

PURBANCHAL UNIVERSITY

2019

4 Years Bachelor of Computer Application (BCA)/Third Semester/Final

Time: 03.00 hrs.

Full Marks: 80 /Pass Marks: 32

BCA27100: Computer Architecture (New Course)

Candidates are required to give their answers in their own words as far as practicable.

All questions carry equal marks. The marks allotted for each sub-question is specified along its side.

Group A

Answer TWO questions.

2×12=24

1. What do you mean by micro programmed control? Draw a diagram of micro-program sequencer for a control memory to illustrate its internal structure and explain how micro-program sequencer presents an address to the central memory so that a micro instruction may be read and executed? 4+8
2. Explain Booth's algorithm and perform the operation $(10110)_2 \times (1010)_2$ using it.
3. Explain the role of cache memory in computer system. What is the mapping procedures considered during the organization of cache memory? Explain. 12

Group B

Answer EIGHT questions.

8×7=56

4. Explain the design principles of modern computers in brief.
5. What is the role of Fetch and Decode in an instruction cycle? Draw the flow chart to demonstrate the instruction cycle.
6. What are computer registers? Draw the figure to explain the basic computer register connected to a common bus.
7. What do you mean by Arithmetic circuit? Explain the four bit arithmetic circuit which can perform both addition and subtraction.
8. What is the function of addressing mode? Explain various addressing mode with suitable example.
9. What is Input-Output processor? Explain with figure, the working procedure of CPU-IOP communication.

Contd. ...

(2)

10. Write a program to evaluate the arithmetic statement
 $X = (AB + C * (D * EF))$

Using a general register computer with:

- (a) three address instruction
- (b) two address instruction
- (c) One address instruction
- (d) Zero-address operation instruction

✓ 11. Explain about concepts of parallel processing

12. Write short notes on any TWO:

- (a) Cache coherence
- (b) Stack organization
- (c) DMA

3.5x2=7

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BCA271CO: Computer Architecture (New Course)

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Group A

Answer TWO questions.

2×12=24

- 1(a) How array processing is done in the implementation of pipeline? 6
- (b) Explain characteristics of memory system. 6
2. Explain the non-restoring Division algorithm with example. 12
3. Explain hardwired control unit and its working mechanism with suitable diagram. 12

Group B

Answer SEVEN questions.

7×8=56

4. Differentiate between Von-Neumann architecture and Harvard architecture. 8
5. Explain Instruction-Cycle with suitable diagram. 8
6. Explain the addition algorithm with example. 8
7. Differentiate between isolate and memory mapped I/O. 8
8. Explain the I/O processor with block diagram. 8
9. Explain the characteristics of RISC and CISC. 8
10. Define Multiprocessor. Explain about the inter processor communication and synchronization in multiprocessor. 2+6
11. Write short notes on any TWO: 4+4
 - (a) Vector processing
 - (b) Priority interrupt
 - (c) Program control

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PURBANCHAL UNIVERSITY

2018

4 Years Bachelor of Computer Application (BCA)/Third Semester/*Final*
Time: 03:00 hrs.

Full Marks: 60 / Pass Marks: 24

BCA273CO: Data Structure and Algorithm (New Course)

Candidates are required to give their answers in their own words as far as practicable.

The figures in the margin indicate full marks.

Group A

Answer TWO questions.

2×12=24

1. Explain the advantages of circular queue over linear queue. Write an algorithm to insert a value in a linear. **5+7**
2. What are different types of graph? DFS and BFS graph traversal with suitable examples. **2+10**
3. Write algorithms to implement PUSH and POP operations in a stack. Evaluate the given postfix expression, showing steps involved in it (Here every individual digit represents a single number): **6+6**

6 5 2 + 3 8 7 / + * 2 \$ 3 +

Group B

Answer SIX questions.

6×6=36

4. Write algorithm to insert a node in the middle of singly linked list. **6**
 5. Write the advantages of doubly linked list over singly linked list. Explain merge sort with an example. **2+4**
 6. Write an algorithm to generate Fibonacci series up to a given term n using recursive function. **6**
 7. Trace the sorting steps in the Selection sort for the following data: **6**
- 12 15 78 1972 52 83 55 18 73
8. Explain Binary search technique with example. Discuss its efficiency. **6**

Contd. ...

