent (Wt = 3)	Good (Wt = 2)	Fair (Wt = 1)
		practices.	
Independent Learning	Did literature survey and selected topic with little guidance	Did literature survey and selected topic with considerable guidance	Selected a topic as suggested by the supervisor
Oral Presentation	Presentation in logical sequence with key points, clear conclusion and excellent language	Presentation with key points, conclusion and good language	Presentation with insufficient key points and improper conclusion
Report Writing	Status report with clear and logical sequence of chapters using excellent language	Status report with logical sequence of chapters using understandable language	Status report not properly organized
Time and Cost Analysis	Comprehensive time and cost analysis	Moderate time and cost analysis	Reasonable time and cost analysis
Continuous learning	Highly enthusiastic towards continuous learning	Interested in continuous learning	Inadequate interest in continuous learning

ASSESSMENT RUBRICS FOR SEMINAR

Rubric	Excellent (Wt=3)	Good (Wt=2)	Fair (Wt=1)
Selection of Topic	Selected a latest topic through complete knowledge of facts and concepts	Selected a topic through partial knowledge of facts and concepts	Selected a topic through improper knowledge of facts and concepts
Analysis and Synthesis	Thorough comprehension through analysis/ synthesis	Reasonable comprehension through analysis/ synthesis	Improper comprehension through analysis/ synthesis
Literature Survey	Extensive literature survey with standard references	Considerable literature survey with standard references	Incomplete literature survey with substandard references
Identification of Techniques & Tools	Clearly identified and has complete knowledge of techniques & tools used in the literature pertaining to seminar topic	Identified and has sufficient knowledge of techniques & tools used in the literature pertaining to seminar topic	Identified and has inadequate knowledge of techniques & tools used in the literature pertaining to seminar topic
Independent Learning	Did literature survey and selected topic with little guidance	Did literature survey and selected topic with considerable guidance	Selected a topic as suggested by the supervisor
Oral Presentation	Presentation in logical sequence with key points, clear conclusion and excellent language	Presentation with key points, conclusion and good language	Presentation with insufficient key points and improper conclusion
Report Writing	Report with clear and logical sequence of chapters using excellent language	Report with logical sequence of chapters using understandable language	Report not properly organized
Continuous learning	Highly enthusiastic for continuous learning	Interested in continuous learning	Inadequate interest in continuous learning

ASSESSMENT RUBRICS FOR COMPREHENSIVE VIVA-VOCE

Rubric	Excellent (Wt = 3)	Good (Wt = 2)	Fair (Wt = 1)
Knowledge in the Program Domain	Sound knowledge in the program domain	Adequate knowledge in the program domain	Inadequate knowledge in the program domain
Analysis	Thorough comprehension through analysis/ synthesis	Reasonable comprehension through analysis/ synthesis	Improper comprehension through analysis/ synthesis
Design Skills	Clear demonstration of design/modeling	Moderate demonstration of design/modeling	Partial demonstration of design/modeling
Problem Solving	Exhibit strong problem solving skills	Exhibit average problem solving skills	Exhibit limited problem solving skills
Usage of Tools &Techniques	Clearly identify and has complete knowledge of techniques & tools used in the program	Identify and has sufficient knowledge of techniques & tools used in the program	Identify and has inadequate knowledge of techniques & tools used in the program
Solution to Society needs	Clearly propose solution to the society needs	Propose reasonable solution to the society needs	Propose partial solution to the society needs
Environment & sustainability	Very conscious about giving solution with concerns on Environmental impacts and sustainability	Reasonably conscious about giving solution with concerns on Environmental impacts and sustainability	Limited conscious about giving solution with concerns on Environmental impacts and sustainability
Ethical attitude	Clearly understands ethical and social practices.	Moderate understanding of ethical and social practices.	Insufficient understanding of ethical and social practices.
Function Individually	Strong enough to face situations.	Reasonably strong to face situations.	Fair to Face situations
Presenting views persuasively	Presenting views clearly and accurately	Presenting views reasonable	Presenting views inadequately
Exhibit professionalism	Exhibit competent Professional manners for career progression	Exhibit reasonable Professional manners for career progression	Exhibit ordinary Professional manners for career progression

Note: The evaluation rubrics for practical courses shall be formulated by the Department based on the Course Outcomes of respective courses.

ANNEXURE-II

SREE VIDYANIKETHAN ENGINEERING COLLEGE

(AUTONOMOUS)

SREE SAINATH NAGAR, TIRUPATI-517 102

GRADUATE EXIT SURVEY (UG)

Name: **Department:**
Roll Number: **Branch:**
Year/Semester:

You are requested to give your prudent feedback on the following by marking (√) in the appropriate box.
Note: 1 is low and 5 is high

I. KNOWLEDGE

i. Knowledge in the courses studied provides the depth for course progression and are relevant to career aspirations.

1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐

ii. Teaching methods adopted help to acquire the knowledge.

1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐

iii. The quality of teaching in linking the knowledge content to application.

1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐

II. SKILLS

Theory and Laboratory courses contain the content to develop :

a. skills to Analyze problems and cases in the course / program

1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐

b. Design and development of systems and processes

1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐

c. Problem solving skills in the domain.

