**NOTE: ATTEMPT ALL QUESTIONS. ALL QUESTIONS CARRY EQUAL MARKS.**

| Q. No. | QUESTION | CLOs | Taxonomy Level | PLOs | Marks |
|---|---|---|---|---|---|
| Q.01 | "Effective Communication is crucial for all areas of life to maintain good relationship". Illustrate the above statement by giving the examples from our daily life. | 1 | C2 | 3 | 10 |
| Q.02 | a) Define the process of communication. | 1 | C1 | 3 | 05 |
| | b)Explain how different factors affect the process of communication? | 1 | C2 | 3 | 05 |

*Good Luck*

**QUAID-E-AWAM UNIVERSITY OF ENGINEERING, SCIENCE & TECHNOLOGY, NAWABSHAH**

MID-SEMESTER EXAMINATION OF SECOND SEMESTER – FIRST YEAR (2ⁿᵈ) 2023, 22-BATCH, B.S (IT)

SUBJECT: DIGITAL LOGIC DESIGN

Dated: 04.09.2023          Maximum Marks: 10          Time Allowed: 45 Minutes.

**NOTE:  ATTEMPT ALL QUESTIONS.  ALL QUESTIONS CARRY EQUAL MARKS.**

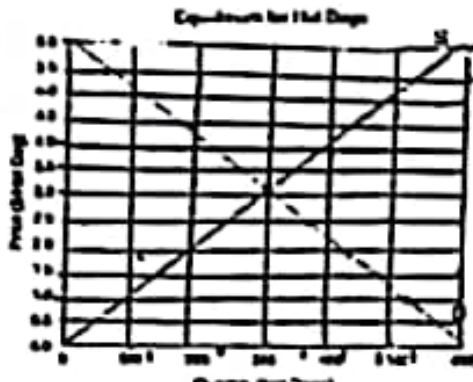| Q. No. | QUESTION | CLOs | Taxonomy Level | PLOs | Marks |
|---|---|---|---|---|---|
| Q. 01 (a) | Perform decimal subtraction using 9's complement <br> 1. $25 - 19$ <br> 2. $79 - 26$ | 1 | C1 | 1 | 02 |
| (b) | Take 15's complement of <br> 1. 546700 <br> 2. 123 | 1 | C1 | 1 | 03 |
| Q. 02 | Write the truth table for the function <br> 1. $F = x + x.y + y$ <br> 2. $F = xy' + x'y$ | 2 | C2 | 2 | 05 |

*Good Luck*

**NOTE:  ATTEMPT ALL QUESTIONS. ALL QUESTIONS CARRY EQUAL MARKS.**

| Q. No. | Question | CLOs | Taxonomy Level | PLOs | Marks |
|---|---|---|---|---|---|
| Q. 01 | (a) Define interval and types of intervals? Solve the following inequalities and show their solution on the real line and intervals.<br><br>I. $\quad 2x - 1 < x + 3$<br><br>II. $\quad |2x - 3| > 5$ | 1 | C1 | 2 | 05 |
| | (b) Define composite function and inverse of function? And given that $f(x) = 3x - 1$ and $g(x) = \frac{5x-1}{2}$ are two functions then show that $(fog)^{-1} = g^{-1}of^{-1}$. | 1 | C1 | 2 | 05 |
| Q. 02 | Discuss limit of function at finite point and Continuity of function at point "a"? And Find the values of  "m" and "n" if $f(x)$ is continuous for all real numbers.<br><br>$$f(x) = \begin{cases} 2x - 1, & x < -3 \\ 4mx - 3n, & -3 \leq x \leq 2 \\ 3x, & x > 2 \end{cases}$$<br><br>And draw the graph of function. | 1 | C6 | 2 | 10 |

**The End**

Dated: 07.09.2023          Maximum Marks: 20          Time Allowed: 01 Hour

**NOTE:  ATTEMPT ALL QUESTIONS. ALL QUESTIONS CARRY EQUAL MARKS.**

| Q. No. | QUESTION | CLOs | Taxonomy Level | PLOs | Marks |
|---|---|---|---|---|---|
| Q. 01 | List the Factors of Production for the following products and services. <br> 1. Mobile phone <br> 2. Cupboard <br> 3. Car <br> 4. Fabric <br> 5. House <br> 6. Transportation services <br> 7. Internet services <br> 8. Electricity services <br> 9. Medical services <br> 10.  Academic services | 1 | C1 | 1 | 10 |
| Q. 02 | Consider the following diagram. <br><br>  <br><br> Compute the following. <br><br> 1. Equilibrium price <br> 2. Equilibrium quantity <br> 3. Surplus at $4.0 <br> 4. Surplus at $4.5 <br> 5. Surplus at $5.0 <br> 6. Surplus at $5.5 <br> 7. Shortage at $2.5 <br> 8. Shortage at $2.0 <br> 9. Shortage at $1.5 <br> 10.  Shortage at $1.0 | 1 | C1 | 1 | 10 |

*Good Luck*

### SUBJECT: PRINCIPLES OF ACCOUNTING

Dated: 12.09.2023        Maximum Marks: 20        Time Allowed: 01 Hour.

