



QUESTION BANK

TU BCA 2019

WHAT'S INSIDE?

This file contains the Question Papers for Board Examination of the first Semester of BCA that was taken in 2019.

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Note Bahadur



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

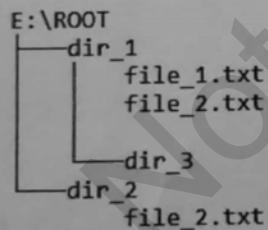
Candidates are required to answer the questions in their own words as far as possible.

Group B

Attempt any SIX questions.

[6×5 = 30]

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



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

Attempt any TWO questions.

[$2 \times 10 = 20$]

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]



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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.

$[6 \times 5 = 30]$

1. Define sociology and discuss its nature.
2. Show the similarities and differences between sociology and anthropology.
3. What are the major functions of family?
4. Discuss the class based social stratification in Nepalese society.
5. What do you understand by social change? Discuss some of the major factors of social change.
6. What is research proposal? Formulate a research proposal with its major components.
7. Discuss the major concepts of research in social science research.

Group C

Attempt any TWO questions.

$[2 \times 10 = 20]$

8. Define socialization and describe its stages and agents.
9. Discuss historical process of nationhood in Nepal.
10. Do you think technology plays an important role in the development of society? Explain.

(15)



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2019

Bachelor in Computer Applications

Full Marks: 60

Course Title: English I

Pass Marks: 24

Code No: CAEN 103

Time: 3 hours

Semester: 1st

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

Group B

Attempt any SIX questions.

[6×5 = 30]

- ✓ 1. What are the major functions of the decision support system? Explain.
- ✓ 2. How has the micro-chip technology changed the world forever? Illustrate.
- ✓ 3. Give the meaning of "network of networks" and then explain the main use of ALGOL.
- ✓ 4. Give some specific names of clipboard computers now available in the market and then explain the two different jobs of 'infector' and 'detonator'.
5. Why did the developers of the PAL system invent interlaced video? What are its advantages and disadvantages? Explain.
- ✓ 6. "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?'.
- ✓ 7. 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]

- ✓ 8. 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.

10. 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.

11. 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.

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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



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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.

$[6 \times 5 = 30]$

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.

[$2 \times 10 = 20$]

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.