Department of Computer Prience and Engineering

B. Sc. | CSE

Mid Examination, Spring 2023

Course Code: PHY-1101

Course Title: Physics-I

Fuli Marks: 30

Time: 1 hours 30 minutes

(i) The figures in the right-hand margin indicate full marks

(ii) Course Outcomes and Bloom's Levels are mentioned in additional Columns

	Course Learning Outcome; (COs) of the Questions
CLUI	Understand the basic knowledge of mechanics, optics and thermodynamics in the context of
	Apply mathematical knowledge of mechanics, optics and thermodynamics to formulate and solve basic engineering problems.

Bloom's Levels of the Questions								
Letter Symbols	R	U	App	An	E	С		
Meaning	Remember	Understand	Apply	Analyze	Evaluate	Create		

		Part A [Answer the questions from the followings]			
1.	a)	Explain moment of inertia and radius of gyration.	CLO1	U	2
1.	b)	Develop the relation between the moment of inertia and radius of a ring with a circular ring.	CLO1	C	5
		Or,			
1.	_b)_	Calculate the moment of inertia of a thin uniform rod about an axis passing unough an end perpendicular to its length.	CLOI	Ċ.	3
1.	c)	A flywheel of mass 150 kg and radius 0.5 cm makes 30 revolutions per second. Calculate angular velocity and moment of inertia.	CLO2	E	3
2.	a)	State and explain Newton's law of Gravitation?	CLO1	U	2
2.	b)	Build up the relation for gravitational potential and field due to a spherical shell at a point ID the shell. ODD ID= Outside Even ID= Inside.	CL01	R,	5
2.	c)	What will be the acceleration due to gravity on the surface of the moon if its radius were 1/4th radius of earth and mass 1/80th of the mass of earth?	CLO2	E	3
		Or,			•
2	c)	The mass and radius of a circular disc are 10 <sup>5</sup> kg and 0.5 m respectively. Determine the moment of inertia and radius of gyration of the circular disc.	CLO2	E	3
3.	a)	Express the concept of uncertainty principle.	CLO1	U	2
3.	b)	Establish the time-dependent Schrödinger wave equation for a particle moving in positive X-direction.	CLO1	R	5
		Or,			
3.	b)	Explain the parallel axes and perpendicular axes theorem of moment of inertia.	CLO1	E	2+3
3.	c)	Write the properties of wave function ψ in quantum mechanics.	CLO2	E	3 `

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#### Morality Development Program (MDP)

Midterm Examination, Spring - 2023

Course Title: Tajweedul Quran 1

Course Code: MDP-1101, 1st Semester

Full Marks: 30

Time: 1.30 Hours

Answer any three (03) of the following:

3×10=30

Q1.Answer the following Questions.

- a) How many Alphabets there are in Arabic language?
- b) What is the meaning of Tajweed?
- c) What is the meaning of Makharij, Tartil and Tadabbor.
- d) How many letters are articulated from throat? さんと、て、と、 ひ、タ
- e) Write the Ta'awudh and Basmalah.

Or

Write the meaning of surah An-Nas and surah An-Nasar.

Q2.Explain the necessity of Tajweed mentioning the evidences from the Holy Quran and Hadith.

Q.3:

- a) Define Madd with mentioning its various kinds
- b) Identify the types of *Madd* in the underlined words of following *Ayats* and explain their signs.

Q.4:

- A) Write the articulatory gland of Makhaarij and its various divisions
- B) Write the Mahkarij of : غ, ج, ج, ت, م, ج

# International Islamic University Chittagong Centre for General Education (CGED)

Midterm- Examinatio 1, Spring- 2023

Course Code: UREM-1101

Course Title: Text of Ethics and Morality

Marks: 30

Duration: 1:30 hours

## Answer all questions

		1.3. 1	200		
SL	Questions		Marks	CLOs	Blooms taxonomy domain
01	Elucidate the characteristics of muttaque in the Surahtul Baqarah.	mentioned			Analyze
	Or, Give a detailed introduction to Arain including its alphabets and visible	ic language	10	CLO-1	& Remember
	pronunciation.				
02	Explain the necessity of Ethics and more professional and personal life.	orality in our	10	CLO-1	Creative
03	c. Find out some unethical activities in	our society.	. 05	CLO-2	Remember
	d. Elucidate their solutions accord Quranic directions.	ling to the	05	CLO-2	Analyze

