

Faculty Name: Dr. Krishna Ji
Course Name: ELECTRONIC DEVICES

Class-Sem: MSC-3
Course Code: MPY-303

Academic Year: 2022-23
Program Name: MSC Physics

CO-PO MAPPING:

Course	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	1	3			1	2			1			
CO2	2		1	3			3	1				
CO3		1	2			1	2				1	
CO4				1	1			2	2	3		
CO5	2		1		3						2	1
CO6		2		2		1	2	1	2	2		1

CO ATTAINMENT:

Dr. Krishna Ji	Aft. Level
CO1	3.00
CO2	3.00
CO3	3.00
CO4	2.09
CO5	2.20
CO6	2.71

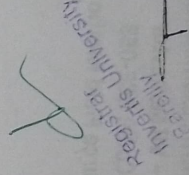
PO ATTAINMENT :

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
Overall PO Attainment	2.7	2.9	2.8	2.8	2.3	2.9	2.9	2.5	2.5	2.3	2.5	2.5



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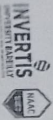
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Faculty Name: Dr. Krishna J.

ELECTRONIC DEVICES

Class/Sem: Course Code:

M.PY.303

Program Name:

M.Sc. Physics

Sl. No.	Theory Ref. No.	Student Name	Internal Marks Scheme			Total Internal Marks	Theory (70)	Theory (100)							
			First Unit Test	Second Unit Test	First Class Test				Second Class Test						
1	NSPY2021007	ANSHITA GUPTA	20	16	5	4	20	5	8	7	3	3	18	51	51
2	NSPY2021010	ADITI PAKSHIARI	18	14	5	4	18	5	7	6	3	3	16	50	55
3	NSPY2021005	AMIT GANGWAR	18	14	5	4	18	5	7	7	3	3	17	48	65
4	NSPY2021003	QUNSIYA NAZ	30	24	10	8	30	10	12	12	6	6	30	65	95
5	NSPY2021006	RAJEEV KUMAR	15	12	3	3	15	3	6	6	2	2	14	34	48
6	NSPY2021004	RANJEET GANGWAR	20	16	5	4	20	5	8	8	3	3	19	32	51
7	NSPY2021009	SABHAI KHAN	20	16	5	4	20	5	8	7	3	3	18	45	61
8	NSPY2021011	SHWETA SINGH	20	16	5	4	20	5	8	7	3	3	30	68	78
9	NSPY2021002	SIRABHI SHARMA	30	24	10	8	30	10	12	12	6	6	30	60	99
10	NSPY2021001	TARUN JOSHI	30	24	10	8	30	10	12	12	6	6	30	60	70
11	NSPY2021014	VANSHIKA YADAV	13	10	3	3	13	3	5	5	2	2	12	28	51
12	NSPY2021013	SURBHI AGARWAL	12	10	3	3	12	3	5	5	2	2	12	27	69
Students appeared for the examination			1	1	1	1	1	1	1	1	1	1	1	1	1
Target / satisfactory marks set as benchmark			12	12	4	4	12	4	5	8	2	2	12	28	40
Students scored above the target set			1	0	0	0	1	0	1	1	1	1	1	1	1
% Students scored above the target set			100%	0%	0%	0%	100%	0%	100%	100%	0%	100%	100%	100%	100%
Attainment Level			3	1	1	1	3	1	3	3	3	3	3	3	3

CO1	CO2	CO3	CO4	CO5	CO6	Overall Attainment
3	3	3	3	3	3	2.67
3	3	3	3	3	3	3.00
3	3	3	3	3	3	3.00
3	3	3	3	3	3	3.00
1	1	1	1	1	1	2.69
1	1	1	1	1	1	2.20
1	1	1	1	1	1	2.11

