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

MID-SEMESTER EXAMINATION OF FIRST SEMESTER – SECOND YEAR (3RD SEMESTER) 2022, 20-BATCH, B.S (IT)

SUBJECT: PROFESSIONAL PRACTICES

Dated: 17.02.2022 Maximum Marks: 20 Time Allowed: 01 Hour.

NOTE: ATTEMPT ANY TWO (02) QUESTIONS. ALL QUESTIONS CARRY EQUAL MARKS.

Q. 01 (a) Illustrate the basic components of Professional Practices. *05*

(b) Define the following basic concepts: *05*

i. IP
ii. Patent Trolls
iii. Copyright
iv. Trade secrets
v. Trade Marks

Q. 02 (a) List the IEEE code of Ethics. *05*

(b) Explain the Software Engineering Code of ethics (hint 8 principles). *05*

Q. 03 (a) Consider you have started your online startup of flowers and gift shop. For that you have created your Company's *website, Logo, brand name and slogan* (4 products). So how you will protect these products in Pakistan. *05*

i. Is there any organization to register your IP?
ii. Under which IP law your each product is going to be registered and
iii. For how many years each product will remain your IP under that law?
iv. And how to register each product (step by step procedure).

Please choose each product (IP) and explain the whole scenario.

(b) What are four factors to consider in deciding whether a use of copyrighted material is a fair use? *02*

(c) If software/mobile application is your IP and you can earn money from that then why some developers provide "free /open source" software's. For example, on github and other websites. Is it legal to use "open-source software's" without the permission of owner or license? Please comment. *03*

Good Luck

QUAID-E-AWAM UNIVERSITY OF ENGINEERING, SCIENCE & TECHNOLOGY, NAWABSHA

MID-SEMESTER EXAMINATION OF FIRST SEMESTER – SECOND YEAR (3RD SEMESTER) 2022, 20-BATCH, B.S (IT)

SUBJECT: CALCULUS & ANALYTICAL GEOMETRY

Dated: 15.02.2022 Maximum Marks: 20 Time Allowed: 01 Ho

NOTE: ATTEMPT ANY TWO (02) QUESTIONS. ALL QUESTIONS CARRY EQUAL MARKS.

Q. 01 (a) Differentiate between function and relation. Draw the graphs of the functio

i. $f(x) = [x]$ and $|x|$

ii. $f(x) = \cos x, \quad -2\pi \le x \le 2\pi$

(b) Define composite function. Find fog and gof, if $f(x) = x^2 + e^x + \cos x$ $g(x) = \ln x$.

Q. 02 (a) What are the applications of graphs?

(b) Define limit of a function and geometrical meaning of limit of a function point $x = 2$ if $f(x) = x^2$.

Q. 03 (a) What is geometrical, physical meaning of continuous function at a point a -describe criteria for $f(x)$ being continuous.

(b) Examine the continuity of $f(x)$ at $x = 2$.

$$\text{If } f(x) = \begin{cases} x^2 + 1 & ; \quad 0 \le x < 2 \\ 2x + 1 & ; \quad x = 2 \\ 2x^2 - 2x + 1 & ; \quad x > 2 \end{cases}$$

Good Luck

QUAID-E-AWAM UNIVERSITY OF ENGINEERING, SCIENCE & TECHNOLOGY, NAWABS

MID-SEMESTER EXAMINATION OF FIRST SEMESTER – SECOND YEAR (3RD SEMESTER) 2022, 20-BATCH, B.S

SUBJECT: PRINCIPLES OF ACCOUNTING

Dated: 16.02.2022 Maximum Marks: 20 Time Allowed: 01

NOTE: ATTEMPT ANY TWO (02) QUESTIONS. ALL QUESTIONS CARRY EQUAL MARKS.

Q. 01 (a) Define accounting and its types with examples?

(b) Explain the following terms with examples.

(1) Asset (2) Liability (3) Owner Equity (4) Income

(5) Revenue (6) Expenses (7) Drawing.

Q. 02 Provide the Debit Credit and descriptive analysis for the following entries.

Dec.1 The owner Ahmed invested 800,00 in new business with name Ahmed

Dec.2 Purchased a plot for parking space, the price of the plot is 30,000 of 20,000 was paid in cash.

Dec.5 Collected A/R for 4,500.

Dec.10 Acquired office equipment from the tower company for 7,600.

Dec.12 Owner SM invested additional 30,000 in business.

