Department of Computer Systems Engineering,
University of Engineering and Technology, Peshawar,
Pakistan

Exam: Final term (Spring 2022)	**Time: 2 Hours**
Paper: CSE-102 Computer Programming (2nd Semester)	**Marks: 60**

Note: Attempt all questions on answer sheet.

Question No. 1 (Marks=2x15):

Write statements to accomplish each of the following;

i. Save the integer values entered by the user in 2 by 5 array (myArray).
ii. Declare **table** to be an integer array and to have 3 rows and 3 columns. Assume the symbolic constant **size** has been defined to be 3.
iii. What is the difference between user define functions and built-in functions?
iv. Add 1 to each of the 15 elements of integer array **bonus**.
v. What is the difference between calling the function by reference and calling the function by value, give examples?
vi. What is the difference between local and global variables, give examples.
vii. Write a function **integerPower(base, exponent)** that returns the value of $base^{exponent}$
viii. Write function header for function **smallest** that takes three integers, **x, y, z,** and returns an integer.
ix. Write a function **multiple** that determines for a pair of integers whether the second integer is a multiple of the first. The function should return 1 (true) if the second is multiple of the first, and 0 (false) otherwise.
x. Declare the variable **fptr** to be a pointer to an object of type **float**.
xi. Assign the address of variable **number1** to pointer variable **fptr**.
xii. Print the value of the object pointed by **fptr**.
xiii. Assign the value of the object pointed to by **fptr** to variable **number2**.
xiv. What will be the output of the following instrutions;
```
int intarray[5] = { 31, 54, 77, 52, 93 }
for( int j = 0; j < 5; j++ )
    cout<< *(intarray + j) << endl;
```
xv. Define a structure called **part** containing **int** variable **partNumber** and **char** array **partName** whose values may be as long as 30 characters.

Question No. 2 (Marks=15):

Write a complete C++ program with the two alternate functions specified below, of which each simply triples the variable **count** defined in **main.** Then compare and contrast the two approaches. These two functions are;

a) Function **tripleByValue** that passes a copy of **count** by value triples the copy and returns the new value.

b) Function **tripleByReference** that passes **count** by reference via a reference parameter and triples the original value of **count** through its alias.

Question No. 3 (Marks=15):

A small airline has just purchased a computer for its new automated reservations system. The president has asked you to program the new system. You are to write a program to assign seats on each flight of the airline's only plane (capacity 10 seats). Your program should display the following menu of alternatives:

Please type 1 for "first class."
Please type 2 for "economy."

If a person types 1, then your program should assign a seat in the first class section (seats 1-5). If the person types 2, then your program should assign a seat in the economy section (seats 6-10). Your program should then print a boarding pass indicating the person's seat number and whether it is in the first class or economy section of the plane.

Use a single subscribed array to represent the seating chart of the plane. Initialize all the elements of the array to 0 to indicate that all seats are empty. As each seat is assigned, set the corresponding elements of the array to 1 to indicate that the seat is no longer available.

Your program should of course, never assign a seat that has already been assigned. When the first class section is full, your program should ask the person if it is acceptable to be placed in the economy section (and vice versa). If yes, then make the appropriate seat assignment. If no, then print the message **"Next flight leaves in 3 hours."**

UNIVERSITY OF ENGINEERING AND TECHNOLOGY PESHAWAR
Final Term Exam (Spring 2022)
Department of Computer Systems Engineering

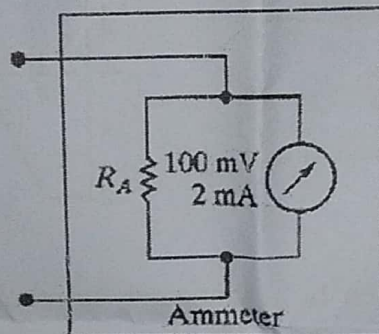Instructor: Dr. Zahid Wadud Mufti

Subject: Circuit and Systems-1

Time Allowed: 2 Hr

Semester: 2nd

Instructions:
- Attempt ALL questions in sequence; Paper consists of SIX questions.
- Write your name on all resources before starting paper.
- Exchange of Calculator is strictly prohibited.
- Read the complete paper in the first 15 minutes and get you queries (if any) clarified within this time; no question will be entertained after this time, and if you feel any data is missing, you can assume any reasonable values for it.

