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## M.Sc. 1st Semester Examination-2022-23

## PHYSICS (PRACTICAL)

Course ID : 12465 Course Code : PHYS/105PR

## **Course Title : Practical**

Time : 3 Hours

Full Marks: 40

The figures in the right hand margin indicate full marks. Candidates are required to give their answers in their own words as far as practicable.

1.	Study the optical characteristics of a LED and determine							
	the	band gap of the material of LED.						
	(a)	Theory and working formula.				5		
	(b)	Experiment.				10		
2	(c)	Result, graph and Discussion.			$\{1_i\}$	10		
÷. 3	(d)	Laboratory Note Book.			(**) }	5		
	(e)	Viva-voce.				10		
2.	Study the current mirror biasing and $V_{BE}$ multiplier based voltage references							
	(a)	Theory and working formula.				5		
	(b)	Experiment.				10		

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	(c) Result and Discussion.	10				
	(d) Laboratory Note Book.	5				
	(e) Viva-voce.	10				
з.	Study the transistor amplifier in common mode	(CE) using				
	CRO					
÷	(a) Theory and working formula.	5				
	(b) Experiment.	10				
	(c) Result, graph and Discussion.	10				
	(d) Laboratory Note Book.	5				
	(e) Viva-voce.	10				
4.	Draw the LDR characteristics at different intensition	es and find				
	out the value and the dark resistance of the LDR					
	(a) Theory and working formula.	5				
	(b) Experiment.	10				
	(c) Result and Discussion.	10				
	(d) Laboratory Note Book.	5				
	(e) Viva-voce.	10				
5.	. Study the transfer characteristics of different networks					
	study the phase transfer characteristics of a given RC network by using CRO.	n two-port				
	(a) Theory and working formula.	5				
	(b) Experiment.	10				
	(c) Result and Discussion.	10				

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(d)	Laboratory Note Book.	5
(e)	Viva-voce.	10
De	sign a three bit parallel adder using ex-OR or basic ga	0.55
(a)	Theory and working formula.	5
(b)	Experiment.	00
(c)	Result, graph and Discussion.	03
(d)	Laboratory Note Book.	5
(e)	Viva-voce.	100
Stu	dy the opamp based linear and non-linear amplifier.	
(a)	Theory and working formula.	5
(b)	Experiment.	10
(c)	Result and Discussion.	140
(d)	Laboratory Note Book.	5
(c)	Viva-voce.	10
Des	sign a RC-Phase shift oscillator with characteris	stic
freq	quency 7 kHz.	
(a)	Theory and working formula.	5
(b)	Experiment.	105
(c)	Result and Discussion.	5
(d)	Graph Plotting.	5
(e)	Laboratory Note Book.	5
(f)	Viva-voce.	10
	(e) De (a) (b) (c) (d) (e) (c) (d) (d) (c) (d) (d) (d) (d) (d) (d) (d) (d) (d) (d	<ul> <li>(d) Laboratory Note Book.</li> <li>(e) Viva-voce.</li> <li>Design a three bit parallel adder using ex-OR or basic gat</li> <li>(a) Theory and working formula.</li> <li>(b) Experiment.</li> <li>(c) Result, graph and Discussion.</li> <li>(d) Laboratory Note Book.</li> <li>(e) Viva-voce.</li> <li>Study the opamp based linear and non-linear amplifier.</li> <li>(a) Theory and working formula.</li> <li>(b) Experiment.</li> <li>(c) Result and Discussion.</li> <li>(d) Laboratory Note Book.</li> <li>(e) Viva-voce.</li> <li>Design a RC-Phase shift oscillator with characteris frequency 7 kHz.</li> <li>(a) Theory and working formula.</li> <li>(b) Experiment.</li> <li>(c) Result and Discussion.</li> <li>(d) Graph Plotting.</li> <li>(e) Laboratory Note Book.</li> <li>(f) Viva-voce.</li> </ul>

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9. Study the input output voltage characteristics of Schmitt trigger circuit. 5 (a) Theory and working formula. 10 (b) Experiment. 5 (c) Result and Discussion. 10 (d) Laboratory Note Book. 10 (e) Viva-voce. 10. Construct and test the operation of Pre-emphasis and De-emphasis circuits by plotting frequency response using opamp. 5 (a) Theory and working formula. 10 (b) Experiment. 5 (c) Result and Discussion. 10 (d) Laboratory Note Book. (e) Viva-voce. 10 11. Study the amplitude modulation technique and determine 5 114 the modulation index. ency 7 LF (a) Theory and working formula. 5 10 (b) Experiment.

(c) Result, graph and Discussion.5(d) Laboratory Note Book.10(e) Viva-voce.10

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