

International Islamic University Chittagong

Morality Development Program (MDP)

Midterm Assessment Test, Spring-2022

1st Semester (for Muslim Students only, other than Shari`ah Department)

Course Title: Tajweedul Qur'an: I, Course Code: MDP-1101

Time: 3:00 hours

Full Marks: 30

Written: 30

Answer any three (03) of the following questions:

1. Write the meaning of the following Surahs. (Any two). 2×5=10

- a. Surah an-Naas (سورة الناس)
- b. Surah al-Lahab (سورة اللہب)
- c. Surah al-Ikhlaas (سورة الإخلاص)

2. Answer the following questions 5X2= 10

- a) Write the importance of reciting the Holy Qur'an.
- b) Define Tajweed.
- c) What is *Makhraj*? How many *Makharij* are there in *Tajweed*?
- d) Write Arabic letters.
- e) Mention an Ayat and a hadith regarding *Tajweed*.

3. Write the *Makharij* of the following letters. 10

ر - ت - ك - ق - ي - ث - ج - ع - ء

4. Define the following terms: 10

- (a) *Ta'awudh* (b) *Basmalah* (c) *Tarteel* (d) *Tadabbur*.

Note:

- The PDF file of the answer sheet must be submitted within three hours from starting the examination through Google Classroom.
- 2:30 hours for the written examination, 30 minutes for uploading and submitting the documents. Total: 3 hours.



International Islamic University Chittagong (IIUC)

Department of Computer Science and Engineering (CSE)

B. Sc. in CSE, Mid Term Examination (Online), Spring-2022

Course Code: MATH-1107, Course Title: Mathematics-I

Time: 3:00 hours Marks: 21

(Answer all questions. Figures in the right margin indicates full marks)

Section: 1AM

[N.B. Please answer the several parts of a question sequentially]

SET: ALPHA

1. a) Test the continuity of the function,

4

$$f(x) = |x + a| + |x + (a + 1)| \text{ at the point } x = a$$

Where a is the last digit of your ID

- b) Using L'Hospitals rules evaluate the limit: $\lim_{x \rightarrow \infty} x\{(a+1)^{1/x} - 1\}$

3

Where a is the last digit of your ID

2. a) Differentiate $\tan^{-1} \frac{\sqrt{1+x^2}-1}{x}$ with respect to $\sec^{-1} \frac{1}{2x^2-1}$

4

- b) If $y = \frac{x}{(a+1)+} \cdot \frac{x^2}{(a+1)+} \cdot \frac{x}{(a+1)+} \cdot \frac{x^2}{(a+1)+} \cdot \dots \dots \dots \dots \infty$ then find $\frac{dy}{dx}$

3

Where a is the last digit of your ID

3. a) If $x = \sin \left(\frac{1}{(a+1)} \ln y \right)$ then using the Leibnitz theorem show that,

4

$$(1 - x^2)y_{n+2} - (2n + 1)xy_{n+1} - \{n^2 + (a + 1)^2\}y_n = 0$$

Where a is the last digit of your ID

- b) Verify the truth of Mean Value theorem for the function,

3

$$f(x) = x^3 - 2x^2 + 3x + a \text{ in the interval } [0, (a+1)]$$

Where a is the last digit of your ID

International Islamic University Chittagong

Centre for General Education (CGED)

Midterm Assessment Test, Spring -2022

Course Code: UREM-1101

Course Title: Textual Study of Ethics and Morality

Marks: 30 (W:20+V:10)

Duration: 3.00 hours

.....
Answer any two (02) of the following questions

1. Answer any five (05) of the following questions.

5X2= 10

- A. Define the following terms:
education, morality , ethics , *taqwa*
- B. Explain '*as-Sirat al-Mustaqiim*'.
- C. Write some characteristics of the sun letters and the moon letters.
- D. Write the meaning of *Suratut-Tawheed* in English.
- E. Define *al-harakah* with example?
- F. Write the different names of *Surah-al-Fatihah* in English.
- G. Write the meaning of the words below:

فَلَمْ، الْشَّمْسُ، كِتَابٌ، بَيْتٌ، أَبٌ، أَخٌ، عَمٌ، جَامِعَةٌ

**2. Define ethics and morality and then Explain the necessity of ethics and morality in
human life.**

10

3. Write short notes on the topics below:

5X2=10

- a. The lessons of *Surah al-Fatihah*.
- b. The necessity of Arabic language.

