PCET's PIMPRI CHINCHWAD UNIVERSITY,
Sate, Maval, Pune-412106

Academic Year:2023-24	Unit Test-I Question Paper	Term–II

Department: First Year Engineering   **Class:** F.Y. B.Tech.   **Div: All**

Subject: Advanced Technical Communication   **Maximum Marks:20**   **Duration:** 1Hr.
Subject Code: CENG102   **Date:** 16.02.2024

Note: 1. Solve Q. 1 or Q.2 and Q.3 or Q.4
      2. Give explanation or justification wherever required.

Course Outcomes:
- CO1 : Construct grammatically correct sentences for effective communication.
- CO2 : Utilize technical writing skills and exposure in various dimensions of professional settings.

Q. 1	a	Illustrate the following idioms/ phrases.	(Marks -5)	[CO1],BT-3
		i. A blessing in disguise ii. A chip on your shoulder iii. A fool and his money are easily parted iv. A leopard can't change his spots v. Add fuel to the fire		
	b	Write one word for the following sentences.	(Marks -5)	[CO1], BT-3
		i. A person who believes in God ii. A student who stays away from school without telling his/her parents iii. The short remaining part of a cigarette iv. Someone's life history written by another person v. A tendency to favour one's relatives		
OR				
Q. 2	a	Explain the parts of speech with examples.	(Marks -5)	[CO1], BT-2
	b	Explain infinitives	(Marks -5)	[CO1], BT-2
Q.3	a	Select the correct form of the verb (concord) and rewrite the sentence i. Idli and Sambhar **is/are** my favourite breakfast. ii. Priyanka as well as her parents **have/has** shifted to Indore. iii. The principal and chairman **have/ has** resigned. iv. Neither Ankur nor his sisters **watches/watch** horror movies. v. Everybody **love/loves** children.	(Marks -5)	[CO1], BT-1
	b	Select the correct article and rewrite the sentence i. He is **a/an** MP. ii. He was wounded in **an/the** arm. iii. The Verb is **a/the** word in a sentence. iv. **A/the** word to the wise is sufficient. v. **The/A** darkest cloud has a silver lining.	(Marks -5)	[CO1], BT-1
OR				
Q4	a	Write a paragraph on -Films-The mirror of society	(Marks -5)	[CO2], BT-3
	b	Explain types of sentences based on sense and structure	(Marks -5)	[CO2], BT-3

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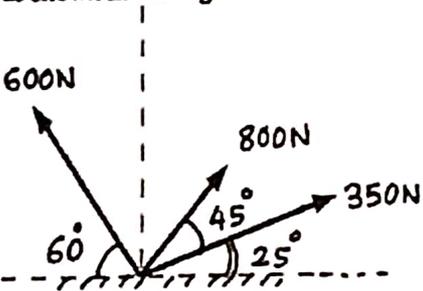### FIRST YEAR B.TECH.
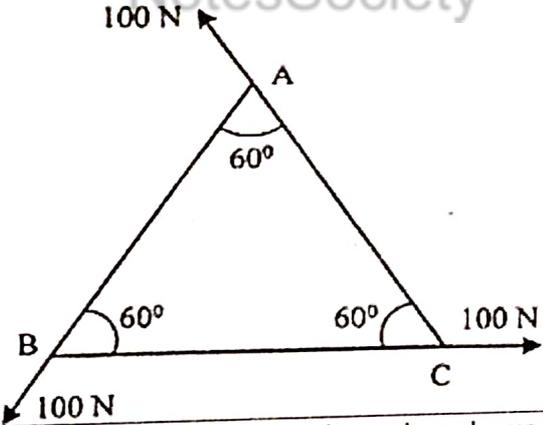### INTERNAL EXAMINATION-I, 2023-24, SEM-I
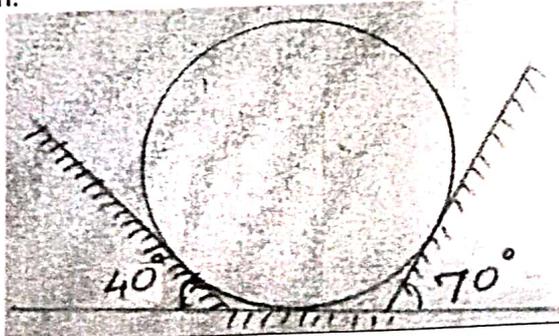
Time: 1 hr   Subject: **Engineering Mechanics**
Date: 20/2/24
Div.: F, G, H, I, J   Max. Marks: 20
Solve any 4 Questions