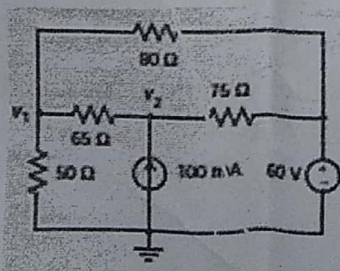**Question # 1 (CLO-3, Cog-5, Synthesis), (Marks-10)**

A d'Arsonval ammeter is shown in Fig. below. Design a set of d'Arsonval ammeter to read the following full-scale current readings: (a) 5 A and (b) 2 A. specify the shunt resistor R_A for each
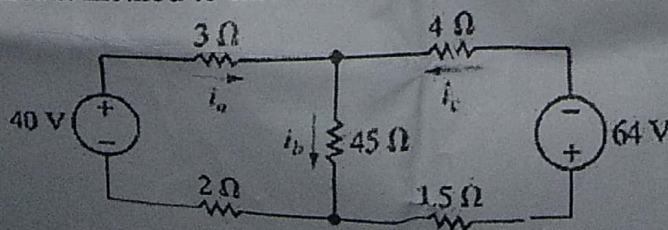

ammeter.

Question # 2 (Marks-10)

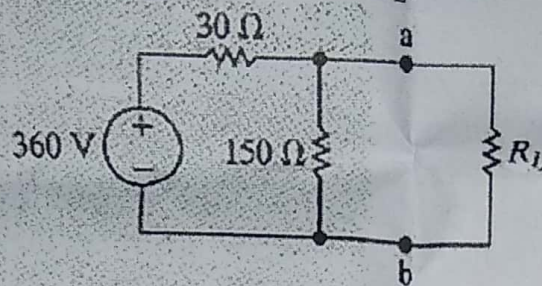Determine the values node-voltage, V_1 and V_2 in the circuit shown below:

Question # 3 (CLO-3, Cog-5, Synthesis), (Marks-10)

Use the mesh-current method to find the branch currents i_a, i_b and i_c in the circuit in Fig. below:
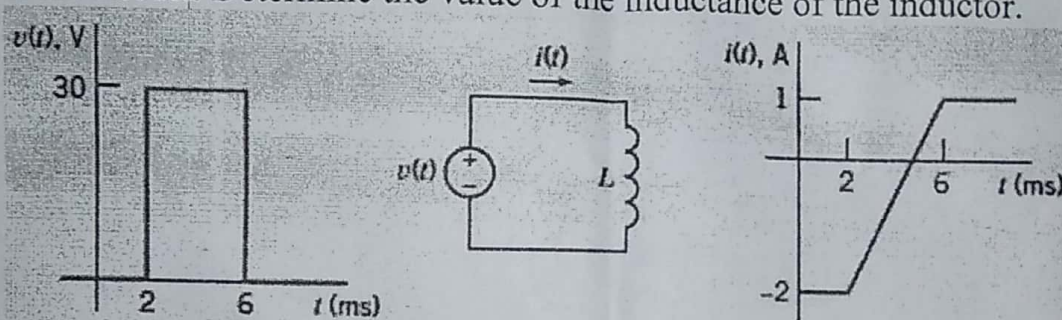
Question # 4 (Marks-10)

a) For the circuit shown below, find the value of R_L that results in maximum power being transferred to R_L.

b) Calculate the maximum power that can be delivered to R_L.

c) When R_L is adjusted for the maximum power transfer, what percentage of the power delivered by the 360 V source reaches R_L?

Question # 5 (Marks-10)

Figure shows a circuit together with two plots. The plots represent the current and voltage of the inductor in the circuit. Determine the value of the inductance of the inductor.

Question # 6 (Marks-10)

An uncharged 0.2 µF capacitor is driven by a triangular current pulse. The current pulse is described by

$$
i(t) = \begin{cases}
0, & t \le 0; \\
5000t \text{ A}, & 0 \le t \le 20 \text{ µs}; \\
0.2 - 5000t \text{ A}, & 20 \le t \le 40 \text{ µs}; \\
0, & t \ge 40 \text{ µs}.
\end{cases}
$$

a) Derive the expressions for the capacitor voltage, power, and energy for each of the four time intervals needed to describe the current.

b) Plot i, v, p and ω versus t.