Instructions:

- ✓ Cover page,
- ✓ Hand writing,
- ✓ Margin,
- ✓ Page no., departmental ID, student signature should be written in the top of each page,
- ✓ Image should be clear,
- ✓ Answer script must be submitted within 3.00 hours,
- ✓ PDF (if possible).

Viva voce: 10

**Attend the viva through 'zoom video' as per the schedule and instructions of
your course instructor.**

International Islamic University Chittagong
Department of Computer Science and Engineering
B. Sc. in CSE Midterm Exam, Spring 2022
Course Code: PHY-1101 Course Title: Physics-I

Total marks: 21

Time: 2 hours 30 minutes for exam + 30 minutes for submission

[Answer all the questions; Figures in the right hand margin indicate full marks.]

- | | | |
|--------------|---|----------|
| 1. a) | What are the practical uses of a flywheel? | 3 |
| b) | Establish an expression for the moment of inertia and radius of gyration of a thin uniform bar while the axis of rotation passes through the center. | 4 |
| 2. a) | Use Kepler's second law to convince yourself that the Earth must move faster in its orbit during December, when it is closest to the Sun, than during June, when it is farthest from the Sun. | 3 |
| b) | Determine the gravitational potential at a point due to a spherical shell when the point is situated inside the shell. | 4 |
| 3. a) | Derive the time-independent Schrödinger's equation for a particle moving in x-direction. | 4 |
| b) | Solve the Schrodinger equation for electrons which propagate freely, i.e., in a potential-free space in the positive x-direction | 3 |

Bismillahir Rahmanir Rahim
International Islamic University Chittagong
Department of Computer Science & Engineering
B. Sc. in CSE Mid-term Examination, Spring- 2022
Course Code: EEE- 1121 Course Title: Basic Electrical Engineering
 Total marks: 21 Time: 3 hours

[Answer all the questions]

1. a) If the potential difference between two points is XX V, how much work is required to bring 6 C from one point to the other? Replace XX with the last two digits of your ID, take 10 in case of 00.
- b) Find I_1, I_2, I_3, I_4 in the Fig-1. Replace 10 A with the last digit of your ID, take 10 in case of 0. 02

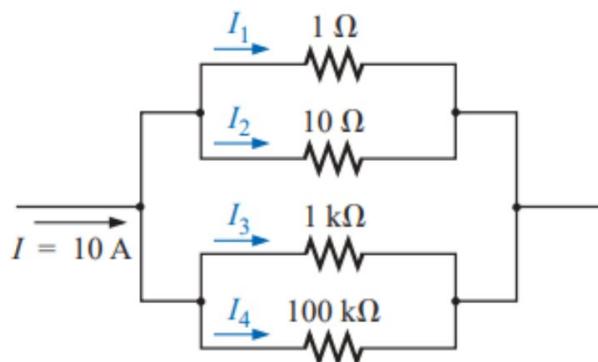


Fig-1

- c) Find the R_{eq} circuit of the Fig-2 03

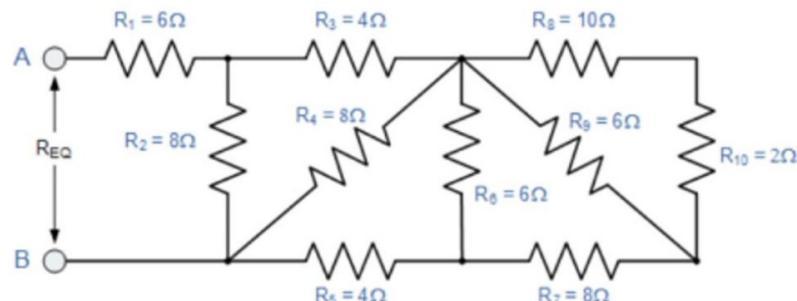


Fig-2

2. a) Find the mesh currents in the circuit of Fig-3. Replace the value of E_1 Source with the last two digits of your ID, take 10 in case of 00. 03

