

Mid-Term Examination 2022/01
B.Sc. Engineering in Computer Science Program
CSE 1101: Introduction to Computer Systems

Marks: 20

Time: 1.5 Hour

[The figures in the right margin indicate full marks for the respective question.]

[Answer any TWO sets rest of the following questions.]

- | | | | |
|----|----|--|---|
| 1. | a) | Define Computer. | 2 |
| | b) | Draw the diagram of characteristics of computer and describe at least two characters | 4 |
| | c) | I. $(757.57)_8 = (?)_{10}$ | 4 |
| | | II. $(28.125)_{10} = (?)_2$ | |
| 2. | a) | Define Primary storage. | 2 |
| | b) | Explain about Super computer. | 3 |
| | c) | I $(5DC\ AF)_{16} = (?)_{10}$ | 5 |
| | | II $(5A\ 2C)_{16} = (?)_2$ | |
| 3. | a) | What is Radix? | 2 |
| | b) | Distinguishes between Software & Firmware | 3 |
| | c) | I $(10101.11)_2 = (?)_8$ | 5 |
| | | II. $(750.80)_{10} = (?)_{16}$ | |
| | | III. $(DADA)_{16} = (?)_8$ | |

Semester Final Examination- 2022/01
Department of CSE
MATH 1101: Differential Calculus and Co-ordinate
Geometry

Marks: 60

Time: 03:00 hours

[The figures in the right margin indicate full marks for the respective question]

[Answer any five of the following questions]

01. a) Define Odd function and Even function with examples. 2
b) Define limit with a suitable example. 2
c) By $(\delta - \epsilon)$ definition of limit, prove $\lim_{x \rightarrow 2} \frac{2x^2 - 8}{x - 2} = 8$ and find the value of δ when $\epsilon = 1$. 4
d) Find $\lim_{x \rightarrow 0} \left(\frac{1}{\sin x} - \frac{1}{\tan x} \right)$. 4
02. a) Find $\lim_{x \rightarrow 0} \frac{e^x - e^{-x} - 2x}{x - \sin x} = 2$, with the help of L'Hospital's rule. 4
b) The function f is defined as follows:
$$f(x) = \begin{cases} -x & \text{when } x \leq 0 \\ x & \text{when } 0 < x < 1 \\ 2 - x & \text{when } x \geq 1 \end{cases}$$
 5
show that it is continuous at $x = 0$ and $x = 1$.
c) Find the derivative of the function $\sin 2x \cos x$ with respect to x . 3
03. a) Find, from the definition of differentiation, derivative of the function $\sin x$. 4
b) If $y = e^{\cos^{-1} x}$, show that
i. $(1 - x^2)y_2 - x y_1 - y = 0$. 8
ii. $(1 - x^2)y_{n+2} - (2n + 1)x y_{n+1} - (n^2 + 1)y = 0$.
04. a) Find the expansion of the function e^x . 5
b) Examine whether $x^{1/x}$ possesses a maximum or a minimum and determine the same. 7

05. a) Verify Euler's theorem for the function $u(x, y) = ax^2 + 2hxy + by^2$.

b) Show that the normal at the point $\theta = \pi/4$ on the curve

$$x = 3 \cos \theta - \cos^3 \theta,$$

$$y = 3 \sin \theta - \sin^3 \theta$$

passes through the origin.

06. a) Find the Cartesian co-ordinates of the point whose polar co-ordinates are $\left(4, \frac{5\pi}{4}\right)$.

b) Find the distance between the points (x_1, y_1) and (x_2, y_2) .

c) Find the relation between the new co-ordinates and old co-ordinates when the origin is transferred to (α, β) without changing the direction of axes.

07. a) Derive the equation of straight line passing through two points.

b) Find the equation of the line which passes through the point of intersection of the lines $7x - 6y + 6 = 0$, $2x + 9y - 5 = 0$ and perpendicular to $x - 3y + 19 = 0$.

c) Find for what value of λ the equation $12x^2 + 36xy + \lambda y^2 + 6x + 6y + 3 = 0$ represents a pair of straight lines.

08. a) Find the equation of tangent at the point (x_1, y_1) to the circle $x^2 + y^2 + 2gx + 2fy + c = 0$.

b) Reduce the equation $x^2 - 4xy + y^2 + 8x + 2y - 5 = 0$ to its standard form.

c) Find the eccentricity and length of latus rectum of the ellipse $4x^2 + 5y^2 - 16x + 10y + 1 = 0$.

Department of English
Semester Final Examination 2022-01
Course Code: GED 02
Course Title: English Communicative Skills

Full marks: 60

Time: 3 hours

[N.B. The figures in the right margin indicate marks]

Answer any eight (08) of the following grammatical items.