Ques. No.	Question	Marks
Q. 1. ✓	**Q.1 (a)** Determine the magnitude and direction of the resultant of three forces acting on the hook as shown in the Fig. Fig.	5 CO1
Q. 2.	Determine the magnitude and direction of resultant with reference to point A for the force system as shown in Fig. if side of equilateral triangle is 1 m.	5 CO2
Q. 3. ✓	A ball of weight W = 53.4 N rests in a right angled trough as shown in Fig. 1a. Determine the forces exerted on the sides of the trough at D & E. Assume all surfaces are perfectly smooth.	5 CO2

Q. 4.	A trally is acting upon by two forces as shown in fig. if θ = 25 and resultant of two forces is Vertical, then find the magnitude of force P & R(resultant). 15° 1600N θ P	5 CO1
Q. 5. ✓	Find the Tension in Cables to maintain system in equilibrium. 30° 40° NotesSociety 10KN	5 CO2
Q. 6. ✓	Find the Moment of resultant with respect to point "O" 20KN 10KN 2m 40KN O 30° 30KN 2m	5 CO1
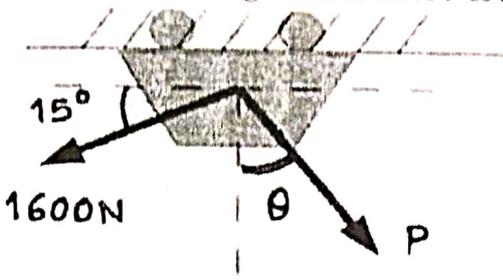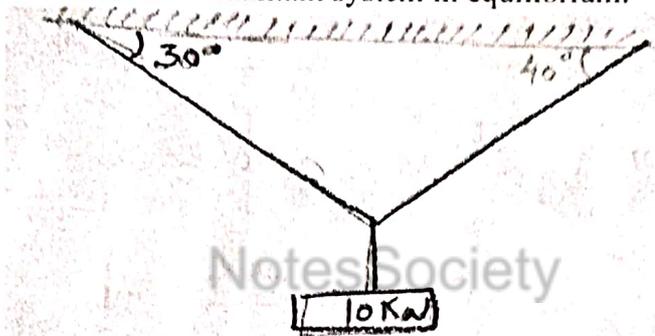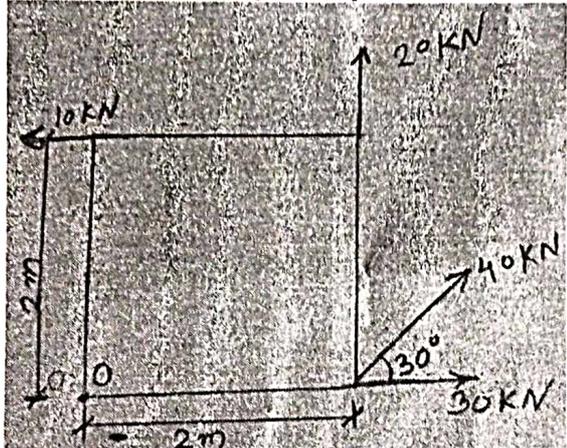
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PIMPRI CHINCHWAD UNIVERSITY
(Established Under Govt. of Maharashtra Act No. V of 2023)
Sate, Maval (PMRDA), Dist: Pune, Maharashtra – 412106

Program	: First Year B. Tech. (All)
Batch	: 2023-24
Semester	: II
Course	: Problem Solving Using C
Course Code	: CSE101
Day	: Thursday
Date	: 15-02-2024

Maximum Marks: 20

Time: 1 hr

Instructions:
1. All questions are compulsory.
2. Assume missing data suitably, if any.

