

PURVANCHAL UNIVERSITY

2010

Bachelor in Information Technology (B.I.T.)/Fourth Semester/Final

Time: 03:00 hrs.

Full Marks: 80/Pass Marks: 32

BT22103: Computer Organization

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

Figures in the margin indicate full marks.

Group A: Long-answer Questions

Answer TWO questions. $2 \times 12 = 24$

1 (a) With its different components, describe a sequential circuit. 3

(b) Design a sequential circuit using T-Flip-flops. When the external input $x = 0$, the state of flip-flops doesn't change. When $x = 1$, the state sequence is 00,01,10,11,00 and repeat. 9

2. What is the significance of common bus? Design a common bus system for basic peripheral interface of computer. Explain its working. 10

3 (a) Compare and contrast a micro-program control unit with a hardware control unit with necessary diagram. 10

(b) What is an instruction format? 2

Group B: Short-answer Questions

$8 \times 7 = 56$

Answer EIGHT questions.

4. Why each of the following micro-operations can not be executed simultaneously during a single clock cycle? (Refer to common bus system) (a) IR \leftarrow M [PC] (b) AC \leftarrow AC + TR 8

5 (a) What are the importance of an operating system? 4

(b) Perform: (i) (-35) - (-12) (ii) (+25) - (-10), using 2's complement method. 4

6. Explain various addressing modes with suitable example. 8

7 (a) What is pipelining and vector processing? Explain. 4

Contd. ...

Q. Describe various characteristics of a multiprocessor.

Q. Define cache memory. Explain the working of cache memory.

Q. Explain the characteristics of RISC and CISC?

Q. What is a DMA transfer? Explain with an example.

Q. Distinguish between a macro-program, a microinstruction and a micro-operation.

Q. What is cache coherency? How can we achieve cache coherency? Discuss the significance of cache memory.

Q. (a) What is DMA? Which has got the higher priority, the DMA or CPU in case both simultaneously request for same memory transfer.

Q. What are the modes of data transfer? Explain.

Q. (a) Write short notes on: (i) Gray code (ii) ASCII code (iii) BCD

3

Q. (b) Convert (2193)₁₀ and (2193)₁₆ into binary

3

PURBANCHAL UNIVERSITY
2011

Bachelor in Information Technology (B.I.T.)/Fourth Semester /Final

Time: 03:00 hrs. Full Marks: 80 / Pass Marks: 32

BIT221CS: Computer Organization

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

Figure in the margin indicate full marks.

Group A

2x12=24

1. Design a sequential circuit with four flip flops A, B, C and D. The next states of B, C and D are equal to the present states of A, B and C respectively. The next state of A is equal to exclusive-OR of the present states of C and D.

12

- 2(a) Explain timing and control in basic computer with necessary diagrams.

6

- (b) Define pipelining. Explain it with suitable example and necessary figures.

6

- 3(a) What is microprogrammed sequencer? Explain.

4

- (b) Draw the flow chart for Booth's Algorithm performs the multiplication for 10×5 using Booth Algorithm.

8

Group B

8x7=56

Answer EIGHT questions.

4. List and explain the register for the basic computer.

7

5. Explain address sequencing with diagram.

7

6. Evaluate the arithmetic statement, $X = (A * B + C * D)$, using (a) two-address instructions (b) one-address instruction.

7

7. Describe different types of addressing modes with example.

7

8. Differentiate between RISC and CISC.

7

(2)

9. What is an array processor? Explain SIMD array processor.

10. Draw the block diagram of DMA controller and explain.

11. What do you mean by scheduling? Explain Long-term scheduling.

12. Write short notes on any TWO:

(a) Cache memory

(b) Memory management hardware

(c) Interprocessor communication and synchronization

7

3.5+3.5

YU
5

PURBANCHAL UNIVERSITY

2012

Bachelor in Information Technology (B.I.T.)/Fourth Semester /Final

Time: 03:00 hrs.

BIT221CS: Computer Organization

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

Figure in the margin indicate full marks.

Answer TWO questions.

Group A

2x12=24

1. Design a sequential circuit with two JK flip-flops A and B and two inputs E and x. If E=0, the circuit remains in the same state regardless of the value of x. When E=1 and x=1, the circuit goes through the state transitions from 00 to 01 to 10 to 11 back to 00, and repeat. When E=1 and x=0, the circuit goes through the state transitions from 00 to 11 to 10 to 01 back to 00, and repeat.
2. Define instruction cycle. Draw the flowchart for instruction cycle describing all the phases performed in a cycle.
- 3(a) Explain the general register organization of central processing unit. b) Explain the flowchart for Booth algorithm. Using this algorithm Perform the following operation:

(+1)* (-10)

Group B

1/6

8x7=56

Answer EIGHT questions.