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(2)

- 9/ What is binary tree? Explain different tree traversal algorithm with example. 1+5
- 10/ Discuss spanning tree with an algorithm. 6
- 11/ Write short notes on any TWO: 3+3
- (a) Priority Queue
 - (b) Kruskal's Algorithm
 - (c) AVL Balanced Tree

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2019

4 Years Bachelor of Computer Application (BCA)/Third Semester/Final
Time: 03:00 hrs.

Full Marks: 80 / Pass Marks: 32

BCA270CO: System Analysis and Design (New Course)

Candidates are required to give their answers in their own words as far as practicable.

The figures in the margin indicate full marks.

Group A

Answer TWO questions.

2×12=24

1. Suppose you are given the details of a small mail order catalogue system that allows people to shop from home. When a customer receives the catalogue and wants to buy something, they can telephone, fax or email their order to the company. The company gets the order and sends the goods and an invoice. When the customer receives the goods with a delivery note, they send payment and receive a receipt for their payment.

Construct context level, level 1 and level 2 diagrams for the above problem.

2. What do you understand by the term system testing? What are the different kinds of testing that are normally performed on large software products? Differentiate between static and dynamic testing.
3. What is a decision table? When do you need a decision table instead of flowchart? Explain with example all the steps of drawing a decision-table.

Group B

Answer SEVEN questions.

7×8=56

4. What is System Analysis and Design? Why is it important in System Development?
5. What is requirement analysis? List some requirement gathering methods.

Contd. ...

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PURBANCHAL UNIVERSITY

2019

4 Years Bachelor of Computer Application (BCA)/Third Semester/Final
Time: 03:00 hrs.

Full Marks: 80 /Pass Marks: 32

BCA270CO: System Analysis and Design (New Course)

Candidates are required to give their answers in their own words as far as practicable.

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Group A

Answer TWO questions.

2×12=24

1. Suppose you are given the details of a small mail order catalogue system that allows people to shop from home. When a customer receives the catalogue and wants to buy something, they can telephone, fax or email their order to the company. The company gets the order and sends the goods and an invoice. When the customer receives the goods with a delivery note, they send payment and receive a receipt for their payment.

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Group B

Answer SEVEN questions.

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Contd. ...

(2)

- 6/ Define modularity. Explain types of cohesion and coupling.
- 7/ What is Use Case Diagram? Draw a use case diagram for a hospital management information system (HMIS).
- 8/ What do you mean System Quality Assurance (SQA)? Explain ISO 9001 standard for a software product.
9. What is cost / benefit analysis? Explain Payback method in brief.
- 10/ What do you mean by system maintenance? What are the types of system maintenance? Explain in brief.
- 11/ Write short notes on any TWO:
 - ~~(a)~~ System installation technique
 - (b) Structured chart.
 - ~~(c)~~ Distributed system design

PURBANCHAL UNIVERSITY

2020

4 Years Bachelor of Computer Application (BCA)/Third Semester/Final
Time: 03:00 hrs.
Full Marks: 80 / Pass Marks: 32
BCA271CO: Computer Architecture (New Course)

Candidates are required to give their answers in their own words as far as practicable.

All questions carry equal marks. The marks allotted for each sub-question is specified along its side.

Group A

Answer **TWO** questions.

1. What is Microprogram? Explain the Microprogram sequencer with examples. 2×12=24
2. Explain the Division algorithm, flowchart Hardware Implementation with example. 2+10
3. Define Multiprocessor. Explain different interconnection structure of multiprocessor with diagram. 12
3. Define Multiprocessor. Explain different interconnection structure of multiprocessor with diagram. 2+10

Group B

Answer **SEVEN** questions.