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# International Islamia University Chittagong Department of Computer Science & Engineering Mid Term Examination (Spring Semester-2023) Mathematica, I, MATH-1107

M	larks	-30		Time-1	30 hours
		(Answer the fo!	owing Questions)		
1.	a)	Find the domain and range for the for	Inction $y = f(x) = \frac{x+1}{x-1}$	2	CLO1
		Or tan x – sin x		2	CLO1
		Evaluate $\lim_{x\to 0} \frac{\tan x - \sin x}{x^3}$			CLOI
	ь)	Find the Maclaurin Polynomials for Or	he function $f(x) = e^x$	3	CLO1
		Test the continuity and different:	bility for the functions at	3	CLO1
		$x = \frac{\pi}{2}$			
		f(x)=1; x<0			
		If $=1+\sin x$ ; $0 \le x < \frac{\pi}{2}$			
		$=2+(x-\frac{\pi}{2})^2; x \ge \frac{\pi}{2}$			
	c)	Suppose we are asked to determine can be applied to $f(x) = x^4 - 2x^2$ on	the closed interval [-2, 2].	5	CLO2
		And if so, find all values of c in the theorem.	e interval that satisfies the		
		Or Verify the Mean value theor		5	CLO2
		$f(x) = x^2 - 5x + 7$ in the interval $-1 \le$	≤ x ≤ 3		
2.	ą)	Differentiate $tan^{-1} \frac{2x}{1-x^2}$ with respec	ct to $\sin^{-1}\frac{2x}{1+x^2}$ .	5	CLO2
		Differentiate cos x using first principle	2 1 2	5	CLO2
3.		If $y = \sin^{-1} x$ , then show that:		8	CLO2
	<b>b</b> )	$y_{n+2}(1-x^2)-(2n+1)xy_{n+1}-(n^2)$ Also find $(y_2)_0$	y,, = 0	2	CLO2

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Center for General Education (CGED)

Mid-term, Spring-2023

Course Code: UREL -1106 Course Title: Advanced English

Time: 1Hour & 30 Minutes

## Section A: Reading Part

Read the passage carefully and answer the questions no. 01

Men usually want to have their own way. They want to think and act as they like. No one, however, can have his own way all the time. A man cannot live in society without considering the interests of others as well as own interests. 'Society' means a group of people with the same laws and the same way of life. People in society may make their own decisions, but these decisions ought not to be unjust or harmful to others. One man's may so easily harm another person. For example, a motorist may be in hurry to get to a friend's house. He sets out driving at full speed like a competitor in a motor race. There are others vehicles and pedestrians on the road. Suddenly there is a crash. There are screams and confusion. One careless motorist has struck another car. The collision has injured two of the passengers and killed the third. Too many road accidents happen through the thoughtlessness of selfish drivers.

We have governments, the police and the law courts to prevent or to punish such criminal acts. But in addition, all men ought to observe certain rules of conduct. Every man ought to behave with consideration for other men. He ought not to steal, cheat or destroy the property of others. There is

no place for this sort of behavior in a civilized society.

Men in free society have certain privilege. The gover ment and the police do not watch all their movements. Officials do not dictate to them everything they may or may not do. Men in free society think as they please. They may even choose their own government. In return for these privileges they ought not to act selfishly. They ought always to respect the rights of others. It is very important for men to remember this. Wherever they may live, whether in a town or in a village, in a large or a small community, they ought not to behave thoughtlessly. The happiness of a community depends on the behavior of its individual members. It is very good citizen's responsibility to give as well as to receive.

1. Answer according to the instruction below.

- a) A man has to live ----- the interests of others. Fill in the gaps with suitable word from the passage
- هل) Attitude- Find a word from the passage that expresses the similar meaning.

c) What does 'Society' mean?