**NOTE: ATTEMPT ALL QUESTIONS. ALL QUESTIONS CARRY EQUAL MARKS.**

| Q. No. | | Question | CLO | Taxonomy Level | PLO | Marks |
|---|---|---|---|---|---|---|
| Q. 01 | (a) | Elaborate the term Accounting and role of accounting with the help of real life examples. | 1 | C1 | 1 | 05 |
| | (b) | Journalize the transaction and develop trial balance by the help of T-ledger. <br> 1. In 2021, Jan 1 Mr. Rana commenced his business with Rs. 40,0000 cash. <br> 2. Jan 3, Deposit cash into bank Rs. 38,000. <br> 3. Jan 5, Purchased goods on account from Imran of value 9,0000. <br> 4. Jan 6, Sold goods to Babar on credit for Rs. 6,000. <br> 5. Jan 8, Bought office supplies from Raffiq and company for cash of Rs. 2000. <br> 6. Jan 10, Goods sold for cash of Rs. 2,0000 | 2 | C2 | 2 | 05 |
| Q. 02 | (a) | Discuss in detail different account types and their rules. | 1 | C1 | 1 | 05 |
| | (b) | Prepare the general journal and accounting equation <br> 1. Mr. Raheel commences his business with cash Rs. 900,000. <br> 2. Purchased building on cash Rs. 400,000. <br> 3. Purchased merchandise on cash Rs. 120,000. <br> 4. Purchased merchandise from Zamir & Co. for Rs. 112,000 on credit. <br> 5. Sold merchandise at cost Rs. 26,500 on cash <br> 6. Merchandise of Rs. 17,500 was sold for cash Rs. 20,000. <br> 7. Part payment was made to Zamir & Co. Rs. 75,500. <br> 8. Sold merchandise on credit to Asif Bhai for Rs. 47,500. | 2 | C2 | 2 | 05 |

***Best Wishes***

# QUAID-E-AWAM UNIVERSITY OF ENGINEERING, SCIENCE & TECHNOLOGY, NAWABSHAH

## MID-SEMESTER EXAMINATION OF SECOND SEMESTER – FIRST YEAR (2<sup>nd</sup>) 2023, 22-BATCH, B.S (IT)

### SUBJECT: OBJECT ORIENTED PROGRAMMING

Dated: 08.09.2023      Maximum Marks: 20      Time Allowed: 1 Hour,

**NOTE: ATTEMPT ALL QUESTIONS. ALL QUESTIONS CARRY EQUAL MARKS.**

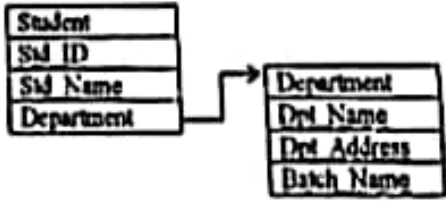| Q. No. | | QUESTION | CLOs | Taxonomy Level | PLOs | Marks |
|--------|----|----------|------|----------------|------|-------|
| Q.01 | a) | Identify with reasons why Java is based on the byte code? How the platform independency is achieved in Java? | 1 | C2 | 2 | 05 |
| | b) | Demonstrate a Java program that asks you to enter your age in years and convert it from years to months, days, hours, minutes and seconds. | 3 | C3 | 4 | 05 |
| Q.02 | a) | Why type casting and conversion are used in Java? Explain the conditions when widening type casting takes place and when narrowing type casting takes place with suitable programming example. | 2 | C2 | 3 | 05 |
| | b) | Demonstrate a Java program that asks you to enter any numeric number and display either the number entered is even or odd. [Note: use ? operator]. | 3 | C3 | 4 | 05 |

## "THE END"

SUBJECT: **OBJECT ORIENTED PROGRAMMING**

Dated: 23.11.2023     Maximum Marks: 60     Time Allowed: 3 Hours.