Dec.15 Purchased a building for 60,000 and 25,000 was paid in cash.

Dec.18 Company earned 10,600 in the first month.

Dec.20 Paid 3,000 salaries to employees for the last month.

Q. 03 Prepare the T accounts for the following entries.

Nov 1. Ali opened a new business by investing 25,000 named it Ali & Brothers

Nov 2. Purchased land & building of 140,000, for which 75,000 was price of lan down payment of 20,000 was made.

Nov 3. Purchased equipments of 5,850 on credit.

Nov 4. A type writer was found defective and returned back worth 490.

Nov 5. Sold part of land in 25,000, received 5000 in cash.

Nov 6. Paid partial installment of equipment of 1600.

Good Luck

QUAID-E-AWAM UNIVERSITY OF ENGINEERING, SCIENCE & TECHNOLOGY, NAWA

MID-SEMESTER EXAMINATION OF FIRST SEMESTER – SECOND YEAR (3RD SEMESTER) 2022, 20-BATCH,

SUBJECT: DATA STRUCTURES & ALGORITHMS

Dated: 14.02.2022 Maximum Marks: 20 Time Allowed: 0

NOTE: ATTEMPT ANY TWO (02) QUESTIONS. ALL QUESTIONS CARRY EQUAL MARKS.

Q. 01 (a) Why Data Structures and Algorithms are "Must Have" for IT professionals' different types of data structures and operations associated with them. Lis areas in which data structures are applied extensively?

(b) The time and space are two major measures of the efficiency of an algorithm, Describe the running time of the following pseudo codes in Big-Oh notation of the variable n

```
int sum = 0;
for(int i = 0; i < n; i++)
    for(int j = 0; j < n; j++)
        sum += i * j ;
```

Q. 02 (a) What do you mean by linked list? Write the advantages and disadvantages o list data-structures.

(b) Convert the following expression into postfix and prefix notation using Stack M

(A + B) * C - (D - E) * (F + G)

Q. 03 (a) With figure, explain the terms: Depth of a tree, Sibling nodes, binary tree and A nodes. Construct a binary search tree for the following data and also appl operation to delete the node 8.

14, 9, 8, 12, 4, 5, 2, 13, 7, 6, 10, 11, 15

(b) Briefly define AVL tree. Show the AVL tree that results after each of the integ **14, 17, 11, 7, 53, 4, 13, 12 and 8** are inserted, in that order, into an initially AVL-tree. Clearly show the tree that results after each insertion, and make cl rotations that must be performed.

Good Luck

QUAID-E-AWAM UNIVERSITY OF ENGINEERING, SCIENCE & TECHNOLOGY, NAWABS

MID-SEMESTER EXAMINATION OF FIRST SEMESTER – SECOND YEAR (3RD SEMESTER) 2022, 20-BATCH, B.S

SUBJECT: VISUAL PROGRAMMING

Dated: 18.02.2022 Maximum Marks: 20 Time Allowed: 01

NOTE: ATTEMPT ANY TWO (02) QUESTIONS. ALL QUESTIONS CARRY EQUAL MARKS.

Q. 01 (a) What are different stages of software development Lifecyle? Discuss tasks tools used in first three stages of SDLC.

(b) Write Short Notes on any two of the following:
1. *this* keyword with example
2. Exception handling with example
3. Design factors for Graphical User Interface

Q. 02 (a) Explain different ways to pass data from one form to another using C# co example.

(b) What are common dialog controls in .NET framework? Write C# code example any two common dialog controls.

Q. 03 (a) Define MDI and SDI interfaces. describe how to make a form MDI parent and MI child, using C# Coding example.

(b) Discuss appropriate usage of any three of following controls. Also, define mo common properties, methods and events of each control.
- Text Box
- Combo Box
- List Box
- Form
- Button

Good Luck

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

FINAL SEMESTER REGULAR EXAMINATION OF FIRST SEMESTER – SECOND YEAR 2022 OF 20-BATCH, B.S (IT)

SUBJECT: PRINCIPLES OF ACCOUNTING

Dated: 30.05.2022 Maximum Marks: 60 Time Allowed: 3 Hours

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

Q. 01 Calculate (A= L+O.E) for the following entries.

June 1: QUEST & Co Started business by depositing 900,000 in company bank account.

June 3: Purchased land for 855,000 cash.

June 6: Purchased building for 650,000 paying 50,000 cash remaining A/P.