(Time Allowed: 02 Hour

(Total Marks: 4

Note: *The answers to all the questions should be brief and to the point. Since, you all have learn how to communicate effectively, marks shall be deducted for any irrelevant information a unnecessarily long answers*

"0.25 marks shall be deducted for every spelling and grammatical mistake"

All the best!!!

Q. No.1: "Were you listening to me properly during my classes?"
Appendix – A is an excerpt from an article explaining various barriers to effective listening. Rea it thoroughly and answer the following questions. (10 Marks) (CLO 2, Affective 2)

a) You, being the student of DCSE, has attended multiple lectures by different instructo during the last two semesters. Identify the types of listening barriers (at least 03) that yc have faced during the classes? Support your answer with reasons.

b) What signs of inattention did you display while facing the specified barriers?

Q. No.2: You have studied five (05) types of internal communication that takes place i organizations.
Considering DCSE to be an office, write down an example depicting each type of intern communication that has taken place between you and your class fellows/faculty/administratio (one example against each type) *(15 Marks) (CLO 1, Affective 4)*

Q. No.3: Write a letter to the Chairman DCSE and bring his attention towards the poor interne facility in the department. Also, request him to take necessary remedial actions in order t resolve the highlighted issue.
Follow the format that has been taught to you. *(15 Marks) (CLO 1, Affective 4)*

Barriers to Effective Listening

Most of us would like to think that we are good listeners. In other words, we believe that we hear what someone is saying and are able to take it in and interpret it correctly, before responding appropriately.

Unfortunately, the sad truth is that most of us overestimate our abilities in this area.

Research shows that we generally only listen with about **25% efficiency**. This means that about three-quarters of spoken communication is lost on the average person. Instead of giving the speaker our full attention, we may be formulating a reply, or making a judgement about what they are saying, or even being distracted by what we're going to have for dinner. This ineffective listening leads to misunderstandings and a breakdown in communication.

This article examines some of the barriers and bad habits of listening. It will help you to learn to listen more effectively, and therefore improve the quality of your professional and personal life.

Common Physical Barriers to Listening

The physical barriers to listening affect your ability to concentrate on a speaker and/or to hear their words or message. They include, but are not limited to:

- **Too much noise around you**. It can be hard to listen effectively if there is too much background noise. This can happen at a party, or in a crowded room, for example, but may also include having the television on in the background.

- **Trying to listen to more than one conversation at a time.** There is some overlap here with background noise, because it could include having the television or radio on while attempting to listen to somebody talk, being on the phone to one person and talking to another person in the same room, or simply trying to talk to two people at once.

- **You are distracted by something else in your environment.** Sadly, our brains are fairly fickle things, and easily distracted. A movement out of the window, or a stray thought, can derail listening. Your smartphone showing you a notification can be a major distraction—which is why it is advisable to put it away if someone wants to speak to you. Many people also find that they can distract themselves, for example, by doodling, or fiddling with something. However, for others, this can be a way of helping them to focus by distracting their hands, but not their brains.

- **You find the communicator attractive or unattractive** and you pay more attention to how you feel about them and their physical appearance than to what they are saying. This can also apply when someone has an accent: you may find yourself listening to the cadence, and not the words or meaning.

- **You are not interested** in the topic/issue being discussed and become bored. This rapidly leads to you becoming distracted and ceasing to pay attention.

- **Feeling unwell or tired, hungry, thirsty or needing to use the toilet, too hot or too cold.** Physical discomfort is a huge distraction. It is almost impossible to concentrate effectively when you feel uncomfortable in some way.

- **Being stressed about something else that is happening in your life.** When you have a lot going on in your life, it is much harder to calm your internal dialogue and simply listen to someone else.

- **Being on the phone rather than speaking face-to-face.** A considerable amount of communication is in body language and facial expression. You therefore have to concentrate much harder on the phone, to fully 'hear' the speaker's message. When you are speaking on the phone, it may be helpful to emphasise your tone of voice more, to ensure that your message is clearly heard.

- **If you don't really understand what someone is saying,** perhaps because of their choice of words, or because they have a strong accent. Under these circumstances, it is tempting to just 'switch off'. However, instead, you should try to listen harder, and ask for clarification if you don't understand.