Rubric	Level
≥5 Students	1
<50%	2
50-75%	3
>75%	3

Overall Attainment: 2.67

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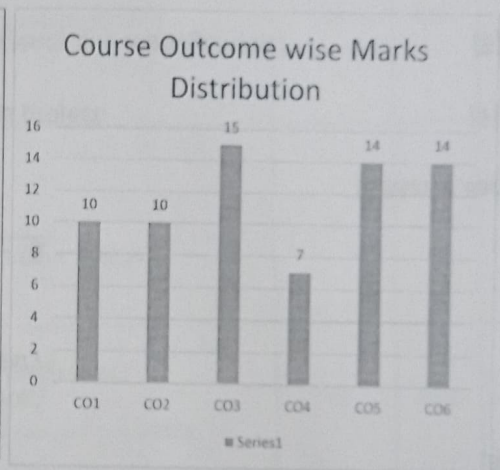
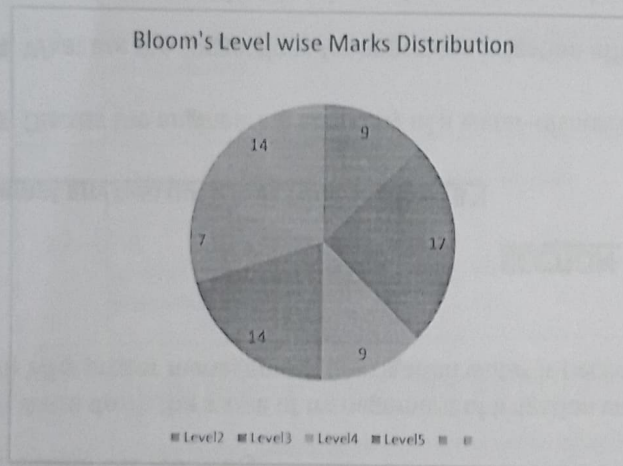


Q.No	Questions	Marks (70)	CO	BL
1-I	Common emitter configuration, current gain	01	CO1	L2
1-II	Identify the condition for a transistor to act as an amplifier	01	CO2	L1
1-III	Due to diffusion an electric current from p-side to n-side is known as	01	CO2	L2
1-IV	The forbidden energy gap E_g in case of Insulators of the order of	01	CO3	L3
1-V	Donor impurity atoms in semiconducting material result a new	01	CO2	L1
1-VI	The valence electrons are present in	01	CO1	L1
1-VII	In forward biased condition the resistance of an ideal diode is	01	CO1	L1
2-I	Draw the sketch Diagram of BJT.	01	CO1	L1
2-II	Classify the FET and MOSFET transistor.	01	CO1	L1
2-III	Explain recombination process in semiconductors	01	CO1	L1
2-IV	What is Energy band in semiconductors	01	CO1	L2
2-V	Draw the tv characteristics of P-N Junction diode	01	CO1	L1
2-VI	What is Wein Bridge Oscillators?	01	CO1	L3
2-VII	Define Metal oxide semiconductor junction.	01	CO1	L1
3-I	a) Explain the difference between direct and indirect band gap semiconductors. OR b) Explain Energy band diagram and current flow mechanism in Forward Bias and draw IV characteristics of forward and reverse bias.	7	CO2	L2
3-II	a) Explain the difference between BJT and FET. OR b) Explain working of Transistor. Show that transistor used as amplifier.	7	CO3	L2
4-I	a) What do you mean by Drift current and Diffusion current in semiconductors and define mobility of charge carriers OR b) Explain working principle of MOSFET, with suitable diagram	7	CO3	L5
4-II	a) What are semiconductors?. Explain N types and P types semiconductors with diagram OR b) Explain working & I-V characteristics of the Schottky Junction Diode	7	CO4	L3
5-I	a) Explain basic principle of PN Junction diode and explain I-V characteristics. Also explain depletion region. OR b) Either S/slow 3-SSG or S/slow 5-SSG is normal in G.	7	CO5	L4
5-II	a) G has a normal subgroup of order 15 OR b) Explain conductor, semiconductor, Insulators, according to band theory of Solid. Describe current flow mechanism in Forward Bias and Reverse Bias	7	CO6	L6
6-I	a) What do you mean by Bipolar Junction Transistor. Explain its working and also explain different region of operation with suitable diagram. OR b) Write a function in python to illustrate different dictionary operations.	7	CO5	L4

6-II	a) State and prove that Cauchy theorem for finite abelian group.	7	CO6	L6
	OR b) Explain Common emitter and common base configuration and find out the relation between current gain β and β_0 . If $\alpha = 0.98$ and current through emitter $I_E = 20$ mA, Find out the value of current gain.			

