

# TRIBHUVAN UNIVERSITY

2081 (New/Old Course)

Bachelor / Education /6<sup>th</sup> Semester

Full Marks: 40

ICT.Ed.465 Visual Programming

Time: 3 hrs.

*Candidates are required to give answers in their own words as far as practicable. The figures in the margin indicate full marks.*

**Attempt all questions**

**Group "B"**

6 X 5 marks =30

1. What is .NET Framework? Briefly explain the different components of .NET.
2. What is method in C#? Exemplify the different types of methods that can be defined and used in C#.

OR

How does method overloading differ from method overriding? Explain with appropriate examples.

3. Define delegates. Explain the advantages of using delegates in C# with an example.
4. What is LINQ? Write program to make use of LINQ.
5. What is ADO.NET Entity Framework? Differentiate between **DataTable** and **DataView** with appropriate example(s).

OR

What is ASP.NET Razor Pages? Differentiate between ASP.NET Web Forms and ASP.NET MVC.

6. Write C# program to store 7 records of Book (isbn\_no, title, author, page, price) in database. Make assumption where required.



**TRIBHUVAN UNIVERSITY**

2081 (New/Old Course)

Bachelor / Education /6<sup>th</sup> Semester

ICT.Ed.466 Computer Graphics

Full Marks: 40

Time: 3 hrs.

Candidates are required to give answers in their own words as far as practicable. The figures in the margin indicate full marks.

**Attempt all questions**

**Group "B"**

6 X 5 marks =30

1. How are computer graphics used for educational purposes? Justify with your real example.
2. Explain different input devices available for graphical input.
3. Digitize the line with endpoints (1, 8) and (5, 2) using Bresenham's line drawing algorithm.

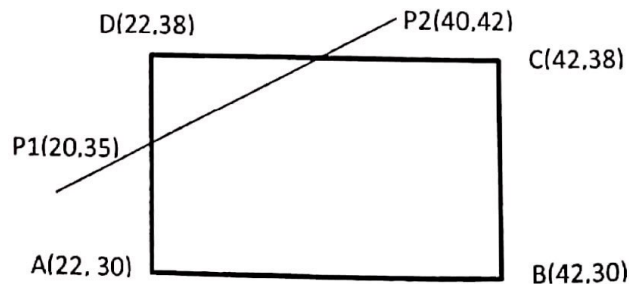
OR

Digitize circle having radius=5 and center at (1, 3) using mid-point circle algorithm.

4. What is projection? Differentiate between parallel projection and perspective projection.
5. Transform Quad. ABCD, A(1, 2), B(6, 7), C(9, 2) and D(5, 4) with following: Rotate about (1, 5) in negative direction and then scale with scale factor S(3,2) about (1, 0).

OR

In given figure coordinates of Windows ABCD. Clip the line P1, P2 using Cohen Sutherland line clipping algorithm.



6. Explain Scanline algorithm and constant shading algorithm with supportive diagram.



# TRIBHUVAN UNIVERSITY

2081 (New Course)

Bachelor / Education / 6<sup>th</sup> Semester

ICT.Ed.468 Network Security

Full Marks: 40

Time: 3 hrs.

*Candidates are required to give answers in their own words as far as practicable. The figures in the margin indicate full marks.*

**Attempt all questions**

**Group "B"**

6 X 5 marks =30

1. Define computer security. Explain the goals of computer security.
2. What is denial of service (DoS)? How availability policy is developed to overcome the problem of DoS? Explain.

OR

Explain Biba model with example.

3. Compare and contrast symmetric and asymmetric crypto system.
4. What is the use of multifactor authentication? Explain key management process.

OR

What is VPN? How is it used as network security tool? Explain.

5. Identify and explain security related programming problems with example.
6. What is intrusion? How is it being detected? Explain.



**TRIBHUVAN UNIVERSITY**

2081 (New Course)

Bachelor / Education / 6<sup>th</sup> Semester

ICT.Ed.469 Digital Pedagogy

Full Marks: 40

Time: 3 hrs.

*Candidates are required to give answers in their own words as far as practicable. The figures in the margin indicate full marks.*

**Attempt all questions**

**Group "B"**

6 X 5 marks =30

1. Explain the concept of E-Learning. How E-learning transformed the landscape of education in recent years? Explain.
2. What is Virtual Learning Environment? Differentiate between asynchronous learning and synchronous learning with example.
3. What systemic changes are necessary to address the determined challenges of E-learning, such as access disparities, technological infrastructure limitations, and digital literacy gaps?

OR

Explore the ethical considerations surrounding the use of digital technologies in pedagogy. How can teachers and students ensure equity and privacy in online learning environments?

4. How E-Learning 3.0 truly fosters collaborative and interactive learning experiences. Support your answer.
5. Define the concepts of gamification and storytelling with an example. How can the integration of technology in pedagogy enhance teaching and learning outcomes? Explain

OR

What do you mean by Pedagogy Wheels? How do they integrate various teaching methods and technologies to enhance learning?

6. What is a Learning Management System (LMS) and how does it enhance the educational experience for both students and teachers through specific features that improve learning outcomes and teaching efficiency?



**TRIBHUVAN UNIVERSITY**

2081 (New Course)

Bachelor / Education /6<sup>th</sup> Semester

Full Marks: 60

Ed.462 Research in Education

Time: 3 hrs.

Candidates are required to give answers in their own words as far as practicable. The figures in the margin indicate full marks.

**Attempt all questions**

**Group "B"**

6 X 5 marks =30

1. Explain the research issues and problems in educational research with a suitable example.
2. How do you collect data through the Focus Group Discussion (FGD) technique? Explain.

OR

Distinguish between ethnography and narrative research in terms of concept and characteristics.

3. Define action research. Explain the major characteristics of action research.
4. Explain the concept of sampling. How is it important in research?

OR

What is survey research? Explain the types of survey research.

5. Explain the concept of correlational research with suitable example.
6. Arrange the following references as per the APA 7<sup>th</sup> edition.
  - Author: Jackson Timothy, Book Name: Research Methodology in Education, Publisher: Oxford Press, Location 565K, UK. Year: 2019
  - Article title: Teacher's attitudes on gamification: The Greek EFL content Authors: Filomachi Spathopoulou and Konstantinos Pitychoutis, Journal Name: International Journal of Education Practice, Vol.12, No.2, Page: 163-176, DOI: <https://doi.org/10.18488/61.v12i2.3630>

- Economic Survey 2023/24, Ministry of Finance, Government of Nepal, Singh Durbar, Kathmandu, Nepal

**Group "C"**

2 X 10 marks =20

7. Explain the major components of research proposal with example.

OR

Define purposive sampling. Explain the data collection techniques by semi-structured and unstructured interview.

8. Calculate the mean and standard deviation from the following frequency distribution.

Marks	0-10	10-20	20-30	30-40	40-50	50-60	60-70	70-80	80-90
No. of Students	3	6	8	11	15	12	8	5	2

Interpretate the meaning of obtained result.