Signs of Ineffective Listening

Signs of possible inattention while listening include:

- **Lack of eye contact with the speaker.** Listeners who are engaged with the speaker tend to give eye contact. Lack of eye contact can, however, also be a sign of shyness.
- **An inappropriate posture,** such as slouching, leaning back or 'swinging' on a chair, leaning forward onto a desk or table and/or a constantly shifting posture. People who are paying attention tend to lean slightly towards the speaker.
- **Being distracted** - fidgeting, doodling, looking at a watch, yawning.
- **Inappropriate expressions and lack of head nods.** Often when a listener is engaged with a speaker, they nod their head. This is usually an almost subconscious way of encouraging the speaker and showing attention. Lack of head nods can mean the opposite: that listening is not happening. The same can be true of facial expressions. Attentive listeners use smiles as feedback mechanisms and to show attention.
- **Having a 'faraway' look** may be a sign that someone is daydreaming.

However, it is important to be aware that these do not always follow. For example, sometimes people with specific learning difficulties such as autism may find it harder to maintain eye contact. Those with attention deficit hyperactivity disorder (ADHD) may use doodling or 'fidget toys' as a way to help them to concentrate.

You may also detect ineffective listening in other ways, and especially in how someone responds.

For example, **a sudden change in topic is likely to be a sign of inattention.** When a listener is distracted, they may suddenly think about something else that is not related to the topic of the speaker and attempt to change the conversation to their new topic. **Jumping in with advice is also** often a sign that someone is not properly listening, because it means that they have been thinking about how to respond, rather than taking the message on board.

In Conclusion:

Ineffective listening is very common. However, this does not mean that we should not all try to improve our listening skills. Listening is fundamental to communication. We could all usefully spend time improving our listening skills.

Registration No.---- 1982 --------------------

University of Engineering and Technology Peshawar

Final Term Spring 2022

Computer System Engineering 2nd Semester

Paper: Differential Equations (BSI- 231)

Maximum Time: 3 Hours hour   Maximum Marks: 100

Note: Read paper carefully. Attempt all questions.

Q1.   [CLO 1, PLO 2, Applications]

Solve by operator method $X' = \begin{bmatrix} -6 & 0 \\ -1 & -6 \end{bmatrix} X + \begin{bmatrix} t \\ t^2 \end{bmatrix}$. Verify your result. {MARKS=14+6}

Q2.   [CLO 1, PLO 2, Applications]

a)   Use Laplace transform to solve the initial- value problem $\frac{d^2y}{dt^2} + 8y' + 7y = 0, y(0) = 0. y'(0) = 1$

. {MARKS=10}

$\frac{1}{6}[e^{-t} - e^{-7t}]$

b)   Use reduction of order with the solution $y_1(t) = \sin 7t$ to determine a second linearly

independent solution of the differential equation $\frac{d^2y}{dx^2} + 49y = 0$. {MARKS=20}

$-\frac{5t}{4}\cos 4t + \frac{15}{4}y$
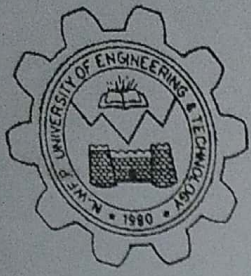
Q3.   [CLO 2, PLO 3, Applications]

Determine the charge on the capacitor and the current in the L-C series circuit in which $R = 0$

assuming that $Q((0) = 0$ and $I(0) = Q'(0) = 0$. If $L = 2$ henry, $C = \frac{1}{32}$ farad, and

$E(t) = 220$. {Marks=25}

Q4.   [CLO 2, PLO 3, Applications]

