



Tribhuvan University
Faculty of Humanities & Social Sciences
OFFICE OF THE DEAN
2019

Bachelor in Computer Applications
Course Title: Computer Fundamentals & Applications
Code No: CACS 101
Semester: 1st

Full Marks: 60
Pass Marks: 24
Time: 3 hours

Candidates are required to answer the questions in their own words as far as possible.

Group B

Attempt any SIX questions.

[6×5 = 30]

2. What is Operating system? Explain the major functions of Operating System. [1+4]
3. Differentiate between primary and secondary memory. [5]
4. What is computer virus? Explain symptoms of computer virus. [1+4]
5. Define database? Explain the advantages of database over file based system. [1+4]
6. What is proxy server? Write down the benefit of using proxy server in the organization. [5]
7. Define e-commerce? Mention the benefits of using it in the context of customer? [1+4]
8. Consider the following structure and answer the questions. (E:/> is current prompt)

```
E:\ROOT
├── dir_1
│   ├── file_1.txt
│   └── file_2.txt
├── dir_3
└── dir_2
    └── file_2.txt
```

- a) Write down DOS command to create above files and directories. [2]
- b) Write down DOS command to move all text file into **dir_3** directory. [1]
- c) Write DOS command to delete **dir_1** directory. [1]
- d) Hide the **root** directory from E drive. [1]

Group C

Attempt any TWO questions.

[2×10 = 20]

9. (a) From the following spreadsheet, write the formula to address the following conditions:

ABC Company

Kathmandu

	A	B	C	D	E	F	G	H	I
1	SN	Name	Addr	Post	Salary	Bonus	Tax	HA	Total
2	1	Ram	Ktm	Manager	12000				
3	2	Sham	Pokhara	Accountant	11500				
4	3	Hari	Pokhara	Engineer	10000				
	Maximum Salary				?				

Conditions:

1. Bonus will give 15% of salary If his/ her salary is less than and equal to 6000. [1]
 2. Tax will pay 10% of salary if his/ her post is manager [1]
 3. HA will get 5% of salary, if he/she is not from Ktm. [1]
 4. Total is equal to the sum of (Salary, Bonus and Ha) by deducting the Tax [1]
 5. Write a formula to find the maximum salary above the excel sheet. [1]
- b) What is Photoshop? Explain five major tools of Photoshop. [1+4]
10. a) What is word processor? Explain the major functions available in the Home tab of word document. [5]
- b) Define Network Topology? Write down the advantages of Network. [1+4]
11. a) What is animation? What are the advantages of using slide master in PowerPoint? [1+4]
- b) Explain block diagram of computer and its various components. [5]



Tribhuvan University
Faculty of Humanities & Social Sciences
OFFICE OF THE DEAN
2019

Bachelor in Computer Applications
Course Title: Digital Logic
Code No: CACS 105
Semester: 1st

Full Marks: 60
Pass Marks: 24
Time: 3 hours

Centre:

Symbol No:

Candidates are required to answer the questions in their own words as far as possible.

Group A

Attempt all the questions.

[10×1 = 10]

1. Circle (O) the correct answer.

- i) Which one of the following is hexadecimal equivalent of $(5073.052)_8$?
 - a) A3C.150
 - b) B2B.140
 - c) A3B.150
 - d) B3A.150
- ii) Which one of the following is 9's complement of $(3578.501)_{10}$?
 - a) 4926.947
 - b) 3926.947
 - c) 4926.937
 - d) None of the Above
- iii) Which one of the following is the equivalent reflected code of 1101?
 - a) 1001
 - b) 1011
 - c) 1000
 - d) 1010
- iv) When output will go high in NOR Gate?
 - a) if all inputs are high
 - b) if any input is high
 - c) if any input is low
 - d) if all inputs are low
- v) According to Boolean algebra: What is the value of $X + 1 = ?$
 - a) \bar{X}
 - b) 1
 - c) 0
 - d) X
- vi) The logic circuits whose outputs at any instant of time depends only on the present input but also on the past outputs are called
 - a) Combinational circuits
 - b) Sequential circuits
 - c) Latches
 - d) Flip-flops