Q.No.		QUESTION	BTL	CO	Marks
Q.1		**Answer any one (a or b)**			**10**
a)	i)	Write syntax of for loop. Write C code for printing first 10 natural numbers.	KL1	CO1	6
	ii)	Define a loop. Explain working of while loop in C with an example C program.	KL2	CO1	4
b)	i)	Explain the concept of if else ladder statements with an example c program.	KL3	CO1	6
	ii)	Write C code to find whether the given number is even/odd.	KL1	CO1	4
Q.2		**Answer any one (a or b)**			**10**
a)	i)	Explain how one-dimensional arrays are implemented using loops with C program.	KL4	CO1	6
	ii)	Explain how to access elements of two-dimensional array.	KL4	CO1	4
b)	i)	Explain any one type of operator in detail.	KL2	CO1	4
	ii)	Write C code to find greatest of three numbers.	KL3	CO1	6

Student Name. Akanksha Jhana

Enrollment No.: Sof 2324 1010 003

Printed Pages:

School of Engineering and Technology

Unit Test – I	Even Semester	Month- Feb, 2024

Programme: First Year B. Tech. (Div. F to J)   [Semester-II]   [Batch:2023-24]

Course Title: Basic Electronics	Max Marks : 20
Course Code: ELT101	Time: 1 hour

Instructions:

1. *All questions are compulsory.*
2. *Assume missing data suitably, if any.*

Q No	QUESTION	BTL	CO	Max Marks
Q.1	**Attempt any one question**			
a	Which two rectifiers will conduct for full cycle? Draw the construction of both and explain it with waveforms.	1,2	CO1	10
b	Name the diodes which coverts light into electrical energy and electrical into light energy and explain with diagram		CO1	10
Q.2	**Attempt any one question**			
a	What is meant by transistor and classify the type of transistors and also explain the working NPN transistor	1,2	CO2	10
b	Define the operating regions of transistor and explain the working of PNP transistor with current components.	1	CO2	10

Academic Year:2023-24 Term–II	**Unit Test-I Question Paper**	

Department: First Year Engineering

Subject: Engineering Physics
Subject Code: PHY101

Class: F.Y. B.Tech.
Maximum Marks:20

Div: F,G,H,I,J
Duration: 1 Hr.
Date: 17.02.2024

Note: Solve <u>Q1 or Q2</u> & <u>Q3 or Q4</u>
Course Outcomes:
  CO1 :

Q 1		*All questions are compulsory.*	Marks -10
	a)	**(i)** Explain the phenomenon of refraction using wavefront theory. **(2 marks)** **(ii)** A light ray passes through a medium with refractive index 1.5 and strikes to medium1-medium 2 interface, as shown in below figure. Determine the critical angle at which total internal reflection of light will occur? (Given the refractive index of medium 2 is 1.2). **(3 marks)** $n_2 = 1.2$ medium 2 $n_1 = 1.5$ medium 1	(Marks -5) [CO1], KL-2,4
	b)	**(i)** What do you mean by optical path and geometrical path? Write the relation between them. **(3 marks)** **ii)** The light has a wavelength of 500 nm. What will be the value of phase difference for a path difference of 2.5 mm? **(2 marks)**	(Marks -5) [CO1], KL-1,4
		OR	
Q 2		*All questions are compulsory.*	Marks -10
	a)	**(i)** Define wavefront. What are the different types of wavefronts? Explain with suitable figures. **(3 marks)** **(ii)** Explain types of reflection with suitable diagrams. **(2 marks)**	(Marks -5) [CO1], KL-1,4
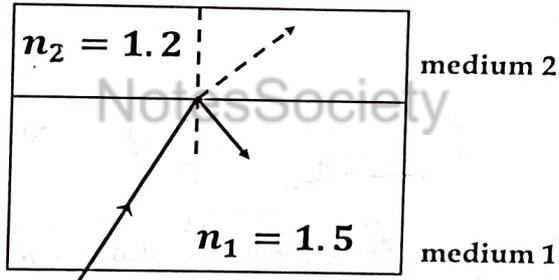
	b)	For Young's double slit experiment derive the condition, path difference $= \frac{xd}{D}$; where the $x, d \; and \; D$ have their usual meanings. Also find the relationship between path difference and bright and dark fringes. **(5 Marks)**	(Marks -5) [CO1], KL-3