- d) Explain the idea "to give as well as to receive".
- e) Find a word from the passage that becomes antonym with the prefix "dis".
- f) In a community, we ought not to behave thoughtlessly- Rewrite the sentence replacing the words in italics.
- g) An individual who tries to do better than others- find a word from the passage that expresses the similar meaning.
- h) The poor family was getting \_\_\_\_\_ to survive in these hard days. Fill in the gaps with suitable word from the passage

i) People walking on foot- find a synonym from the passage.

i) The government holds the sole authority to dictate every citizen. True or false?

k) Screams and confusion- what does this phrase mean?

1) What does the happiness of a community depend on?

m) Write down the noun form of the word "certain".

n) A man cannot live without considering the interests of others. The underlined word is gerund or participle?

o) Explain the word "selfish" from your own.

Collision-write a sentence taking the verb form of the word mentioned.

2. Read the passage carefully and answer the following questions:

Mismanaged plastic waste of the metropolis has turned the Karnaphuli, on whose banks the country's key sea port is located, into the top plastic-digesting river. Around 40 percent of the mismanaged plastic ended up in the water body, a key river in the Chattogram region. It is followed by the Rupsha river in the south-west of the country, which swallows up to 31.7 percent of plastic waste.

The Chattogram Port Authority had to recently halt a dredging project halfway due to massive layers of polythene at least seven meters high. A secondary data analysis by Centre for Policy Dialogue (CPD), as part of its CPD-Green Cities Initiative Research, was revealed yesterday. Other rivers choking from plastic pollution include the Kirtankhola (7.1 percent), Sandha (6.5 percent), Nar (4.1 percent), Meghna (3.3 percent), Kaliganga (2.5), Baleshwari (2.0 percent), Sugandha (1.8 percent), Galachipa (1.2 percent), Payra (0.7 percent), and Bishkhali (0.2 percent).

The CPD analysis said mismanaged plastic waste is a significant source of contamination in the country's water system, adding that around one million metric tons of it is generated every year around Bangladesh's coastal areas. A research fellow at CPD involved in study, told the media that 646 tones plastic waste are produced every year in Dhaka alone. Of those, 48 percent goes to landfills, 37 percent is recycled, 12 percent ends up in rivers, while the remaining three percent is littering the roadsides. "The situation worsened as Bangladesh, being a deltaic landscape, receives a portion of plastic from neighboring countries. The scenario could get disastrous without political commitment to reduce plastic pollution," he said.

The study further said excessive consumption and indiscriminate disposal of single-use-plastics, such as plastic bag, clear plastic thin wraps, coffee cups, and lids became intensified during the Covid-19 pandemid. The canals that lead to rivers crisscrossing the cities carry the domestic waste, which is largely made up of polythene and plastic. Meanwhile, industrial pollution has also been taking a toll on the river.

The general secretary of Bangladesh Paribesh Andolon said that the damage done to the rivers through plastic pollution is beyond words -- killing aquatic life, halting navigation and depriving riverine people of their livelihood and inflicting diseases on them. "To stop this menace, we must have a comprehensive plan. Though we are the first country to ban the use of plastic, in practice, the use of it increased every year. So much so that our drains, canals and rivers are all clogged. "The government must recognize this public health hazard and the economic loss caused by it. Otherwise, we will have to be spectators of our own destruction."

Answer the questions according to the directions.  $1 \times 7 = 7$ 

a. The theme of the passage is—(industrial waste/ mismanagement of plastic waste/ threat of plastic waste to the environment.) Fill the blank with suitable words from the options.

b. Here the phrase ended up in means .\_\_\_\_.

c. The authority stopped the dredging project due to heavy siltation. Is it true/false.