BL – Bloom's Taxonomy Levels
(1- Remembering, 2- Understanding, 3 – Applying, 4 – Analysing, 5 – Evaluating, 6 - Creating)
CO – Course Outcomes PO – Program Outcomes; PI Code – Performance Indicator Code

Level	Marks	CO	Marks
Level1	9	CO1	10
Level2	17	CO2	10
Level3	9	CO3	15
Level4	14	CO4	7
Level5	7	CO5	14
Level6	14	CO6	14
Total	70	Total	70



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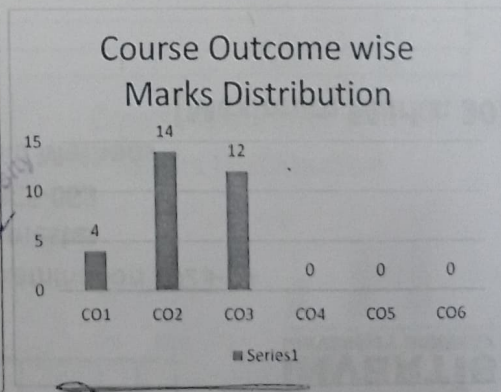
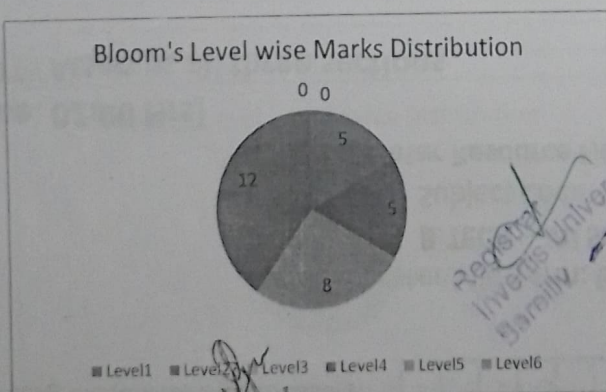
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Q.No	Questions	Marks (30)	CO	BL
1-I	The forbidden energy gap E_g in case of insulator is of the order of	01	CO1	L1
1-II	Doner impurity atoms in semiconducting material result a new	01	CO1	L1
1-III	At zero K the conduction band may be partially filled in	01	CO2	L2
1-IV	Let n_h and n_e be the number of hols and conduction electron in an extrinsic semiconductor	01	CO1	L2
1-V	Drift current due to	01	CO1	L1
2-I	Define conductor, semiconductor and Insulator, according to band theory of solids	01	CO2	L2
2-II	At zero K the conduction band may be partially filled in	01	CO2	L1
2-III	Let n_h and n_e be the number of hols and conduction electron in an extrinsic semiconductor	01	CO2	L2
2-IV	Drift current due to	01	CO2	L2
2-V	Define conductor, semiconductor and Insulator, according to band theory of solids	01	CO2	L1
3	a) Define conductor, semiconductor and Insulator, according to band theory of solids b) What is forbidden gap in semiconductors and electrical conductivity of semiconductors c) Solve	08	CO2	L3
4-A	a) Define recombination process in semiconductors. OR b) Write the short note on Fermi energy level, Direct and Indirect Band gap Semiconductor	06	CO3	L4
4-B	a) Define PN Junction diode and working of PN Junction using biasing. OR b) Draw energy band diagram to the metal oxide semiconductor and its working	06	CO3	L4

Level	Marks	CO	Marks
Level1	5	CO1	4
Level2	5	CO2	14
Level3	8	CO3	12
Level4	12	CO4	0
Level5	0	CO5	0
Level6	0	CO6	0
Total	30	Total	30



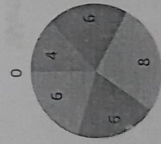
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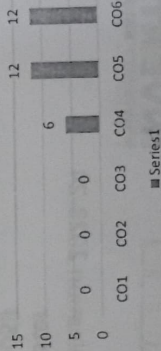
Q.No	Questions	Marks (30)	CO	BL
1-I	Oscillator is defined as which provide	01	CO4	L1
1-II	When transistors are used in digital circuits they usually operate in the	01	CO4	L1
1-III	Relation between current gain α & β	01	CO4	L2
1-IV	Wein bridge measures	01	CO4	L1
1-V	Usually circuit producing sine waves are called as	01	CO4	L2
2-I	When transistors are used in digital circuits they usually operate in the	01	CO5	L2
2-II	Relation between current gain α & β	01	CO5	L2
2-III	Wein bridge measures	01	CO5	L2
2-IV	Drift current due to	01	CO5	L2
2-V	Define conductor, semiconductor and Insulator, according to band theory of solids			
	a) Explain Energy band diagram and current flow mechanism in Forward Bias and Reverse Bias	08	CO5	L3
	OR			
3	b) Explain working principle of MOSFET.			
	OR			
	b) Solve			
4-A	a) What do you mean by BJT. Explain basic principle and its working.	06	CO6	L4
	OR			
	b) What is PN Junction diode? Show that current flow mechanism in PN Junction			
4-B	a) Outline the main differences between amplifier and oscillator. Discuss the working of Wein bridge oscillator	06	CO6	L5
	OR			
	b) Write the Short note on Schottky Junction Diode			