**NOTE: ATTEMPT ALL QUESTIONS. ALL QUESTIONS CARRY EQUAL MARKS.**

| Q. No. | | QUESTION | CLOs | Taxonomy Level | PLOs | Marks |
|---|---|---|---|---|---|---|
| Q. 01 | (a) | Why it is needed to pass arguments to a method in Java? How can we pass the variable length arguments to a method? Describe with any programming example. | C3 | 3 | 4 | 06 |
| | (b) | Write a Java program that can perform the following operations using classes, methods, objects and constructors where possible: (i) Get the marks of 5 students in 5 subjects using Scanner class. (ii) Calculate the total and average marks of each student and show the results on the screen. | C2 | 3 | 3 | 06 |
| Q. 02 | | Write a program that asks the user to enter a number of at least 5 digits length (i.e., 78965). The program should display the sum of even and odd digits present in a number.<br>Input:<br>Enter any number: 78965<br>Output:<br>The sum of even digits is : 8 + 6 = 14<br>The sum of odd digits is: 7 + 9 + 5 = 21 | C1 | 2 | 2 | 12 |
| Q. 03 | (a) | Why Java does not support multiple inheritances? What is the alternative way to support multiple inheritances in Java? Explain with a programming example. | C1 | 2 | 2 | 06 |
| | (b) | Write a Java program with a "BankAccount" class and deposit() and withdraw()methods. Create a subclass called SavingsAccount that overrides the withdraw() method to prevent withdrawals if the account balance is less than one thousand rupees. | C4 | 4 | 3 | 06 |
| Q. 04 | (a) | Polymorphism is the key characteristic of the Object Oriented Programming. Describe how Java implements run time polymorphism with a programming example. | C2 | 3 | 3 | 06 |
| | (b) | Write a Java program that implements the following "HAS-A relationship" where Student calss has an instance variable of type Department class.<br><br>Student<br>Std ID<br>Std Name<br>Department → Department<br>Drt Name<br>Drt Address<br>Batch Name | C3 | 3 | 4 | 06 |
| Q. 05 | (a) | Differentiate between abstract class and interface. Is it necessary for a class to implement all the methods of the interface? If not then how? | C2 | 3 | 3 | 06 |
| | (b) | Write a Java program to create an abstract class Employee with abstract methods calculateSalary() and displayInfo(). Create subclasses Manager and Programmer that extend the Employee class and implement the respective methods to calculate salary and display information for each role. | C4 | 4 | 3 | 06 |

*The End*

**NOTE: ATTEMPT ALL QUESTIONS. ALL QUESTIONS CARRY EQUAL MARKS.**

| Q. No. | QUESTION | CLOs | Taxonomy Level | PLOs | Marks |
|---|---|---|---|---|---|
| Q.01 | Define four skills of communication. How can we make these skills effective? | 2 | C2 | 1 | 12 |
| Q.02 | Describe the key principles of good writing. | 2 | C2 | 1 | 12 |
| Q.03 | Define Written Communication. Describe the process of good writing. | 2 | C2 | 1 | 12 |
| Q.04 | a) What is CV? Write the format of CV. | 3 | C1 | 7 | 06 |
|  | b) Why CV is important to get a job? | 3 | C1 | 7 | 06 |
| Q.05 | a) Define letter and it's types. | 3 | C1 | 7 | 06 |
|  | b) Write a letter to your friend invite him/her for your brother's wedding ceremony. | 3 | C3 | 7 | 06 |

**Good Luck**

| Q. No. | QUESTION | CLOs | Taxonomy Level | PLOs | Marks |
|---|---|---|---|---|---|
| Q.01(a) | Convert decimal number 53.25 to Excess-3 code. Convert grey code 1010 to its equivalent binary. | 1 | 2 | 1 | 04 |
| (b) | Obtain 9's and 10's complement of the following decimal numbers<br>1. 13579<br>2. 09900<br>3. 00000<br>4. 10000 | 1 | 2 | 1 | 06 |
| Q.02(a) | Prove that $(A+B)(A+C)=A+BC$ through truth table and make a circuit diagram. | 2 | 3 | 2 | 05 |
| (b) | A combinational logic circuit has 3 inputs and single output. The output of the circuit is "1" whenever two or more than two inputs are logical one's otherwise circuit produce an output "0". Write the sum of minterms and product of maxterms, Boolean expression by providing truth table. | 2 | 3 | 2 | 05 |
| Q.03(a) | Using a Karnaugh map, simplify the following function.<br>1. $F(A B C D) = \Sigma(0,2,3,6,7,8,10,11,12,15)$<br>2. $F(W X Y Z) = \Sigma(7,13,14,15)$<br>3. $F(A B C D) = \Sigma(2,3,12,13,14,15)$ | 2 | 3 | 2 | 06 |
| (b) | What is combinational logic circuits? Briefly describe any two. | 3 | 3 | 3 | 04 |