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ď. multiplied the consumption and rampant disposal of single- use plastics. Choose a phrase from the passage to complete the sentence. e. Meanwhile, industrial pollution has also been taking a toll on the river. Here the underlined words mean Make a sentence with deprive of. What is name of the research project of CPD? Section B: Grammar Part 3. Answer according to the instruction below.  $0.5 \times 10 = 5$ a) They enjoyed playing football. Transform the sentence into passive form. b) Inside the hive are six sided cells or apartments made by the bees. The underlined part is a phrase or clause? c) I had finished the book yesterday. Correct the sentence if necessary. The question was too difficult for him to answer. Transform this into complex sentence. External students are older than the internal students. Use positive degree of the adjective without changing the meaning. The quality of our products (to be) getting better day by day. Use right form of verb. Men who are working to grow crops play a vital role to the economy. Make the sentence simple. h) The flight (take off) after the president (arrive) at the airport. Use right form of verb. Make a sentence as sub+verb+adverbial so that+ sub+verb Boys have been played for Sunday last. Correct the sentence. Section C: Writing Part 4. Answer any one of the following. a) Write a paragraph on the topic given below: Offline Learning versus Online Learning. Or b) Rubayet, a student who passed SSC online and HSC with short syllabus, has recently

enrolled himself for undergraduate program in IIUC. When he first came here for admission test, he simply overwhelmed by seeing the great campus amidst natural beauty. He was planning many things when he was returning after orientation ..... (Expand these sentences into a complete story)

5. Speaking test. (It will be taken by the course teacher in a convenient time)

Department of Computer Science and Engineering

B. Sc. Engir cering in CSE

Midterm Examii ation, Spring 2023

Course Code; EEE 1121

Course Title: Basic Electrical Engineering

Full Marks: 30

Time: 1 hour 30 minutes

(i) Answer all the questions. The figures in the right-hand margin indicate full marks.

(ii) Course Outcomes (COs) and Bloom's Levels are mentioned in additional Columns.

		(ii)	Course Ouicomes (COs) and Bloom is			
1)		W	hat do you understand by active and passive elements in electrical	201	U	2
1)		] " ] I	30 V (1) (2) 8 V (1) (3) (1) (4) (4) (4) (4) (4) (4) (4) (4) (4) (4	202	Ap	4
_	+	-	For the circuits in Yig 15 and Fig 1c, fine country our currents.		1	
1	. i	c)	74 447	CO1	E	4
			Fig-1b Fig-1c			-
	2)	a)	Explain the term KVL and KCL using suitable example	COl	U	. 2
		,	Using nodal analysis find the voltages at the three nonreference nodes in the circuit of Fig-2a			
	2)	Ь	$1 \qquad \qquad \frac{3\Omega}{11} \qquad \frac{2}{4} \qquad \qquad 3$	CO2	An	4

			Calculate the mesh currents it and iz of the circuit of Fig-2b			
	2)	c)	$ \begin{array}{c c} \hline  & & & & & & & & & & & & & & & & & & $	CO2	An	4
			Apply superposition principle to find I in the circuit of Fig-3a			
	3)	a)	6Ω W 18Ω Ω.05 Å  16 V 2Ω	CO3	Ap	5
			Fig. 3a			
	3)	b)	Using Thevenin's theorem, find the equivalent circuit to the left of the tenninals in the circuit of Fig-3b Then find $I$ . $ \begin{array}{cccccccccccccccccccccccccccccccccc$	CO2	E	5
			18V(2) 3A 340 310 T22.25A			
			Fig. 3b			
			OR			
	3)	a)	Use source transformation to find $v_0$ in the directi shown in Fig-3c $4\Omega = \frac{2\Omega}{3A} + \frac{\Omega}{8\Omega} = \frac{12V}{12V}$ Fig-3c	CO2	Ap	5
			Find the Norton equivalent circuit of the circuit in Fig-3d at terminals $a$ - $b$ .			·
•	3	, b	$\begin{array}{c c} & & & & & & & \\ & & & & & & \\ & & & & $	СОЗ	E	5