Bloom's Taxonomy Levels		CO – Course Outcomes PO – Program Outcomes; PI Code – Performance Indicator Code					
Level1	4	CO1	0				
Level2	6	CO2	0				
Level3	8	CO3	0				
Level4	6	CO4	6				
Level5	6	CO5	12				
Level6	0	CO6	12				
Total	30	Total	30				

Bloom's Level wise Marks Distribution



Course Outcome wise Marks Distribution



Legend: Level 1 (■), Level 2 (■), Level 3 (■), Level 4 (■), Level 5 (■), Level 6 (■)

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Q.No	Questions	Marks (10)	CO	BL
1	Write the short note on Fermi energy level, Direct and Indirect Band gap Semiconductor.	05	CO4	L2
2	Draw energy band diagram to the metal oxide semiconductor and its working	05	CO5	L1

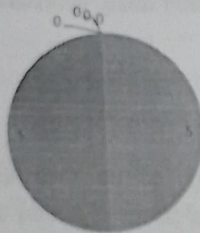
BL – Bloom's Taxonomy Levels

(1- Remembering, 2- Understanding, 3 – Applying, 4 – Analysing, 5 – Evaluating, 6 - Creating)

CO – Course Outcomes PO – Program Outcomes, PI Code – Performance Indicator Code

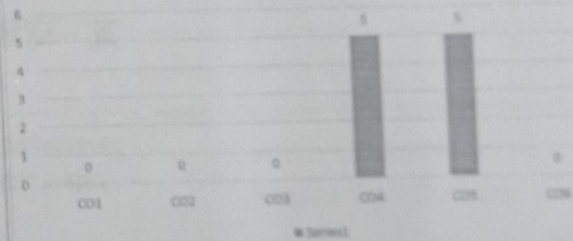
Level	Marks	CO	Marks
Level1	5	CO1	0
Level2	5	CO2	0
Level3	0	CO3	0
Level4	0	CO4	5
Level5	0	CO5	5
Level6	0	CO6	0
Total	10	Total	10

Bloom's Level wise Marks Distribution



Legend: Level1, Level2, Level3, Level4, Level5, Level6

Course Outcome wise Marks Distribution



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Q.No	Questions	Marks (10)	CO	BL
1	Write the Short note on Schottky Junction Diode	05	CO4	L1
2	What do you mean by BJT. Explain basic principle and its working.	05	CO5	L2

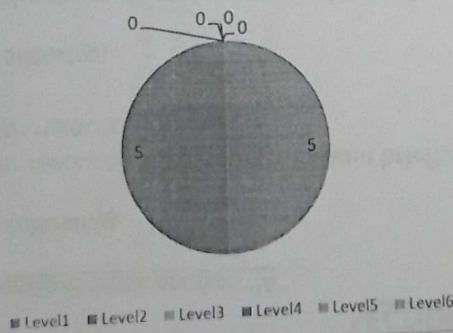
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(1- Remembering, 2- Understanding, 3 – Applying, 4 – Analysing, 5 – Evaluating, 6 - Creating)

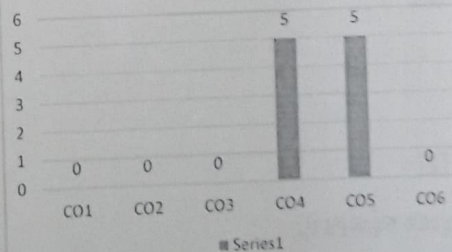
CO – Course Outcomes PO – Program Outcomes; PI Code – Performance Indicator Code

Level	Marks	CO	Marks
Level1	5	CO1	0
Level2	5	CO2	0
Level3	0	CO3	0
Level4	0	CO4	5
Level5	0	CO5	5
Level6	0	CO6	0
Total	10	Total	10