1. Fill in the gaps using appropriate article. (any five) 05x01=05
 - a) Dhaka is _____ biggest city in Bangladesh.
 - b) Mina is _____ BA but her husband is _____ MA.
 - c) _____ Apple a day keeps _____ doctor away.
 - d) Do you have _____ dictionary that I can borrow?
 - e) The dress was designed by _____ famous Italian artist.
 - f) The old woman has _____ heir.
 - g) Can you tell me how to get to _____ railway station?
2. Write the sentences as active/passive choosing words from the brackets. (any five) 05x01=05
 - a) I got the letter (printed/ is printed/ is being printed).
 - b) We (arrived/ will be arrived) home.
 - c) Your parents ought (regard/ to be regarded) by you.
 - d) It (matters / mattered much).
 - e) Was the answer (memorize/ memorized) by you?
 - f) We (quest/ are quested) for knowledge.
 - g) Ice (feels/ was felt) cold.
3. Complete the following conditional sentences. (any five) 05x01=05
 - a) If it rains today,
 - b) If you study,
 - c) If she phoned me,
 - d) You will pass the exam,
 - e) If you had gone to Dhaka,
 - f) If I were you,
 - g) I would buy a car,
4. Subject-verb agreement. (any five) 05x01=05
 - a) Walking (make) a man fit.
 - b) I (have arrived) here yesterday.
 - c) I wish I (was) dead.
 - d) He (to leave) tomorrow.
 - e) Twenty miles (be) a long way.
 - f) English (speak) all over the world.
 - g) It (cost) very little to show respect to others.

5. Complete the following sentences using modals. (any five)

- I think he _____ come tomorrow.
- _____ You wait for a moment, please?
- As Rima is absent in the class, she _____ be ill.
- _____ I contact you?
- We _____ not swim when the red flag is flying.
- Students _____ follow the routine.
- Children _____ to obey their parents.

05

6. Punctuate the following:-

thank you for asking us to dinner on Sunday 19 august we would have liked to come but unfortunately we have a previous engagement on that evening my cousin sumi is getting married on that day and I have promised to go and spend the whole day with her I hope however that we can soon meet.

05x01=05

7. Identify the parts speech of the following underlined words. (any five)

- Television is a popular source of entertainment.
- We were very hungry.
- We had a breakfast at a café near the rail station.
- Anika bought a beautiful dress from Lovely Tower.
- Students usually study in the library.
- We go to our university on foot.
- Do it with care.

05x01=05

8. Change the following sentences as directed. (any five)

- Ahsan is stronger than Rihan. (positive)
- Very few students in Shohana's class are as good as her. (superlative)
- I wish I were a bird. (exclamatory)
- What a fool you are! (assertive)
- He is the best man in the village. (negative)
- Do the work. (passive)
- Karim is not a fool. (Interrogative)

9. Correct the following sentences. (any five)

05x01=05

- Physics are a difficult subject.
- Gulliver's Travels are a satire.
- He has a lot of works to do.
- I must have to go there.
- I can be able to swim.
- He has come home yesterday.
- We have big house.

10. Write a paragraph on any one of the following:-

- Your aim in life
- Your favorite person
- Your university

10

11. What is language? Discuss the major features of language.

10

Final Examination 2022/01

B.Sc Engineering in CSE

CSE 1102: Programming Fundamentals

Full Marks: 60

Time: 3Hours

[N.B. Marks are indicated at the right side of each question]

[Answer any **FIVE** sets from the following questions]

1. a) What is C programming Language? 2
b) Describe the basic structure of C Program with examples. 6
c) Explain why we learn C Languages 4
2. a) Write the differences between Logical operator and Bitwise operator 4
b) Describe the Assignment operator and Relational operator in C Languages 4
c) Define keywords, Identifiers and token 4
3. a) Define variable with examples 2
b) Write the differences between primitive and non primitive data types 5
c) Write the meaning and examples of format string %d, %s, %f, %c 5
4. a) Describe nested if.....else statement with examples 6
b) Write the output of this following code 6

```
for(i=0; i<5; i++)  
{ if (i= = 3)  
    continue;  
    printf("%d", i);  
}
```
5. a) Write a C program by using the do.....while loop 6
b) Find out any errors and write the correct code 6

```
#include<stdio.h>  
int main()  
{ float a= 5;  
  int b= 10.5;  
  c= a+b  
  printf("%d", c);  
}
```
6. a) How we initialize 2D arrays in C Languages 4
b) Define an array with examples 2
c) Write a C program using array in the following series 6
1+2+3+.....+n
7. a) Write the differences between structure and union in C Languages 4
b) Write a C program that operates in break statement 6
c) Write the differences between 1D and 2D array in C Languages 2

8. a) Define pointer with example
b) Find out any error and write the correct code

```
int main()  
{ int *a;  
  a=10;  
  p=&a  
  printf("%d",a);  
}
```

- c) Write the differences between array and pointer

Semester Final Examination 2022/01

B. Sc Engineering in Computer Science Program

CSE 1101: Introduction to computer systems

Marks: 60

Time: 3.00 Hour

[The figures in the right margin indicate full marks for the respective question.]