June 9: Sold part of land at price 21,000 receivable in 2 months.

June 15: purchased office equipment on credit for 38000.

June 18: Received 100,000 as partial collection of A/R.

June 20: Paid 70,000 on A/P.

Q. 02 Explain the Different Types of Accounts and their rules associated with them. Also write one example for each.

Q. 03 Purchased building of 250,000. The SV is 15,000 and the useful life is 13 years. Calculate the depreciation per month.

Q. 04 Mr. Khalil borrowed 700,000 in a for a tenure of 5 years at a 9% interest rate. Calculate Simple Interest monthly.

Q. 05 Khalil invested Rs. 3,500,000 in saving account at the Interest Rate of 12% for 7 years. Calculate the compound interest with (monthly Compound).

QUAID-E-AWAM UNIVERSITY OF ENGINEERING, SCIENCE & TECHNOLOGY, NAWABSHA

FINAL SEMESTER REGULAR EXAMINATION OF FIRST SEMESTER – SECOND YEAR, 2022 OF 20-BATCH, B.S (IT

SUBJECT: VISUAL PROGRAMMING

ated: 06.06.2022 Maximum Marks: 60 Time Allowed: 3 H

OTE: ATTEMPT ALL QUESTIONS. ALL QUESTIONS CARRY EQUAL MARKS.

. 01 (a) What are different implementations of .NET? Briefly describe .N Framework along with its applications and their execution.

(b) Briefly discuss major components .NET Framework.

. 02 (a) What objects are provided for File operations in .NET Framework? Writ program in C# that create, save, and open a text file.

(b) How data bound controls are different from other visual controls? Desc Data Grid Control along with its common properties and methods.

. 03 (a) Discuss the need and importance of validation on GUI components?

(b) Discuss ErrorProvider Control and its common properties. Also, write program using ErrorProvider control that validates WinForms and sh error for any blank textbox.

. 04 (a) Describe ADO.NET and its applications. Also define connected disconnected architecture.

(b) Describe Command object and its three basic methods.

(c) Write a C# program using ADO.NET objects to read data from table populate the textboxes in a WinForm.

Q. 05 Write shorts notes on following (Any three):

1. C# Classes and Objects
2. Managed vs Unmanaged Code
3. Common Dialog Controls and its types
4. C# Iterative and Conditional Structures
5. .NET Framework Design Principles

Good Luck

QUAID-E-AWAM UNIVERSITY OF ENGINEERING, SCIENCE & ... NAWABSHAH

FINAL SEMESTER REGULAR EXAMINATION OF FIRST SEMESTER – SECOND YEAR 2022 OF 20-BATCH B.S (IT)

SUBJECT: DATA STRUCTURES & ALGORITHMS

Dated: 23.05.2022 Maximum Marks: 60 Time Allowed: 3 Hours.

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

Q. 01 (a) State the importance of Data Structures and Algorithms in the field of computing? What is the goal of analysis of algorithms? How do you compare algorithms? How is the structure of a program related to the big O execution time analysis of the program?

(b) Convert A + B * C - D * E / F infix expression into prefix and postfix format using Binary Tree.

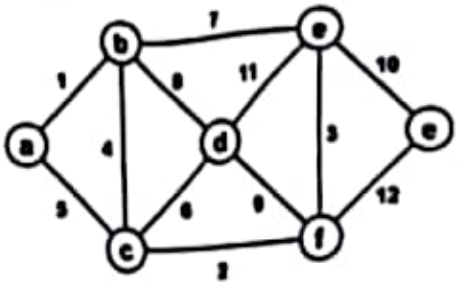
Q. 02 (a) What is the special property of red-black trees and what root should always be? Show the RB-tree that results after each of the integer keys 8, 18,5, 15, 17, 25, 40, and 80 are inserted, in that order, into an initially empty RB- tree and delete 8. Clearly show the tree that results after each insertion, and make clear any rotations that must be performed.

(b) What are the advantages of Multi way search tree? Construct B-tree of order 5 for the following data:

17, 16, 6,2,11,5,10,13,12,20,16,24,3,4,18,22, 30,35,40

Q. 03 (a) Consider the following directed, weighted graph. Use Bellmanford algorithm to calculate the single-source shortest paths from vertex A to every other vertex and also show the lowest-cost path from A to F in the graph.

(b) What do you mean by spanning tree of a graph? Find the minimal spanning tree of the following graph using Prim's algorithm.