## Department of Computer Science and Engineering

B. Sc. in CSE Midterm Examination, Spring 2023

Course Code: CSE 1121 Course Title: Computer Programming 1

Total marks: 30

Time: 90 minutes

[Answer all the questions; in some questions, there might be options; Figures in the right hand margin indicate full marks.]

```
1.5
   double a = 0.4;
   if (a * 3 == 1.2)
        printf ("Equal\n");
    else {
        printf ("Not Equal\n");
       What is the output of the following code segment?
    (ii) Why does this happen?
    (iii) How would you compare two double values if you have to take into consideration 4 digits after
    the decimal point?
    Assume a real number variable p = -3.78 \times 10^{-8}. Write an appropriate statement to declare and
b)
    initialize the variable p.
    Convert the following mathematical expression into C equivalent statements:
    (i) area = \sqrt{s(s-a)(s-b)(s-c)}
    OR
    Consider the following code segment:
     switch (n)
          case 1:
                printf ("Three\n"); break;
```

```
case 2:
   printf ("One\n");
case 5:
    printf ("Two\n"); break;
default:
    printf ("None\n"); break;
```

What is the output of the above code segment if n has a value of

- (i) 2
- (ii) 3

2.5

d) Let we have a cubic function of the form  $f(x) = ax^3 + bx^2 + cx + d$ , where a, b, c, and d are integers and  $a \neq 0$ . Write a program to evaluate the value of the cubic function given the value of a, b, c, d, and x. Consider x as a real number.

A C program contains the following declarations and initial statements:

int 
$$a = 10$$
,  $b = 5$ ,  $c = 0$ ;

double 
$$x = 0.01$$
,  $y = 0.05$ ;

Show the step-by-step approach how the following expressions will be evaluated according to the rules of associativity and precedence. An example is shown for you.

 $\{ x /= 9; y += 2; \}$ 

What will be the values of x and y if n assumes a value of

Explain with rough calculations.

You are given an integer N. Its value can be 1, 2 or 3.

If N = 1, then take 2 integers A and B as input which denote the height and width of a rectangle. Print its perimeter.

If N = 2, then take 3 integers A, B and C as input which denote the length of two parallel sides of trapezium, and height of it. Print its area.

If N = 3, then take 1 integer A as input which denotes the diameter of a circle. Print its area.

See sample input output for more details.

[Perimeter of rectangle = 
$$2 \times (A + B)$$
,

Area of trapezium =  $\frac{(A + B) \times C}{2}$ ,

Area of circle =  $\pi \times Radius^2$ ]

#### Note:

- Print values with 2 decimal places.
- Consider  $\pi = 3.14159$

Sample Input	Sample Output
1	20.00
2	30.00
3 9 5	· :

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You are given marks of two subjects Math and physics of two students A and B. Find out who will become first based on the total marks obtained. If total marks of two students get same, then consider the marks of Math.

If both the marks are identical, print BOTH instead.

Sample input	Sample output
100 100	A
100 80	
80 100	B
100 80	
80 60	BOTH
80 60	

In case 2, both students got same total marks, but second student got heights marks in math. So, B became first.

#### OR

You are given the height and the base of two right angle triangles T1 and T2, find out which triangle is larger.

To find out the larger one, use the area of the triangles. If the area of both triangles are equal, use the height for finding out the larger one. If both the triangles are identical, print SAME instead.

[Area of right angle triangle = 0.5 × Height × Base]

Sample input	Sample output
106	TL
54	
8-5	T2
108	
86	SAME
8 6	

a) Write the outputs of the following code segments:

(i)	<pre>int n = 3; while (n) {     printf ("%d\n", n); }</pre>
(ii)	<pre>int n = 3; do {     printf ("%d\n", n); } while (n);</pre>

3

b) Calculate the cumulative product of a list of N numbers.

Sample input	Sample output
3 2 3 5	2 6
	30

You are given N number of integer values, count the number of 5 or 3s in the list. Also print the total sum of these 5s and 3s. First line of input contains an integer N followed by N number of integer values in the next lines.

All the integer values are within the range of 1 and 100000.

Sample Input	Sample output
6 135635	4
6 3 1 5 10 3	3

OR

Write a C program that will take a positive integer N. Then N more positive integers will be followed in input. Print the average of the numbers which are multiples of 7.

Sample Input	Sample Output
4	14.00
217814	

Here, (21, 7, 14) are multiples of 7 but 8 is not.