*Good Luck*

**NOTE: ATTEMPT ALL QUESTIONS. ALL QUESTIONS CARRY EQUAL MARKS.**

| Q. No. | | QUESTION | CLOs | Taxonomy Level | PLOs | Marks |
|---|---|---|---|---|---|---|
| Q. 01 | (a) | The price of a cup of coffee was reduced from $5 per unit to $4 in order to attract more customers. It was observed that demand for the coffee subsequently increased from 100 to 110 units per day. Calculate the price elasticity of demand of the coffee.   $-0.45$ | 2 | 3 | 2 | 06 |
| | (b) | A transport company charges $5 per person as a fare from city A to city B and the total number of passengers are 200 per day. If the transport company offers a discount of $1 per person, the number of passengers increases from 200 to 300 per day. Compute the total revenue for both cases and help the transport company to make a better decision. | 2 | 3 | 2 | 06 |
| Q. 02 | (a) | The people of city A are earning $500 per month and their demand of product B is 5000 units per month. Due to inflation, the income of the people raised to $600 per month and their demand for product B increased to 6000 units per month. Compute the price elasticity of demand of product B. | 2 | 3 | 2 | 06 |
| | (b) | If the price of coffee rises from $2 per cup to $3 per cup, the consumer's demand for tea increases from 600 to 800 packs per day. Find out the cross price elasticity of demand of tea for coffee.   $0.5$ | 2 | 3 | 2 | 06 |
| Q. 03 | (a) | A producer offers to sell 400 units of product B when its price is $10 per unit, while only 200 units are offered if the price reduces to $5 per unit. Find | 3 | 6 | 3 | 06 |

| | | | | | | |
|---|---|---|---|---|---|---|
| | | the price elasticity of supply of product B. | | | | |
| | (b) | Aslam deposits $3000 in State Bank of Pakistan for 5 year which offers him an interest rate of 10%. What is the amount he gets after 1 year, 2 years, 3 years, 4 years and 5 years? <br> 3เ∾๑, ᴣ๔᠈๑, ᴣᵞᵞ๑, ५ᴣᵞᵓ , ५๔ᴣι | 3 | 6 | 3 | 0 |
| Q. 04 | | Assume that ABC Inc. is considering two projects namely Project X and Project Y and wants to calculate the NPV for each project. Both project X and project Y are four-year projects and cash flows of both the projects for four years are given below: | 3 | 6 | 3 | 1: |

| Year | Project A Cash Flows | Project B Cash Flows |
|---|---|---|
| 1. | $5000 | $1000 . |
| 2. | $4000 | $3000 |
| 3. | $3000 | $4000 |
| 4. | $1000 | $6750 |

The firm's cost of capital is 10% for each project and the initial investment amount is $ 10,000. Calculate the NPV of each project and determine in which project the firm should invest. A. 847  B. 1306

| | | | | | | |
|---|---|---|---|---|---|---|
| Q. 05 | (a) | The people of a country spend $5000 on watching movies, $10,000 on paying tuition fees annually. The businessmen invest $200,000 for uplifting their industries per year. The government spends $100,000 on safety and security of people per year and its net export is $50,000 per year. Compute the GDP of the country by using expenditure approach. | 3 | 6 | 3 | 0( |
| | (b) | Compute the unemployment rate of a country based on the following data: <br> 1) 5 million people are above 16 years and able to work. <br> 2) 2 million are children. <br> 3) 1 million people are in hospitals and jails. <br> 4) 1 million people are retired. <br> 5) 2 million people are unemployed. | | 6 | 3 | 0( |

*The End*

**FINAL SEMESTER REGULAR EXAM OF SECOND SEMESTER – FIRST YEAR (2ᵈ SEM.) 2023 OF 22-BATCH B.S (CS/IT)**

**SUBJECT: CALCULUS & ANALYTICAL GEOMETRY**

Dated: 10.11.2023      Maximum Marks: 60      Time Allowed: 03 Hour.