[Answer any FIVE sets rest of the following questions.]

1. a) Define computer. 2
b) Draw the block diagram of a computer and briefly explain about it. 6
c) Distinguishes between software and firmware. 4
2. a) What is Radix? 2
b) Write down positive impact and negative impact of a computer. 4
c) Draw the diagram of characteristics of computer and describe at least three characters. 6
3. a) What is ALU? 2
b) Solve the following: 2
i. $(750.45)_8 = (?)_{16}$
ii. $(ABC)_{16} = (?)_8$ 2
iii. $(250.20)_{10} = (?)_2$ 3
c) Distinguishes between digital computer and analog computer. 3
4. a) Describe about microcomputer and super computer. 4
b) Create the circuit and draw the following truth table for the following theorem: 8
i. $\overline{A + B + C} = \overline{A} \overline{B} \overline{C}$
ii. $\overline{ABC} = \overline{A} + \overline{B} + \overline{C}$
5. a) What is CPU? 2
b) Prove the following equations: 2
i. $A + AB = A$ 2
ii. $A(\overline{A} + B) = AB$ 2
iii. $(A + B)(A + C) = A + BC$ 3
c) Solve the followings: 1
i. $(47)_8 + (25)_{10} = (?)_8$ 1
ii. $(2B.C5)_{16} + (407.36)_8 = (?)_{16}$ 2
6. a) Subtract $(-8)_{10}$ and $(6)_{10}$ by 1's complement method. 3
b) Add $(-8)_{10}$ and $(-6)_{10}$ by 1's complement method. 3
c) Subtract $(-56)_{10}$ and $(27)_{10}$ by 2's complement method. 6

7 a) Prove the following equations:

i. $(X+Y)(\bar{X}+Z)(Y+Z) = (X+Y)(\bar{X}+Z)$

ii. $(B+\bar{C})(\bar{B}+C) + \bar{A} + B + \bar{C} = BC + \bar{B}(\bar{C} + A)$

b) If $F = \bar{X}Y + XY\bar{Z}$ then prove that,

i. $F\bar{F} = 0$

ii. $F + \bar{F} = 1$

3

3

6

8 a) What is HTML Attribute?

b) Write down some HTML tags with proper description.

c) What is HTML? Write down an example of basic HTML document.

2

5

5

Robindra Maitree University

Kushtia, Bangladesh

Subject: Chemistry

Course code: Chem 1101

Marks: 20

(Any two questions) $10 \times 2 = 20$

1. a) Define atomic number and atomic mass number with explanation. 5
b) Define the term isotope with examples. 3
c) Write three isotope of hydrogen and draw their structure. 2

2. a) Define Acid and base with explanation 4
b) Define P^H and Indicator with two examples. 2
c) solve problem: The P^H of a solution of Hcl is 2 4
find out the amount of acid present in a
litre of the solution.

3. a) Define the term solution. 2
b) Define mole fraction, molarity and normality. 6
c) Solve Problem: 5g of Nacl is dissolve in 1000 gm of 2
water. Calculate molarity and normality of solute
assuming volume of solution in equal to that of solvent.

১ম বর্ষ ১ম সেমিস্টার ফাইনাল পরীক্ষা ২০২২/০১

কোর্স কোড: GED 01

কোর্স শিরোনাম: বাংলা ভাষা

সময়: ৩ ঘণ্টা

পূর্ণমান: ৬০

[বি. দ্র.: সকল প্রশ্নের মান সমান $12 \times 5 = 60$]