- vii) If $Q = 1$, the output is said to be
- a) Reset
 - b) Set
 - c) Previous state
 - d) current state
- viii) Which one of the following are also called ripple counters?
- a) SSI counters
 - b) Synchronous counters
 - c) Asynchronous counters
 - d) VLSI counters
- ix) How many flip-flops are required to construct MOD-30 counter?
- a) 5
 - b) 6
 - c) 4
 - d) 8
- x) How much storage capacity does each stage in a shift register represent?
- a) One bit
 - b) Two bits
 - c) Four bits
 - d) Eight bits



Tribhuvan University
Faculty of Humanities & Social Sciences
OFFICE OF THE DEAN
2019

Bachelor in Computer Applications
Course Title: Digital Logic
Code No: CACS 105
Semester: 1st

Full Marks: 60
Pass Marks: 24
Time: 3 hours

Candidates are required to answer the questions in their own words as far as possible.

Group B

Attempt any SIX questions.

[6×5 = 30]

2. Subtract: $1010.110 - 101.101$ using both 2's and 1's complement. [5]
3. Simplify (Using k-map) the given Boolean function in both SOP and POS using the don't care condition d:

$$F(A, B, C, D) = \pi(0,1,3,7,8,12) \text{ and } \pi d(5,10,13,14) \quad [2 + 3]$$

4. Define decoder. Draw logic diagram and truth table of 3 to 8-line decoder. [1 + 4]
5. Define ROM. Implement the following combinational logic function using ROM: [2 + 3]

A1	A0	F1	F2
0	0	1	0
0	1	0	1
1	0	1	1
1	1	1	0

6. What are the drawbacks of clocked RS flip flop? Explain the operation of JK Flip flop along with its circuit diagram and characteristic table. [2+3]
7. What is T flip-flop? Explain clocked JK flip-flop with its logic diagram and truth table. [1 + 4]

8. Design MOD - 7 counter with state and timing diagram.

[2 + 1 + 2]

Group C

Attempt any TWO questions.

[2×10 = 20]

9. Define PLA. Design a PLA circuit with given functions.

$$F1 (A, B, C) = \Sigma (3, 5, 6, 7)$$

$$F2 (A, B, C) = \Sigma (0, 2, 4, 7). \text{ Design PLA program table also.}$$

[3 + 7]

10. Distinguish between sequential and combinational logic with example? Discuss the design procedure of combinational logic.

[4+6]

11. A sequential circuit with two D flip-flops, A and B, two inputs x and y, and one output z, is specified by the following next state and output equations

[4+3+3]

$$A(t+1) = x'y + x A$$

$$B(t +1) = x'B + x A$$

$$z = B$$

- a) Draw the logic diagram.
- b) Derive the state table.
- c) Derive the state diagram.



Tribhuvan University
Faculty of Humanities & Social Sciences
OFFICE OF THE DEAN
2019

Bachelor in Computer Applications
Course Title: English I
Code No: CAEN 103
Semester: 1st

Full Marks: 60
Pass Marks: 24
Time: 3 hours

Centre:

Symbol No:

Candidates are required to answer the questions in their own words as far as possible.

Group A

Attempt all the questions.

[10×1 = 10]

4. Circle (O) the correct answer.

i) Icon is defined as

- a) visual symbol used in a menu instead of natural language.
- b) a device moved by hand to indicate position on the screen.
- c) data programs
- d) The set of software

ii) An pen is one example of an input device.

- a) electron b) electronic c) electronics d) electronically

iii) The word computational has

- a) an adjective-forming suffix b) adverb-forming suffix
- c) verb-forming suffix d) noun-forming suffix

iv) Newest is an example of

- a) superlative adjective b) comparative adjective
- c) absolute adjective d) absolute adverb

v) We were to document our program.