Bloom's Level wise Marks Distribution



Course Outcome wise Marks Distribution





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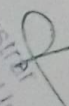
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PROGRAM MASTER OF SCIENCE (PHYSICS)
SEMESTER THIRD
SESSION 2022-23
COLLEGE Faculty of Sciences

Sl No.	Enrollments No.	Roll No.	Student ID	Student Name	MPY301			MPY302			MPY303			MPY304			MPY305			Grand Total	Credits Secured	SGPA	CPI	Remarks									
					Max Marks	CR	Max Marks	CR	Max Marks	CR	Max Marks	CR	Max Marks	CR	Max Marks	CR	Max Marks	CR															
1	210919	2120802001	MSFY2021007	VASTHA GUPTA	39	12	31	1	33	18	71	4	53	18	71	4	85	45	130	6	75	23	100	6	70	38	100	2	505	26	0.00	36.17	Pass
2	210108	2120802002	MSFY2021010	ADITI PARASHARI	42	12	54	4	39	16	55	4	51	18	69	4	85	45	130	6	68	22	90	6	63	22	85	2	483	25	0.00	81.69	Pass
3	210273	2120802004	MSFY2021005	AMIT GANGVAR	63	27	90	4	49	17	85	4	61	25	86	4	87	47	134	6	66	22	88	6	62	24	86	2	549	25	0.00	94.92	Pass
4	211183	2120802006	MSFY2021003	QUDSIYA NAZ	61	29	90	4	65	30	95	4	54	28	82	4	50	17	137	6	72	25	97	6	61	23	84	2	585	26	0.00	101.5	Pass
5	211154	2120802007	MSFY2021006	R.UJEEV KUMAR	31	24	75	4	34	14	48	4	45	20	54	4	86	46	132	5	68	23	91	6	53	18	71	2	482	25	0.00	95.85	Pass
6	211146	2120802008	MSFY2021004	RANJEET GANGVAR	62	28	90	4	32	19	51	4	54	26	80	4	88	48	136	6	66	21	89	6	57	21	78	2	534	25	0.00	91.92	Pass
7	211050	2120802009	MSFY2021009	SABHAJ KHAN	60	15	75	4	42	18	60	4	45	18	63	4	92	46	138	6	68	22	90	6	61	22	83	2	509	25	0.00	89.48	Pass
8	211292	2120802010	MSFY2021011	SHWETA SINGH	68	26	94	4	45	18	63	4	63	23	86	4	50	46	136	6	68	23	91	6	66	25	91	2	561	25	0.00	95.77	Pass
9	211586	2120802011	MSFY2021002	SURABHI SHARMA	67	30	97	4	68	30	98	4	66	29	95	4	95	48	143	6	73	25	98	6	67	29	96	2	627	26	0.00	107.4	Pass
10	212026	2120802012	MSFY2021001	TARUN JOSHI	70	30	100	4	69	30	99	4	65	29	94	4	93	49	142	6	71	24	95	6	68	28	96	2	628	26	0.00	107.1	Pass
11	212221	2120802014	MSFY2021014	VANSHIKA YADAV	30	12	62	4	38	12	70	4	62	12	74	4	90	38	128	6	70	23	93	6	53	21	74	2	501	25	0.00	88.38	Pass
12	212243	2120802013	MSFY2021013	SHUBHI AGARWAL	34	12	66	4	37	12	69	4	63	12	75	4	92	38	130	6	68	22	90	6	55	20	75	2	505	26	0.00	88.83	Pass


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Controller of Examination

Registrar

Vice Chancellor

>> CR of Re-appear Students are not Calculated.
Passing marks - 40% in each course

MPY301 LASER PHYSICS
MPY301 ELECTRONICS LAB

MPY302 COMPUTATIONAL PHYSICS
MPY302 COMPUTATION & TECHNIQUE LAB

MPY303 ELECTRONIC DEVICES
MPY303 FIELD PROJECT / INTERNSHIP

Legend -
E - External Marks
T - Total Marks
Date: Jan 31, 2023
* Paired with Grade Marks
CE-Credit
AB - Absent
DR - Droped

DT - Detained
CS - Credit Secured

MPY301 LASER PHYSICS
MPY301 ELECTRONICS LAB

MPY302 COMPUTATIONAL PHYSICS
MPY302 COMPUTATION & TECHNIQUE LAB

MPY303 ELECTRONIC DEVICES
MPY303 FIELD PROJECT / INTERNSHIP