Bangabandhu Sheikh Mujibur Rahman Science and Technology University
Department of Computer Science and Engineering
3rd Year 2nd Semester B.Sc.Engg. Midterm Examination-2021

Course Code : CSE359
Course Title : Software Engineering

Marks: 20
Time: 1 hour

N.B. Answer all **4(Four)** questions

Q1. What is a software process? What are the differences between software process and process model? Explain with examples. 5

Q2. Describe the waterfall model. What are the advantages and disadvantages of the waterfall model? 5

Q3. Explain why incremental development is the most effective approach for developing business software systems. 5
Draw block diagram of a general model of the software design process.

Q4. Describe the agile manifesto. Explain how the principles underlying agile methods lead to the accelerated development and deployment of software. 5

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Course Code: CSE 353 Course Title: Computer Networks Total marks: 20

Note: Answer the following questions.

Q1 (a) What is OSI Reference Model? Describe the layers of OSI Reference Model. 4

(b) What is network? Write short note on following types of networks- 3
i)PAN ii) WAN iii) MAN.

(c) What is error detecting code? Describe Checksum error detecting code. 3

Q2 (a) What is Framing? Why flag bits with bit stuffing is better method of framing than flag bytes with byte stuffing? 4

(b) Sender sends 011011101 and receiver receives 011011100 where one bit error is occured. Describe how hamming code detect and correct above error. 4

(c) What are the services provided by data link layer to network layer? 2

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Department of Computer Science & Engineering Department

Mid Semester Examination-2022

Course No.: CSE351 **Course Name:** Computer Graphics **Time:** 1 h

(Answer any two)

Q.1 (a) What is computer graphics? What are the main issues in computer graphics? 4

(b) Describe mid-point line drawing algorithm with example? 6

Q.2 (a) Describe rotation using arbitrary pivot point. 6

(b) Describe translation and scaling with matrix operation. 4

Q.3 (a) Explain different type of projection with example. 5

(b) How can we draw a circle in computer screen, explain it with proper example. 5

17CSE069

1. To find contraction of a steel cylinder, one needs to regress the thermal expansion coefficient data to temperature.

T(temperature)	80	40	-40	-120	-200	-280	-340
α	6.47	6.24	5.72	5.09	4.30	3.33	2.45

Fit the above data $\alpha = a + bT + cT^2$. Find the value of a, b and c.

2. Integrate the following function using Simpson's rules, with $n = 4$ and 5.

$$\int_{-3}^{5} (4x - 3)^3 dx$$

3. Data points at $x = -1, -0.5, 0, 0.5$ and 1 are used to estimate the following function

$$f(x) = \frac{1}{1+25x^2}$$

Now, estimate $f(0.8)$ with fourth-order Newton interpolating polynomials.

4. Evaluate the integral of function $f(x) = 2e^{-1.5x}$ from $a = 0$ to $b = 0.6$ using trapezoidal rule with step size, $h_1 = 0.15$ and another step size, $h_2 = 0.05$

Course Code: CSE 357 Course Title: Microprocessor and Microcontroller

Total marks: 20

Note: Answer the following questions.

Q1 (a) Explain the internal architecture of the 8086 microprocessor using a block diagram. 4

(b) What does addressing mode mean? Discuss the several addressing modes used by the 8086 microprocessor. 4

(c) What are machine language and high level language? 2

Q2 (a) What is the Flag register? Discuss the role of five flag registers in an ALU operation using an example. 3

(b) Draw the block diagram of 8086 microcomputer system overview and Explain how data is transferred with in the 8086 microcomputer system. 4

(c) What is memory segmentation? How different memory segments are accessed in 8086 microprocessor? 3

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ourse Code : CSE355
ourse Title : Numerical methods for engineers

Marks: 20
Time: 1 hour

N.B. Answer all **4(Four)** questions

What are the differences between *bisection* and *false-position* method? Which one is better? Explain with example. 5

. Given, 5

$$f(x) = -2x^6 - 1.5x^4 + 10x + 2$$

Use bisection to determine the *maximum* of this function. Employ initial guesses of $x_l = 0$ and $x_u = 1$, and perform iterations until the approximate relative error falls below 5%.

3. Find a root of the equation $xsinx + cosx = 0$ using the Newton-Raphson method. Carry out the computation for three iterations, and use four significant figures in your computation. 5

Q4. Solve the following system of equations using Gaussian elimination. 5

$$-8x_1 + x_2 - 2x_3 = -20$$
$$2x_1 - 6x_2 - x_3 = -38$$
$$-3x_1 - x_2 + 7x_3 = -34$$