Determine the ordinary points of the differential equation $(4 - x^2)\frac{dy}{dx} + y = 0$. and general

solution by power series method. {Marks=25}

$an+2 = \frac{an-1(n-1)-an}{-4(n+1)}$

$Ce^{-6t} + t - \frac{1}{6}$

Department of Computer System Engineering
University of Engineering and Technology
Peshawar
ME 104 Engineering Drawing & CAD
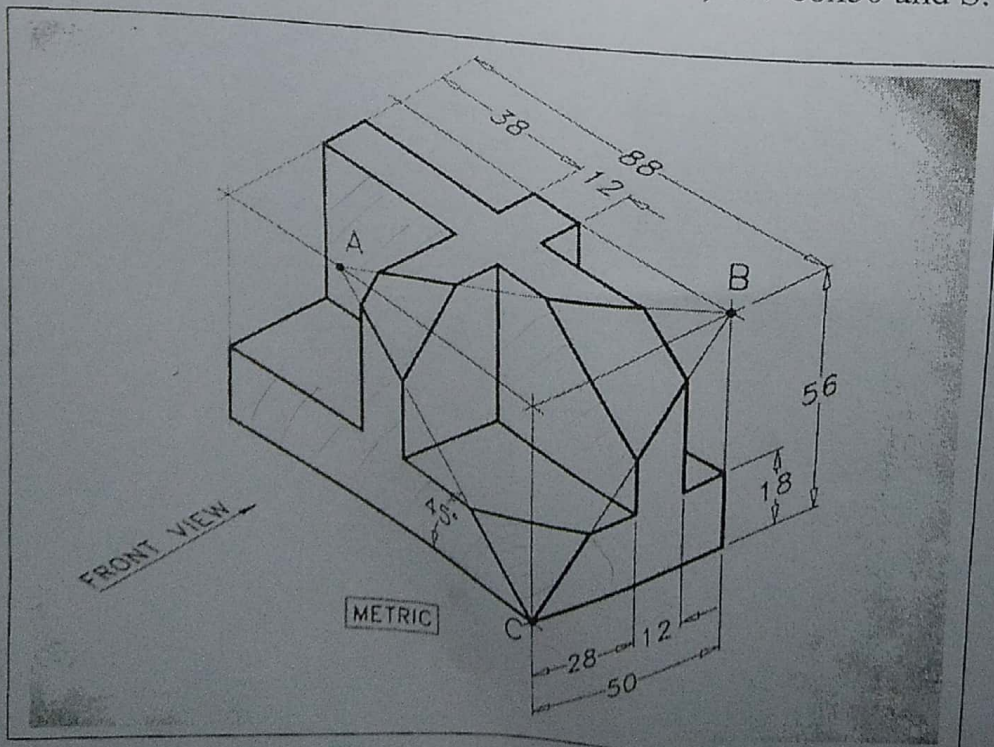**2nd Semester Final Term Examination**
Spring 2022

Note: Attempt all questions on both sides of A3 sheet. Mobile Phones and Programmable calculators are not allowed. Lack of proper use of drawing instruments will leads to marks deductions

Maximum marks: 50

Time allowed: 2 hours

Q. 1 A line AB, 90 mm long, is inclined at 45° to the H.P. and its top view **(10)** makes an angle of 60° with the V.P. The end A is in the H.P. and 12 mm in front of the V.P. Draw its front view and find its true inclination with the V.P.

Q. 2 Draw the orthographic projection of the given isometric part using 3rd **(40)** angle of projections. Distribute the sheet accordingly. All dimensions are in mm. The max dimension of F.V are 88 x 56, T.V 88x50 and S.V 50x 56

Department of DCSE Engineering
University of Engineering and Technology, Peshawar, Main Campus
Final Term Examination

BSI-110 Pak. Study
2nd Semester spring 2022

Time Allowed: 3 hours Max Marks: 100

Note: Solve all questions.

No.	Questions	CLOs, Cognitive Domain	Marks
Q. 1.	Discuses ideology of Pakistan in the light of the Sayings of Allama Iqbal and Quaid-i-Azam? علامہ اقبال اور قائد اعظم کی ارشادات کی روشنی میں اساس پاکستان پر بحث کریں ۔	CLO1, C1, PLO 6	⁕ 25
Q 2:	Explain in detail the purpose for which Pakistan came into being? قیام پاکستان کے اغراض و مقاصد تفصیل سے لکھیں؟	CLO1, C1, PLO 6	25
Q3:	Write a detail note on Nehru Report 1928? نہرو رپورٹ پر ایک تفصیلی نوٹ لکھیں؟	CLO2, C5, PLO 6	25
Q4:	Explain in detail establishment of Pakistan initial difficulties and important events. قیام پاکستان کے بعد رونما ہونے والی ابتدائی مسائل کی نشاندہی کیجئے ۔	CLO2, C5, PLO 6	⁕ 25