যেকোনো পাঁচটি প্রশ্নের উত্তর দাও

- ১। ধ্বনি পরিবর্তনের কারণ ও সূত্রাবলি আলোচনা কর।
- ২। ণ-ত্ব ও ষ-ত্ব বিধানের সংজ্ঞা উল্লেখপূর্বক ণ-ত্ব ও ষ-ত্ব বিধানের নিয়মাবলি ব্যাখ্যা কর।
- ৩। ভাষার সংজ্ঞা উল্লেখপূর্বক সাধু ভাষা ও চলিত ভাষার মধ্যে পার্থক্য দেখাও।
- ৪। ছেদ চিহ্নের ব্যবহার বিষয়ক একটি আলোচনা উপস্থাপন কর।
- ৫। বাংলা একাডেমি প্রণীত প্রমিত বাংলা বানানের ১২ টি নিয়ম ব্যাখ্যা কর।
- ৬। ভাষার সংজ্ঞা দাও? মানব জীবনে ভাষার গুরুত্ব আলোচনা কর।
- ৭। বাংলা ভাষার উদ্ভব ও ক্রমবিকাশ আলোচনা কর।
- ৮। যেকোন বিশ্ববিদ্যালয়ে প্রভাষক পদে নিয়োগ প্রাপ্তির জন্য একটি আবেদনপত্র লিখ।

Rabindra Maitree University, Kushtia-7000

Midterm Examination- 2022/01

Department of CSE

MATH 1101: Differential Calculus and Co-ordinate Geometry

Marks: 20

Time: 01:30 hours

[The figures in the right margin indicate full marks for the respective question]

[Answer any Two of the following questions]

1. a) Define Odd function and Even function with examples. 2
- b) Define limit with a suitable example. 2
- c) By $(\delta - \epsilon)$ definition of limit, prove $\lim_{x \rightarrow 2} \frac{2x^2 - 8}{x - 2} = 8$ and find the value of δ when $\epsilon = 1$. 3
- d) Find $\lim_{x \rightarrow 0} \left(\frac{1}{\sin x} - \frac{1}{\tan x} \right)$. 3
02. a) Find $\lim_{x \rightarrow 0} \frac{e^x - e^{-x} - 2x}{x - \sin x} = 2$, with the help of L'Hospital's rule. 3
- b) The function f is defined as follows:
- $$f(x) = \begin{cases} -x & \text{when } x \leq 0 \\ x & \text{when } 0 < x < 1 \\ 2 - x & \text{when } x \geq 1 \end{cases}$$
- show that it is continuous at $x = 0$ and $x = 1$. 5
- c) Find the derivative of the function $\sin 2x \cos x$ with respect to x . 2
03. a) Find, from the definition of differentiation, derivative of the function $\sin x$. 5
- b) If $y = e^{\cos^{-1} x}$, show that $(1 - x^2)y_2 - x y_1 - (1 + x^2)y = 0$. 5

07. Expansion of Function (iii) e^x

08. Maxima and Minima

(iii) Examine whether $x^{1/x}$ possesses a maximum or a minimum and determine the same.

00. Co-ordinates,

(ii) Find the Cartesian Co-ordinates of the point whose polar Co-ordinates are $(4, \frac{5\pi}{4})$.

(ii) Find the distance between the points (x_1, y_1) and (x_2, y_2) .

Final Examination Spring-2022
B.Sc. in Computer Science & Engineering
CHEM 1101
Marks: 60, Time: 3 Hours.

[Answer any Five of the following questions]

1. (a) Define atomic number and atomic mass number with explanation. [5]
(b) Define the term isotope with examples. Write three isotope of hydrogen and draw their structure. [5]
(c) Uranium has atomic number 92 and atomic weight 238, 029 Give the number of electrons, protons and neutrons in its atom. [2]
2. (a) Define Acid and base with explanation. [4]
(b) Define P^H and Indicator with two example. [4]
(c) Solve problem: The P^H of a solution of HCl is 2. Find out the amount of acid present in a liter of the solution. [4]
3. (a) Define the term solution. [2]
(b) Define mole fraction, molarity and normality. [6]
(c) Solve problem: 5g of NaCl is dissolve in 1000 gm of water. Calculate molarity and normality of solute assuming volume of solution is equal to that of solvent. [4]
4. (a) Define chemical bond. Write the name of different types of bond. [5]
(b) Write the types of bond would you find in the following compounds: [5]
 $NaCl$, H_2O , O_2 , H_2 and CH_4
(c) Describe properties of ionic compounds. [2]
5. (a) Define colligative properties. [3]
(b) State and explain the Raoult's law of vapour pressure and mathematically deduce it. [7]
(c) Define ideal and non-ideal solution. [2]
6. (a) Describe the mechanism of electrolysis. [3]
(b) Describe the mechanism of electrolysis. [6]
(c) Solve problem: 0.19979 g of copper is deposited by a current of 2.0 Amp in 55 minute. What is electro chemical equivalent of copper? [3]
7. State and explain following terms: [6x2=12]
i. Solar Energy
ii. Fire Extinguish
8. (a) Define the term Quantum number" [3]
(b) Classify and describe different types of quantum number. [7]
(c) Does 2d and 3d orbital exist? [2]