Q 3		**All questions are compulsory.**	
	a)	**(i)** What is diffraction of light? Explain Fraunhoffer diffraction with suitable diagrams. **(3 marks)**	**Marks -10** (Marks -5) [CO1], KL-1,4
		(ii) A diffraction grating produces a deviation of 30° in the second order with the light of wavelength 580 nm. Find the slit spacing d. **(2 marks)**	
	b)	**(i)** Explain the phenomena of interference of light. What are the conditions for observing sustained interference? **(2 marks)**	(Marks -5) [CO1], KL-1,4
		(ii) A thin film having refractive index of 1.33 is used as an anti-reflective coating on a piece of glass. Calculate the minimum thickness of this film to minimize the reflection of 700 nm light? **(3 marks)**	

		OR	
Q 4		**All questions are compulsory.**	
	a)	**(i)** What is antireflecting coating? What are requirements for a thin film to work as an antireflecting coating. **(3 marks)**	**Marks -10** (Marks -5) [CO1], KL-2,3
		(ii) Draw the reflected and transmitted ray diagram for thin films and mention the proper angles for them in the ray diagram. **(2 marks)**	
	b)	What is diffraction grating? Explain with diagram. Also, derive the relation for bright and dark fringe formation in diffraction gratings. **(5 marks)**	(Marks -5) [CO1], KL-3

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Sate, Maval (PMRDA) Dist: Pune Maharashtra – 412106

Program	:	First Year B. Tech. (All)
Batch	:	2023-27
Semester	:	II
Course	:	Integral Calculus and Numerical Technique
Course Code	:	MTH 102
Day	:	Tuesday
Date	:	20-02-2024

Maximum Marks: 20

Time: 1 hr.

Instructions:

1. *All questions are compulsory.*
2. *Assume suitable and necessary data wherever required.*

Q. No	QUESTION	BTL	CO	Max Marks
Q. 1.	**Solve any Two**			**[10]**
a)	Solve the differential equation: $(xy - 2y^2)dx - (x^2 - 3xy)dy = 0$	BTL3	CO1	5
b)	A resistance of 100 Ω and inductance of 0.5 henry are connected in series with battery 20 volts. find the current in a circuit as a function of t.	BTL3	CO1	5
c)	A body of a temperature $100^0 C$ is placed in a room whose temperature is $20^0 C$ and cools to $60^0 C$ in 5 minutes. Find the temperature of body after further interval of 3 minutes?	BTL3	CO1	5
Q. 2.	**Solve any Two**			**[10]**
a)	Evaluate the following integrals i) $\int_{0}^{\frac{\pi}{8}} \sin^5(4x)\,dx$ ii) $\int_{0}^{\pi} \sin^6 x \cos^4 x\,dx$	BTL3	CO2	5
b)	Evaluate $\int_{0}^{\infty} x^7 e^{-2x^2}\,dx$	BTL3	CO2	5
c)	Evaluate $\int_{2}^{5} (x-2)^3 (5-x)^2\,dx$	BTL3	CO2	5

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