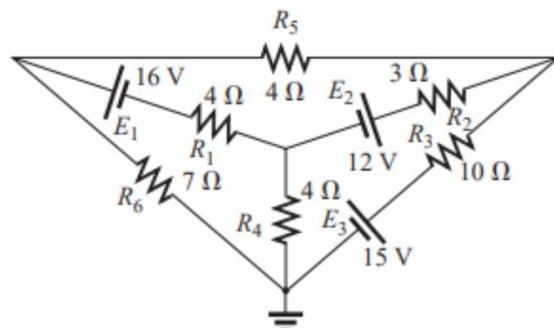


Fig-3

- b) Using node analysis, find the node voltages in the circuit of Fig-4. Replace 12V with the last 04 digit of your ID, take 10 in case of 0.

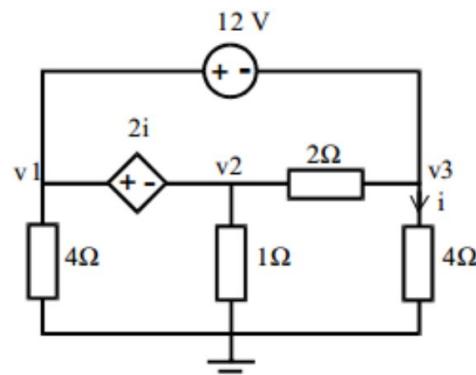


Fig-4

3. For the circuit shown in Fig-5, determine: -

07

- Thevenin equivalent circuit.
- Norton equivalent circuit.
- Find the maximum power deliverable to the load.

Replace 6 ohm with the last digit of your ID, take 10 in case of 0.

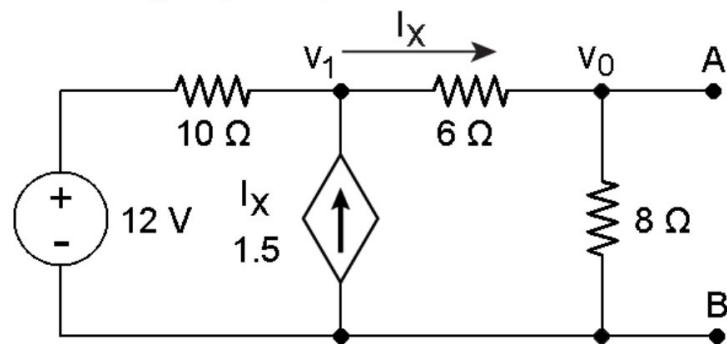


Fig-5

Set - Beta [For those whose Last Digit of ID is Even]

International Islamic University Chittagong

Department of Computer Science & Engineering

Mid Term Examination, Spring 2022

CSE 1121 Computer Programming I

Total marks: **21** Time: 2 hours 30 minutes for exam + 30 minutes for submission

[Answer all the questions. Figures in the right-hand margin indicate full marks.]

1.	a) Determine which of the following are valid identifiers. If invalid, explain why? i) 53rd ii) xy z iii) "CSE" iv) Float v) Computer_Programming	1
b)	Consider the following code segment that takes two integer inputs X and Y (here $1 \leq X, Y \leq 1,000,000,000$) and evaluates output for the equation $(X + Y)^2$. <pre>int X, Y, Z; scanf("%d%d", &X, &Y); Z = (X + Y) * (X + Y); printf("%d\n", Z);</pre> <p>Explain what is wrong with the above code snippet and show the correct way to do it.</p>	1
c)	<pre>float a = 5.24; double b= 5.24; if(a == b) printf("Yes"); else printf("No");</pre> <p>What is the output of the above code segment? Explain why does this output come.</p>	1
d)	Consider the following code that takes an integer input F which represents temperature in the Fahrenheit scale . It converts the temperature to the Celsius scale . <pre>int F; double cel; scanf("%d", &F); cel = (5 / 9) * (F - 32); printf("%.2f\n", cel);</pre> <p>Is the above code segment showing the correct output? If not, what should be done here?</p>	1
e)	What problem will arise when you take input in a character variable after another input. How can you solve this problem? Explain with a suitable example.	1
f)	Given the Basic of an employee. Write <i>i) algorithm ii) flowchart</i> to compute an employee's Gross pay and Net pay using the formulas- $\text{Gross} = \text{Basic} + \text{House Rent} + \text{Medical Allowance}$ $\text{Net} = \text{Gross} - \text{Tax}$ <p>Tax is subtracted from the Gross only if an employee earns more than TK.10000. Otherwise, deduct no Tax. Tax rate is 12% of Gross pay. House Rent is 50% of Basic and Medical Allowance is Tk. 500.</p>	2