Q. 04 (a) Draw the 11-entry hash table that results from using the hash function, $h(i) = (2i + 5) \bmod 11$, to hash the keys 12, 44, 13, 88, 23, 94, 11, 39, 20, 16, and 5, assuming collisions are handled by double hashing with a secondary hash function $h'(k) = 7 - (k \bmod 7)$. What is the worst-case time for putting n entries in an initially empty hash table, with collisions resolved by double hashing?

Double hash.

(b) Show the KMP prefix function for pattern a a b b a a b b c a and also mention the time complexity of KMP algorithm.

Q. 05 Briefly describe the following Terms with examples.

1. NP-complete and NP-hard problems
3. Heap sort algorithm
4. DFS and BFS graph traversal techniques.

Good Luck

QUAID-E-AWAM UNIVERSITY OF ENGINEERING, SCIENCE & TECHNOLOGY, NAWABSH

FINAL SEMESTER REGULAR EXAMINATION OF FIRST SEMESTER – SECOND YEAR, 2022 OF 20-BATCH, BS(

SUBJECT: CALCULUS AND ANALYTIC GEOMETRY

ted: 26.05.2022 Maximum Marks: 60 Time Allowed: 3

TE: ATTEMPT ALL QUESTIONS. ALL QUESTIONS CARRY EQUAL MARKS.

. No.		QUESTION	CLOs	Taxonomy Level	P
1	(a)	What is geometrical meaning of first order derivative? Prove with the help of graph.	2	C1	
	(b)	Differentiate between ordinary and partial derivatives. If $u = x^2y + \frac{x}{y^2} + 5$, Find $u_{xx} + u_{yy}$.	2	C1	
2	(a)	What is geometrical and physical meaning of continuity at a point $P(x, y)$?	2	C1	2
	(b)	Differentiate between explicit and implicit function.	2	C1	2
	(c)	Find n^{th} derivative of $y = (ax + b)^n$ and $\frac{1}{(ax+b)}$.	2	C1	2
3		Evaluate the following integral 1. $\int \frac{(x+1)dx}{(x^2-1)(x+2)(x-3)}$ 2. $\int \frac{dx}{\sqrt{x^2+5x+1}}$ 3. $\sqrt{x^2 - a^2}dx$.	2	C5	2
	(a)	What are the application of integration by parts?.	3	C1	
	(b)	Evaluate $\int e^{ax}\cos(bx + c)dx$ and $\int x^5 \sin x\, dx$.	3	C5	
	(a)	Define Parallelogram, Parallelepiped and Tetrahedron and Also draw their figures	3	C1	
	(b)	Construct a parallelepiped where $P(2,4,8)$ and $Q(3,5,9)$ be the edges of main diagonal of the parallelepiped	3	C6	

The End

QUAID-E-AWAM UNIVERSITY OF ENGINEERING, SCIENCE & TECHNOLOGY, NAWA

FINAL SEMESTER REGULAR EXAMINATION OF FIRST SEMESTER – SECOND YEAR, 2022 OF 20-BATCH,

SUBJECT: PROFESSIONAL PRACTICES

ated: 02.06.2022 Maximum Marks: 60 Time Allowed:

OTE: ATTEMPT ALL QUESTIONS. ALL QUESTIONS CARRY EQUAL MARKS.

01 Answer the following short Questions:

1. What are the two main provisions of digital millennium copyright act?
2. Summarize why the court in the Sony Betamax Case stated that "video-taping a movie from television to watch later" was not a copyright infringement.
3. Give an example of a device the music/movie industry has tried to ban.
4. Define patent troll.
5. Make a list of IP examples that can be copyrighted and a list of examples that cannot be.
6. List five types of cybercrime. Give examples of each.

02 (a) Explain why IT students need to learn about the impacts of "errors, failures, health and safety" in computer profession with the help of any case study/scenario.

(b) What was the one cause of the delay in completing the Denver airport or behind the failure of Denver airport software?

3 (a) Explain the identity theft and credit card fraud with the help of examples.

(b) Explain Stuxnet, the reason behind the development of Stuxnet? In light of case study.

(a) Define the main reason behind the failure of Therac-25 and who was responsible for the errors and failure in this case, in your opinion and why.

(b) Define system failures and explain the causes of system failure.

(a) Define the following terms:

i. CV ii. Resume iii. Cover Letter

Highlight the features that differentiate the three terms.

(b) Define one case/scenario in which re-use of software caused a serious problem?

The End