- a) instructor b) instructed c) instruct d) instruction

- vi) The opposite meaning of 'preventing' is
- a) co-operating b) enabling c) reducing d) localizing
- vii) Which of the following words has a destructive meaning?
- a) cipher b) shield c) smart-card d) hacker
- viii) The computer is faster than the old one.
- a) considered b) considerably c) considerable d) considering
- ix) Our company is working on a new of software products.
- a) generation b) generative c) generated d) generate
- x) The similar meaning (synonym) of the word inventive is
- a) Skilled b) creative c) awkward d) insufficient



Tribhuvan University
Faculty of Humanities & Social Sciences
OFFICE OF THE DEAN
2019

Bachelor in Computer Applications
Course Title: English I
Code No: CAEN 103
Semester: 1st

Full Marks: 60
Pass Marks: 24
Time: 3 hours

Candidates are required to answer the questions in their own words as far as possible.

Group B

Attempt any SIX questions.

[6×5 = 30]

5. What are the major functions of the decision support system? Explain.
6. How has the micro-chip technology changed the world forever? Illustrate.
7. Give the meaning of "network of networks" and then explain the main use of ALGOL.
8. Give some specific names of clipboard computers now available in the market and then explain the two different jobs of 'infector' and 'detonator'.
9. Why did the developers of the PAL system invent interlaced video? What are its advantages and disadvantages? Explain.
10. "Computers are about to take people to places they have never been able to visit before." Explain the statement basing on the essay 'Fancy a fantasy Spacecraft?'.
11. Discuss some of tasks/jobs suited to robots only, and show the impact of robotics revolution felt in modern society.

Group C

Attempt any TWO questions.

[2×10 = 20]

12. Perhaps you manage a computing specializing in multi-media hardware and software. Prepare a leaflet to inform companies of the potential benefits of using multimedia.

OR

Write a letter of inquiry to a college or university requesting information about a degree program. Be specific in your request, and follow the criteria for writing letters of inquiry.

13. You work in the purchasing department of an industry where a major project is being introduced at work. Employees working under your supervision need suggestion from you. Write a memo providing your response in regard to their individual responsibilities.

OR

Write a complete CV of your own to be sent with the covering letter while applying for a job.

14. Write an essay about a problem that directly involves you. Choose a problem you see in your neighborhood, your college, or your job, and explain how it should be solved.



Tribhuvan University
Faculty of Humanities & Social Sciences
OFFICE OF THE DEAN
2019

Bachelor in Computer Applications
Course Title: Mathematics I
Code No: CAMT 104
Semester: 1st

Full Marks: 60
Pass Marks: 24
Time: 3 hours

Centre:

Symbol No:

Candidates are required to answer the questions in their own words as far as possible.

Group A

Attempt all the questions.

[10×1 = 10]

1. Circle (O) the correct answer.

- i) If $A = [-1,3)$ and $B = [2,5]$, then $A-B$ is equal to
 - a) $[-1,2)$
 - b) $[-1,3)$
 - c) $(-1,2)$
 - d) $[-1,3]$

- ii) If $f(x) = \sqrt{x}$ and $g(x) = x+1$ then, what is the value of $g \circ f(x)$?
 - a) $\sqrt{x+1}$
 - b) $\sqrt{x}+1$
 - c) $x+\frac{1}{4}$
 - d) $x+2$

- iii) What is the reciprocal of the complex number $(2,1)$?
 - a) $(1/5, 1/5)$
 - b) $(2/5, -1/5)$
 - c) $(-2/5, 1/5)$
 - d) $(-2, -1)$

- iv) What type of function $y = f(x) = ax^2 + bx + c$ is?
 - a) Constant function
 - b) Linear function
 - c) Identity function
 - d) Quadratic function