4. Differentiate between Von-Neumann architecture and Harvard architecture. 7×8=56
5. Explain different types of addressing modes with example. 8
6. What are peripheral devices? Explain the working of input-output interface in brief. 8
7. Differentiate between isolate and memory mapped I/O. 3+5
8. Explain hardwired control unit and its working mechanism with suitable diagram. 8
9. What are the types of memory mapping? Explain any two mapping procedure. 8
10. Define parallel processing and classify the parallel processing. 2+6
11. Write short notes on any TWO: 2×4=8
 - (a) Instruction level parallelism
 - (b) Priority interrupt
 - (c) Cache coherence

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PURBANCHAL UNIVERSITY

2019

4 Years Bachelor of Computer Application (BCA)/Third Semester/Final
Time: 03:00 hrs. Full Marks: 60 /Pass Marks: 24
BCA275CO: User Interface Design (New Course)

Candidates are required to give their answers in their own words as far as practicable.

The figures in the margin indicate full marks.

Group A

Answer TWO questions.

2×12=24

- 1/ What do you mean by platform independence? What are the criticisms behind multiplatform development and how do you suggest the escape to these criticisms? 2+10
2. Define menu and explain the types of menu. Discuss menu item variations with examples. 6+6
- 3(a) What are bonded and unbounded entry gizmos? Give examples. 6
- (b) Explain repositioning, resizing, and reshaping. 6

Group B

Answer SIX questions.

6×6=36

- 4/ What are user goals? Discuss software design vs interface design.
- 5/ Discuss overhead with its classification in detail.
6. What is selection? Explain the types of hinting.
- 7/ How do you think dialog boxes suspend the user-computer interaction? Define modal and modeless dialog boxes.
- 8/ What do you mean gizmos? Explain combo-box and combuttcon with examples.
- 9/ Why manifes model is better than other models? Explain.
- 10/ Write note on any TWO:
 - (a) Window pohution
 - (b) Task coherence
 - (c) Canonical vocabulary

PURBANCHAL UNIVERSITY

2020

4 Years Bachelor of Computer Application (BCA)/Third Semester/*Final*
Time: 03:00 hrs. Full Marks: 80 /Pass Marks: 32
BCA207SH: Sociology (New Course)

Candidates are required to give their answers in their own words as far as practicable.

The figures in the margin indicate full marks.

Group A

Answer TWO questions.

2×12=24

1. Discuss the importance of Prithivi Narayan Shah in unification of Nepal.
2. Define Sociology and show the relationship of sociology with modern technology.
3. Define Social change and discuss the various methods of social change.

Group B

Answer SEVEN questions.

7×8=56

4. "Migration is a process of transformation" Justify.
5. Define stratification and discuss about the fundamental basis of stratification in the context of Nepalese society.
6. What are the basic tools of social control?
7. Describe the significance of E-governance in Nepal.
8. Define Profession and discuss about disciplinary action.
9. Define development and discuss the approaches of development.
10. Discuss the impact of modernization in Nepalese society.
11. Write short notes on Issue of Gender and Development.

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2018

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Time: 03:00 hrs.

Full Marks: 60 /Pass Marks: 24

BCA275CO: User Interface Design (New Course)

Candidates are required to give their answers in their own words as far as practicable.

The figures in the margin indicate full marks.

Group A

Answer TWO questions.

2×12=24

- 1/ Discuss the features and goals of user interface design. Explain different models of interface design. 4+8
2. Explain different types of Interface paradigms. What do you mean by Gizmos manipulation? Explain briefly. 9+3
- 3/ What do you mean by indirect manipulation? Explain Canonical vocabulary with example. 3+9

Group B

Answer SIX questions.

6×6=36

- 4/ What are child forms? Why they are necessary? 6
5. What is overhead in software interaction? Why is it important and how to minimize the excise tasks? 2+4
6. What is menu? Explain menu types and its variations. 2+4
- 7/ Why dialog box is not main program but secondary one? Explain. 6
- 8/ What is a toolbar? What advantages does it provide over a menu? 2+4
- 9/ Why is drag and drop? Why it is popular? Explain. 3+3
10. Write short notes on any TWO: 3+3
 - (a) Modal and Modeless dialog box
 - (b) Task coherence
 - (c) Idioms and branding