

VIVEKANANDA COLLEGE, Alipurduar

CBCS EXAMINATION (SEM – II) 2021

(Online mode)

Paper code: PHYS DSC 2 Paper Name: Physics (Practical)

Full marks: 20

Time: 4 hours

1. (i) Write down the value of current for series LCR circuit and draw circuit diagram. Write down the formula of Q-factor. (2)
- (ii) List down equipments to be used for investigates series LCR circuit. (2)
- (iii) Explain the experimental procedure to find the value of Q-factor of series LCR circuit. (10)
- (iv) Calculate Q-factor from given data: (4)

$$C = 0.047\mu\text{F}, \quad R = 2\text{k}\Omega$$

$$L = 0.9576\text{H}, \quad E = 20\text{V}$$

No. Of observation	Frequency (f) Hz	V_{in} (r.m.s volts)	V_{out} (r.m.s volts)	Attenuation ($A = V_{out} / V_{in}$)
1.	200	19.5	2.00	
2.	300	18.5	3.00	
3.	400	17.5	4.55	
4.	500	16.00	5.25	
5.	600	14.25	6.00	
6.	700	13.25	6.50	
7.	800	13.00	6.50	
8.	900	13.25	6.00	
9.	1000	13.50	6.00	
10.	1100	14.50	5.50	
11.	1200	15.00	5.25	
12.	1300	15.00	5.00	
13.	1400	16.00	4.75	
14.	1500	16.50	4.50	

- (v) Comments on what is learnt from the experiment. (2)

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CBCS EXAMINATION (SEM – IV) 2021

(Online mode)

Paper code: PHYS DSC4A (P)

Paper Name: Physics (Practical)

Full marks: 20

Time: 4 hours

To Determine the Refractive index of the Material of a given Prism using Sodium Light, write down the following questions.

1. Write down working formula and explain it. (2)
2. Mention List of Equipments to be used in this experiment. (2)
3. (i) Describe experimental procedure with a diagram.
(i) If total number of divisions on vernier scale = 60, then calculate least count of Vernier. (10)
4. Calculate the result of Refractive index (μ) using following Data: (4)

Table:1 For Angle of Prism (A)

Serial No.	Vernier	Telescope reading from face I			Telescopic reading for reflection from face II			Difference (a – b)	2A	A
		MSR	VSR	TOTAL (a)	MSR	VSR	TOTAL (b)			
1.	V ₁	151°	22 X 30''		31°	8 X 30''				
	V ₂	331°	12 X 30''		211°	15 X 30''				
2.	V ₁	145°	22 X 30''		25°	14 X 30''				
	V ₂	325°	14 X 30''		205°	18 X 30''				

MSA = Main Scale Reading

VSA = Vernier Scale Reading

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Table 2 : For Angle of Minimum Deviation (δ_m) :

Serial No.	Vernier	Dispersion of image when Telescope is minimum deviation position			Telescopic reading for direct image			Difference (a – b)	Mean (δ_m)
		MSR	VSR	TOTAL (a)	MSR	VSR	TOTAL (b)		
1.	V ₁	144°	18 x 30"		105°	8 x 30"			
	V ₂	325°	22 x 30"		286°	9 x 30"			
2.	V ₁	147°	20 x 30"		107°	28 x 30"			
	V ₂	327°	15 X 30"		287°	29 x 30"			

5. Comments on what is learnt from the experiment.

(2)