2. a)	<p>A C program contains the following declarations and initial statements:</p> <pre>int i = 2, j = 5, k; float x = 3.5, y = -1.1, z;</pre> <p>Determine the value of each of the following assignment expressions. Use the values originally assigned to the variables for each expression. Show the calculations.</p> <ul style="list-style-type: none"> i) $k = i \% j$ ii) $z = k = x$ iii) $y += (j/2)$ iv) $k = (j == 5) ? --i : ++j$ 	1
b)	<p>What would be the output of the following code segment: (use separate boxes for each digit, blank space and other symbols)?</p> <pre>int m = 8123; float x = 34.567234600; char str[30] = "Quality";</pre> <ul style="list-style-type: none"> i) <code>printf("%08d\n",m);</code> ii) <code>printf("%-10.2f\n",x);</code> iii) <code>printf("%12.3g\n",x);</code> iv) <code>printf("%7.3s\n", str);</code> 	1
c)	<p>A C program contains the following declarations and initial statements</p> <pre>int n = -75, a = 400; double r = -0.43 char ch = 'b';</pre> <p>Write the C code segment [using C Library Functions] for the following tasks and find the values-</p> <ul style="list-style-type: none"> i) Absolute value of n. ii) Logarithm value of a in base 10. iii) Raised the value of a to power 3 iv) Ceil value of r v) Convert ch to a capital letter. 	2
d)	<p>An electricity board charges (<i>Energy charge</i>) the following rates to domestic users to discourage large consumption of energy:</p> <p>For the first 75 units: Tk. 3.8 per unit For Next 325 units: Tk. 5.4 per unit Beyond 400 units: Tk. 8.7 per unit</p> <p>All users are charged a minimum of Tk. 100/- for Energy charge. If the total cost for Energy charge is more than Tk. 7000/- then an additional surcharge of 12% is added. In addition to this Energy charge, all users have to pay Tk. 25/- as <i>Demand charge</i> and Tk. 15/- as <i>Service charge</i>. So, Net Bill = Energy charge + Demand charge + Service charge</p> <p>Write a C program to read the number of units consumed and print out the <i>Net Bill</i>.</p>	3
3. a)	<pre>x = 1; y = AA; //Here AA is the last two digits of your ID if (n > 5) if(n == 10) x += 2; else y -= 10; printf("%d %d ", x, y);</pre> <p>What will be the values of x and y if n assumes a value of i) 10 and ii) 3. Explain with rough calculations.</p>	1