- v) Geometrical meaning of scalar triple product of three vectors $\vec{a}, \vec{b}, \vec{c}$ is the

a) Volume of parallelepiped formed by $\vec{a}, \vec{b}, \vec{c}$ as adjacent sides

b) $|\vec{a}| \times$ Projection of \vec{b} on \vec{a} and \vec{c}

c) $|\vec{b}| \times$ Projection of \vec{b} on \vec{a}

d) $|\vec{a}| \times |\vec{b}| \times |\vec{c}|$

vi) If a, b, c is in H.P then, what is the value of b?

a) $\frac{a+c}{2}$

b) \sqrt{ac}

c) $\frac{2ac}{a+c}$

d) $2\frac{\sqrt{ac}}{a+c}$

vii) Which of the following is the rank of the Matrix $\begin{bmatrix} 2 & 4 \\ 2 & 4 \end{bmatrix}$?

a) 0

b) 1

c) 2

d) 3

viii) In how many ways 6 persons can seat in a round table?

a) 720

b) 360

c) 120

d) 60

ix) Let $A = \begin{bmatrix} 1 & 0 \\ 0 & 1 \end{bmatrix}$, and a map $T: R^2 \rightarrow R^2$ defined by $T(x)=A(x)$ then what is the image of $u = \begin{bmatrix} 1 \\ 2 \end{bmatrix}$ under T?

a) $\begin{bmatrix} 1 \\ 2 \end{bmatrix}$

b) $\begin{bmatrix} 1 \\ 1 \end{bmatrix}$

c) $\begin{bmatrix} 0 \\ 2 \end{bmatrix}$

d) $\begin{bmatrix} 2 \\ 1 \end{bmatrix}$

x) If $r = \frac{1}{1 + \cos \theta}$ then, this is the equation of..

a) Parabola

b) Hyperbola

c) Ellipse

d) Circle



Tribhuvan University
Faculty of Humanities & Social Sciences
OFFICE OF THE DEAN
2019

Bachelor in Computer Applications
Course Title: Mathematics I
Code No: CAMT 104
Semester: 1st

Full Marks: 60
Pass Marks: 24
Time: 3 hours

Candidates are required to answer the questions in their own words as far as possible.

Group B

Attempt any SIX questions.

[6×5 = 30]

2. In class of 100 students 40 students failed in Mathematics, 70 failed in English and 20 failed in both subjects. Find
 - a) How many students passed in both subjects?
 - b) How many students passed in Mathematics only?
 - c) How many students failed in mathematics only?
3. Find the domain and range of the function $f(x) = \frac{2x+1}{3-x}$.
4. Find the Maclurin series of the function $f(x) = \sin x$.
5. Prove that
$$\begin{bmatrix} 1 & x & x^2 \\ 1 & y & y^2 \\ 1 & z & z^2 \end{bmatrix} = (x - y)(y - z)(z - x).$$
6. Find a unit vector perpendicular to the plane containing points P(1, -1, 0), Q(2, 1, -1) and R(-1, 1, 2).
7. In how many ways can be letter of words “Sunday” be arranged? How many of these arrangement begin with S? How many begin with S and don't end with y?
8. If $x + iy = \sqrt{\frac{1+i}{1-i}}$ then show that $x^2 + y^2 = 1$.

Group C

Attempt any TWO questions.

[2×10 = 20]

9. a) Define conic section. Find the coordinates of vertices, eccentricity and foci of the ellipse
 $9x^2 + 4y^2 - 18x - 16y - 11 = 0.$ **1+5**
- b) If $T: R^2 \rightarrow R^3$ defined by $T(x_1, x_2) = (x_1 + x_2, x_2, x_1)$ be the linear transformation, then
find matrix associated with linear map T. **4**
10. Define irrational number. Prove that $\sqrt{2}$ is an irrational number. **1+4**
If functions $f: R \rightarrow R$ defined by $f(x) = 2x + 1$ and $g: R \rightarrow R$ defined by $g(x) = x^2 - 2$.
Find the formulae for composite functions $f \circ g$ and $g \circ f$ and also verify that $f \circ g \neq g \circ f$.
4+1
11. a) If arithmetic mean, geometric mean and harmonic mean between two unequal positive
numbers are A, G, H respectively. Then prove that $A > G > H$. **4**
- b) What is the relation between permutation and combination of n objects taken r at a time?
A committee of 5 is to be constituted from 6 boys and 5 girls. In how many ways can this
be done so as to include at least a boy and a girl? **1+5**