1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐

d. Skills in devising experiment protocols/reports and communicate well with the domain experts.

1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐

III. APPLICATION

i. Ability to apply new tools and software relevant to your laboratory sessions or in project work.

1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐

ii. Ability to write case studies relevant to the course domain.

1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐

IV. ATTITUDE

a. Ability to work individually and in a team in a lab session and executing a project.

1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐

b. Course content prepares you to plan solutions for societal needs.

1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐

c. Course content help you understand and create eco- friendly solutions

1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐

d. Awareness to ethical code and practice.

1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐

e. Courses/Program stimulates you to further acquire skills and knowledge in the domain.

1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐

Suggestions for inclusion of new courses/technologies/tools etc to be included in the curriculum:

Date:

Time: Signature

ALUMNI SURVEY (UG)

Name : **Organization :**
Program & Discipline: **Designation:**
Year of Graduation: **Experience:**

You are requested to peruse the program education objectives, program outcomes and curriculum for giving your prudent feedback on the following by marking (√) in the appropriate box.

Note: 1 is low and 5 is high

I. KNOWLEDGE

i. The extent of knowledge of mathematics and basic sciences useful in your career exploration and progression.

1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐

ii. Depth of core courses relevant to your professional aspiration.

1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐

iii. The diversity of electives offered helped in expanding the breadth of knowledge.

1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐

II. SKILLS

The level of competence to

a. Analyze complex engineering problems acquired during the program for providing solutions in your career.

1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐

b. Design solutions, system components or processes for complex engineering problems to meet the specified needs

1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐

c. synthesis of knowledge, design skills and analysis and interpretation of data to provide valid conclusions

1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐

d. The level of communication skills developed during the program useful in your profession.

1 ☐ ☐ ☐ ☐ ☐

III. APPLICATION

i. Competency to apply modern tools and technologies in your profession.

1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐

ii. The level of comfort in decision making and project management skills in your profession.

1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐

IV. ATTITUDE

i. Function effectively as an individual and as a member or leader in diverse teams

1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐

ii. Awareness to societal responsibilities relevant to the profession while providing solutions.

1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐

iii. Understanding of the impact of the professional engineering solutions in compliance to environmental consciousness

1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐

iv. Application of ethical principles and code in profession

1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐

v. Attitude to upgrade your skills and knowledge through quality improvement programs and higher education.

1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐

Suggestions for inclusion of new courses/ technologies/ tools etc to be included in the curriculum:

Date:

Time: Signature

EMPLOYER SURVEY (UG)

Name: **Organization:**
Designation: **Experience:**

You are requested to peruse the program education objectives, program outcomes, curriculum and quality of students recruited in your organization for giving your prudent feedback on the following by marking (√) in the appropriate box.

Note: 1 is low and 5 is high

I. KNOWLEDGE

i. Program covers all the requisite knowledge content suitable for employment.

1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐

ii. Broad curricular areas help the student in gaining knowledge for securing a job and subsequent progression.

1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐

iii. Elective courses offered are contemporary enough to suit the needs of the organization.

1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐

II. SKILLS

i. The standard of quality of skills to implement the project upon induction.

a. Analysis of critical real time problems

1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐

b. Design and development of systems, models and processes

1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐

c. Problem solving abilities to arrive at feasible solutions

1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐

ii. Curricular components – projects, seminars help the students in gaining skills to prepare project proposals and reports.

1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐

III. APPLICATION

i. Recruitee's ability to apply their knowledge, skills and modern tools and software for appropriate solutions in the assigned project domain.

1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐

ii. Applying managerial, administrative principles with financial literacy for successful project execution

1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐

IV. ATTITUDE

i. The extent of individual skills and contribution to the Recruitee's team in the project.

1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐

ii. Recruitee's sensitivity to social needs in bringing innovative proposal and ideas

1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐

iii. Awareness to environmental issues, if any while implementing the project.

1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐

iv. Commitment and ethical values of the Recruitee

1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐

v. Recruitee shows enthusiasm to upgrade the skill set and knowledge for new assignments and professional development.

1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐

Suggestions for inclusion of new courses/ technologies/ tools etc to be included in the curriculum:

Date:

Time: Signature

COURSE-END SURVEY (UG)

Name: **Department:**
Roll Number: **Branch:**
Year/Semester: **Course:**

You are requested to give your prudent feedback on the following by marking (√) in the appropriate box.
Note: 1 is low and 5 is high

Course Content and organization

i. Course objectives were clear and were specified in the beginning

1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐

ii. Attainment of course objectives achieved

1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐

Learning environment and teaching methods

i. The learning and teaching methods encouraged participation

1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐

ii. Overall environment in the class was conducive for learning

1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐

Learning resources

i. The provision of learning resources in the library was adequate and appropriate

1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐

Quality of delivery

i. Course stimulated interest and thought on the subject area

1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐

ii. Ideas and concepts were presented clearly

1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐

Assessment

i. The method of assessment was reasonable

1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐

ii. Feedback on assessment was helpful

1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐

iii. The teacher was responsive to student needs and problems

1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐

iv. Relevant topics for competitive examinations (NET, GATE etc.) were covered during the lectures

1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐

Suggestions for further improvement:

Date:

Place: Signature