b)	<p>Write a <i>switch</i> statement that will examine the value of an integer variable called <i>bus</i> and print one of the following messages, depending on the value assigned to <i>bus</i>:</p> <ul style="list-style-type: none"> Agrabad, if <i>bus</i> has a value 1 Chawkbazar, if <i>bus</i> has a value 2 Boddharhat, if <i>bus</i> has a value 3 Mirsharai, if <i>bus</i> has a value 4 Out of range of transport facility, if <i>bus</i> has any other value. 	1						
c)	<p>A student will not be allowed to sit in the exam if his/her attendance is less than 70%.</p> <p>Take two integer input:</p> <ol style="list-style-type: none"> Number of classes held, Number of classes he/she attended. <p>Print the percentage of class attended and whether the student is allowed to sit in the exam or not.</p> <table border="1" data-bbox="182 631 1182 765"> <thead> <tr> <th data-bbox="182 631 683 676">Sample Input</th><th data-bbox="683 631 1182 676">Sample output</th></tr> </thead> <tbody> <tr> <td data-bbox="182 676 683 720">100 80</td><td data-bbox="683 676 1182 720">80.00%, Allowed</td></tr> <tr> <td data-bbox="182 720 683 765">50 30</td><td data-bbox="683 720 1182 765">60.00%, Not Allowed</td></tr> </tbody> </table>	Sample Input	Sample output	100 80	80.00%, Allowed	50 30	60.00%, Not Allowed	2
Sample Input	Sample output							
100 80	80.00%, Allowed							
50 30	60.00%, Not Allowed							
d)	<p>You are given N number of integer values. Find out all the values within them which are divisible by 3 and 5, Also find their sum.</p> <p>First line of input contains an integer N followed by N number of integer values in the next lines.</p> <p>Print the values divisible by 3 and 5 separated by a space. Print the sum of these values in a separate line.</p> <table border="1" data-bbox="182 1073 1182 1208"> <thead> <tr> <th data-bbox="182 1073 683 1118">Sample Input</th><th data-bbox="683 1073 1182 1118">Sample output</th></tr> </thead> <tbody> <tr> <td data-bbox="182 1118 683 1163">5</td><td data-bbox="683 1118 1182 1163">15 30</td></tr> <tr> <td data-bbox="182 1163 683 1208">2 15 9 13 30</td><td data-bbox="683 1163 1182 1208">Sum=45</td></tr> </tbody> </table>	Sample Input	Sample output	5	15 30	2 15 9 13 30	Sum=45	3
Sample Input	Sample output							
5	15 30							
2 15 9 13 30	Sum=45							

Set - Alpha [For those whose Last Digit of ID is Odd]

International Islamic University Chittagong

Department of Computer Science & Engineering

Mid Term Examination, Spring 2022

CSE 1121 Computer Programming I

Total marks: **21** Time: 2 hours 30 minutes for exam + 30 minutes for submission

[Answer **all** the following questions. Figures in the right-hand margin indicate full marks.]

1. a)	Determine which of the following are valid identifiers. If invalid, explain why? i) CSE-1121 ii) float iii) _abc iv) 1AM v) Computer programming	1
b)	<pre>int main() { // Value of p 10^5 int p = 100000; // Value of q 10^5 int q = 100000; int result = p * q; printf("%d",result); return 0; }</pre> Explain what is wrong with the above code and show the correct way to do it.	1
c)	<pre>double a = 0.1; if (a * 3 == 0.3) { printf("Equal\n"); } else { printf("Not Equal\n"); }</pre> What is the output of the above code segment? Explain why does this output come.	1
d)	Consider the following code that takes two integer values A and B. It calculates the average of these two values. <pre>int A, B; double avg; scanf("%d%d", &A, &B); avg = (A+B)/2; printf("%.2f\n", avg);</pre> Is the above code segment showing the correct output? If not, what should be done here?	1
e)	What are the differences between <code>gets(str)</code> and <code>scanf("%s", str)</code> where <code>str</code> is a character array? Explain with example.	1

f)	<p>Given working hours (Hours) and rate per hour (Rate) of an employee. Write <i>i) algorithm ii) flowchart</i> to compute an employee's Gross pay and Net pay using the formulas-</p> $\text{Gross} = \text{Hours} * \text{Rate}$ $\text{Net} = \text{Gross} - \text{Tax}$ <p>Tax is subtracted from the Gross only if an employee earns more than TK. 15000/-. Otherwise, deduct no Tax. Tax rate is 10% of Gross pay.</p>	2
2. a)	<p>A C program contains the following declarations and initial statements:</p> <pre>int i = 12, j = 15, k; float x = 3.5, y = -1.1, z;</pre> <p>Determine the value of each of the following assignment expressions. Use the values originally assigned to the variables for each expression. Show the calculations.</p> <p>i) $k = i \% j$ iii) $y += (j/2)$ ii) $z = k = x$ iv) $k = (j == 5) ? i++ : --j$</p>	1
b)	<p>What would be the output of the following code segment: (use separate boxes for each digit, blank space and other symbols)?</p> <pre>int m = 786; float x = 24.675234600; char str[30] = "Morality";</pre> <p>i) <code>printf("%08d\n",m);</code> ii) <code>printf("%-12.3f\n",x);</code> iii) <code>printf("%10.4g\n",x);</code> iv) <code>printf("%8.3s\n", str);</code></p>	1
c)	<p>A C program contains the following declarations and initial statements</p> <pre>int n = -65, a = 100; double r = -2.636 char ch = 'b';</pre> <p>Write the C code segment [using C Library Functions] for the following tasks and find the values-</p> <p>i) Absolute value of n. ii) Logarithm value of a in base 10. iii) Square root of a. iv) Floor value of r v) Check whether ch is in lowercase or uppercase</p>	2
d)	<p>An electricity board charges (<i>Energy charge</i>) the following rates to domestic users to discourage large consumption of energy:</p> <p>For the first 75 units: Tk. 4.0 per unit For Next 325 units: Tk. 5.7 per unit Beyond 400 units: Tk. 9.3 per unit</p> <p>All users are charged a minimum of Tk. 100/- for Energy charge. If the total cost for Energy charge is more than Tk. 8000/- then an additional surcharge of 15% is added. In addition to this Energy charge, all users have to pay Tk. 15/- as <i>Demand charge</i> and Tk. 10/- as <i>Service charge</i>. So, Net Bill = Energy charge + Demand charge + Service charge</p> <p>Write a C program to read the number of units consumed and print out the <i>Net Bill</i>.</p>	3