Tribhuvan University
Faculty of Humanities & Social Sciences
OFFICE OF THE DEAN
2019

Bachelor in Computer Applications
Course Title: Society & Technology
Code No: CASO 102
Semester: 1st

Full Marks: 60
Pass Marks: 24
Time: 3 hours

Centre:

Symbol No:

Candidates are required to answer the questions in their own words as far as possible.

Group A

Attempt all the questions.

[10×1 = 10]

1. Circle (O) the correct answer.

i) The father of Sociology is

a) Talcott Parson

b) Max weber

c) Karl Marx

d) August Comte

ii) Which of the following is not true?

a) Sociology is the scientific study of society.

b) Sociology is the holistic study of human culture.

c) Sociology is a value-free science.

d) Sociology contributes in social policy formulation and social planning.

iii) What are the major two schools of thought related to scope of sociology?

a) Formalistic school and Synthetic school of thought

b) Critical and specialist school of thought

c) Formalistic and critical school of thought

d) American and British school of thought

iv) Which of the following is not a unit of social life?

a) Association

b) Organization

c) Group

d) Social Conflict

- v) One's father's brother is one's
- a) Fictive kin
 - b) Affinal kin
 - c) Consanguineal kin
 - d) All of the above
- vi) The process by which individuals learn the culture of their society is known as
- a) Acculturation
 - b) Assimilation
 - c) Enculturation
 - d) Accommodation
- vii) What is the process by which a society transmits its values to individuals so that they can function properly as its member?
- a) Personalization
 - b) Internalization
 - c) Socialization
 - d) Generalization
- viii) Which of the following is not true?
- a) Techno-culture is diffused to fulfill the human needs.
 - b) Cultural appropriateness based innovations are diffused from one place to another easily.
 - c) Technology is often diffused from developing areas to developed ones.
 - d) Cultural diffusion is the universal social process.
- ix) Sociology traditionally relies mainly on
- a) Quantitative data
 - b) Historical data
 - c) Qualitative data
 - d) All of the above
- x) Which one of the following can be placed under the category of ascribed status?
- a) Caste
 - b) Class
 - c) An engineer
 - d) Social reformer



Tribhuvan University
Faculty of Humanities & Social Sciences
OFFICE OF THE DEAN
2019

Bachelor in Computer Applications
Course Title: Society & Technology
Code No: CASO 102
Semester: 1st

Full Marks: 60
Pass Marks: 24
Time: 3 hours

Candidates are required to answer the questions in their own words as far as possible.

Group B

Attempt any SIX questions.

[6×5 = 30]

2. How does Formalistic school of thought differ from Synthetic school of thought?
3. Write an essay on 'relevance of sociology in computer application'.
4. Discuss the influence of modern technology in changing family relationship.
5. What do you understand by society? How does it differ from community? Discuss with examples.
6. What is marriage and what are the various types of marriage? Describe with examples.
7. What do you understand by social stratification? Discuss caste-based stratification in Nepalese society?
8. Write Short Notes on any two:
 - a) Assimilation
 - b) Focus Group Discussion method in social research
 - c) Quantitative research

Group C

Attempt any TWO questions.

[2×10 = 20]

9. What do you understand by National Integration? What are the major dimensions of National Integration? Discuss.
10. 'A greater proportion of an individual's personality is a reflection of the type of socialization process he or she has gone through during primary socialization'. Explain.
11. Discuss the major data collection tools and techniques used in social research.