**NOTE: ATTEMPT ALL QUESTIONS. ALL QUESTIONS CARRY EQUAL MARKS.**

| Q. No. | | Question | CLOs | Taxonomy Level | PLOs | Marks |
|---|---|---|---|---|---|---|
| Q. 01 | (a) | Discuss Continuity of function and find "$c$" such that the function, $$f(x) = \begin{cases} \dfrac{1-\sqrt{x}}{x-1}, & \text{if } 0 \le x < 1 \\ c, & \text{if } x = 1 \end{cases}$$ Is continuous for all $x \in [0,1]$. | 02 | C6 | ·3· | 06 |
| | (b) | Define Differentiation and find the derivative of the following functions by using definition of derivative, <br> i.   $f(x) = e^{ax}$ <br> ii.   $f(x) = 3x^2 - 5$    $\int e^{an}, \dfrac{e^n}{an}$ | 02 | C1 | 3 | 06 |
| Q. 02 | (a) | Find derivative of $f(x) = U(x).V(x)$ by Using First Principle Method? | 02 | C1 | 3 | 06 |
| | (b) | Define Partial Differentiation and show that the function $f(x,y) = \ln(\sqrt{x^2 + y^2})$ satisfies Laplace's equation. | 03 | C2 | 3 | 06 |
| Q. 03 | | If $f(x) = \ln(1 + \sqrt{1-x})$ then Prove that $$4x(1-x)f''(x) + 2(2-3x)f'(x) + 1 = 0.$$ | 02 | C5 | 3 | 12 |
| Q. 04 | | State Mean value theorem and Roll's theorem? And find $c$ (if possible) of the mean value theorem: $$f(x) = x^3 - 5x^2 + 4x - 2 \text{ on } [1,3].$$ | 03 | C2 | 3 | 12 |
| Q. 05 | (a) | Define Definite Integral and Indefinite Integral? and Evaluate (any two) the following functions. <br> i.   $\int \sqrt{\sin x} \cos x \, dx$ <br><br> ii.   $\int \dfrac{2x+5}{\sqrt{x^2 + 5x + 7}} \, dx$ <br><br> iii.   $\int \tan^3 \theta . \sec^4 \theta \, d\theta$ | 03 | C1 | 3 | 06 |
| | (b) | Find the parametric equations of the straight line through the points $P(1, -5, 1)$ and $Q(4, -5, 4)$ | 03 | C1 | 3 | 06 |

*The End*

**NOTE:  ATTEMPT ALL QUESTIONS. ALL QUESTIONS CARRY EQUAL MARKS.**

| Q. No. | | QUESTION | CLO | Taxonomy Level | PLO | Marks |
|---|---|---|---|---|---|---|
| Q. 01 | (a) | Define the term Depreciation. | 2 | C2 | 2 | 04 |
| | (b) | A company purchased a building for 25,000 the estimated life of the building is 5 years. What will be depreciation of building if it has 50 salvage value. | 2 | C2 | 2 | 08 |
| Q. 02 | | Prepare balance sheet from given transactions.<br>1. Mr. Raheel commences his business with cash Rs. 900,000.<br>2. Purchased building on cash Rs. 400,000.<br>3. Purchased merchandise on cash Rs. 120,000.<br>4. Purchased merchandise from Zamir & Co. for Rs. 112,000 on credit.<br>5. Sold merchandise at cost Rs. 26,500 on cash<br>6. Merchandise of Rs. 17,500 was sold for cash Rs. 20,000.<br>7. Part payment was made to Zamir & Co. Rs. 75,500.<br>8. Sold merchandise on credit to Asif Bhai for Rs. 47,500 at a profit of Rs. 7,000.<br>9. Paid salaries to employees Rs. 11,800.<br>10. Sold ¼ portion of building for cash Rs. 325,000 whose cost price was Rs. 100,000.<br>11. Merchandise returned to Zamir & Co. Rs. 2,500 and paid to him cash Rs. 34,500.<br>12. Received cash from Asif Bhai Rs. 25,000. | 3 | C3 | 2 | 12 |
| Q. 03 | (a) | Discuss in detail Inflation and its types. | 1 | C1 | 1 | 04 |
| | (b) | Prepare financial statement from given transactions.<br>1 Owner invested 500,000.<br>2 Purchase a plot for parking of 50,000, paid cash 23,000.<br>3 Collect account receivable 4500<br>4 Acquired equipment from the tower company for 7500 in cash.<br>5 Owner invested 400,000<br>6 Purchase a building of 60,000 paid 25,000 in cash.<br>7 Company earned 10,000.<br>8 Paid 3000 for the salaries of workers. | 3 | C3 | 2 | 08 |
| Q. 04 | (a) | Explain importance and types of trade. | 2 | C2 | 1 | 06 |
| | (b) | Highlight the role of accounting in banking sector. | 2 | C2 | 1 | 06 |
| Q. 05 | (a) | Elaborate your understanding regarding interest in accounting. Also explain types of interest. | 3 | C3 | 3 | 06 |
| | (b) | Suppose a company borrow $15000 from a bank at a simple interest rate of 6% per annum. Calculate the interest expense after 3 years. | 3 | C3 | 3 | 06 |

*Good Luck*