3. a)	<p>The following is a segment of a program:</p> <pre><code>x = 10; y = AA; //Here AA is the last two digits of your ID if (n > 0) x = x - 5; y = y + 7; printf("x = %d y = %d", x, y);</code></pre> <p>What will be the values of x and y if n assumes a value of i) 2 and ii) 0 ? Explain with rough calculations.</p>	1						
b)	<p>Write a switch statement that will examine the value of an integer variable called <i>department</i> and print one of the following messages, depending on the value assigned to <i>department</i>:</p> <p>CSE, if <i>department</i> has a value 1 EEE, if <i>department</i> has a value 2 ETE, if <i>department</i> has a value 3 CCE, if <i>department</i> has a value 4 Not in Engineering Faculty, if <i>department</i> has any other value</p>	1						
c)	<p>Write a C program that will take three numbers as input, denoting the lengths of three sides of a triangle. Your program will output the area of the triangle if it is a valid one. Otherwise, it will write "No triangle possible".</p> <table border="1" data-bbox="187 810 1187 968"> <thead> <tr> <th data-bbox="187 810 683 855">Sample Input</th><th data-bbox="683 810 1187 855">Sample output</th></tr> </thead> <tbody> <tr> <td data-bbox="187 855 683 900">1.0 1.9 3.0</td><td data-bbox="683 855 1187 900">No triangle possible</td></tr> <tr> <td data-bbox="187 900 683 968">3.0 4.0 5.0</td><td data-bbox="683 900 1187 968">6.0</td></tr> </tbody> </table>	Sample Input	Sample output	1.0 1.9 3.0	No triangle possible	3.0 4.0 5.0	6.0	2
Sample Input	Sample output							
1.0 1.9 3.0	No triangle possible							
3.0 4.0 5.0	6.0							
d)	<p>You have given a number X. Print all the divisors of X and sum of the all even divisors of X. A number N is a divisor of X if N divides X i.e., if we divide X by N then the remainder is zero. If there is no even divisor print NULL</p> <table border="1" data-bbox="187 1136 1187 1293"> <thead> <tr> <th data-bbox="187 1136 683 1181">Sample Input</th><th data-bbox="683 1136 1187 1181">Sample output</th></tr> </thead> <tbody> <tr> <td data-bbox="187 1181 683 1226">16</td><td data-bbox="683 1181 1187 1226">1 2 4 8 16 Sum = 30</td></tr> <tr> <td data-bbox="187 1226 683 1293">21</td><td data-bbox="683 1226 1187 1293">NULL</td></tr> </tbody> </table> <p>Here in the first example divisors of 16 are 1, 2, 4, 8, and 16. And the sum of all even divisors of 16 is $2+4+8+16 = 30$.</p>	Sample Input	Sample output	16	1 2 4 8 16 Sum = 30	21	NULL	3
Sample Input	Sample output							
16	1 2 4 8 16 Sum = 30							
21	NULL							