4. What do you mean by Address Sequencing? Explain the block diagram of Selection of address for Control Memory in Address Sequencing.
5. Define Operating System. List out the scheduling techniques user for operating system. Explain any two.
6. List out the Differences between RISC and CISC.

6

Contd. ...

(2)
Write a program to evaluate the arithmetic statement.

$$X = (A \cdot B + C * (D \cdot E \cdot F))$$

Using a general register computer with:

- (a) three address instruction
 - (b) two address instruction
 - (c) one address instruction
 - (d) zero-address operation instruction.
 8. What is instruction pipeline? Draw the flowchart and explain the four segment CPU pipeline.
 9. What are different modes of transfer for input-output transfer? Explain priority of interrupt occurred in interrupt initiated I/O.
 10. What is virtual memory? Explain address space and memory space used in virtual memory.
 11. What are the forms available for establishing an interconnection network? Explain any two.
 12. Write short notes on any TWO:
- | | |
|-----------------------------------|---------|
| (a) Floating point representation | 6 |
| (b) Vector processing | 3.5+3.5 |
| (c) DMA | 3 |

PUREANCHAL UNIVERSITY

2013

Bachelor in Information Technology (B.I.T.) / Fourth Semester / Final
Time: 03:00 hrs. Full Marks: 80 / Pass Marks: 32

RT221CS: Computer Organization

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

Figure in the margin indicate full marks.

Answer ALL questions.

- 1(a) A computer uses a memory unit of 256 K words of 32 bits each. The instruction has four parts: an indirect bit, an operation code, a register code part to specify one of 64 registers, and an address part.
- 2+2+2
- (i) How many bits are there in the operation code, the register code part, and the address part?
- (ii) Draw the instruction word format and indicate the number of bits in each part.
- (iii) How many bits are there in the data and address inputs of the memory?
- (b) List out 5 memory instructions and also mention the microinstruction needed to execute the instructions.
- 4
- 2(a) Differentiate between RISC and CISC.
- 5
- (b) Write an Assembly program to compute $X = (A+B) \times (C+D)$ using one address instructions.
- 5
- 3(a) What do you understand by Parallel Processing? Explain about instruction pipeline.
- (b) Explain vector processing along with its application areas.
- 4
4. Derive Booth Multiplication Algorithm in flowchart form for multiplying two signed numbers. Compute -8×-9 using the same algorithm.
- 10

Contd. ...

(2)

- 5(a) What are the possible modes for transferring Data to and from the peripherals? Explain DMA mode of transfer along with the block diagram of the DMA Controller.
- 6
6. What do you mean by Cache Coherence? What are the conditions for incoherence and what are the solution schemes.
- 4+3+3
- 7(a) What is RAM? Explain DRAM with its working principle.
- (b) Explain how virtual memory speeds up the performance of a computer system.
- 4
8. Write short notes on any TWO:
- (a) Functions of Operating System
- (b) Micro-programmed Control Unit
- (c) Interconnection structure of processor
- 5+5
- ⋮

PURBANCHAL UNIVERSITY

2014

Bachelor in Information Technology (B.I.T.)/Fourth Semester/*Chance*

Time: 03:00 hrs.

Full Marks: 80/Pass Marks: 32

BIT221CS: Computer Organization

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

Figure in the margin indicate full marks.

Group A:

$$4 \times 10 = 4$$

1. What is Booth's Algorithm? Explain with the help of flow chart and perform 2×3 using Booth's algorithm. 5
2. What is addressing mode? Describe different addressing modes used by computer. 3
3. Explain arithmetic pipeline and instruction pipeline with the help of pipeline segments. 3
4. What is an instruction cycle? Explain different stages of instruction cycle. 6
5. What is the difference between hardwired control and micro programmed control? Explain parallel processing. 6

Group B:

$$8 \times 5 = 4$$

6. What is bus? Describe different types of bus. 5
7. Explain I/O module techniques. 2.5+2
8. What is operating system? Describe the functions of operating system. 3
9. What is I/O module? Discuss virtual memory. 2
10. What is control unit? Describe its function. 2
11. Define various modes of data transfer between central computer and I/O devices. 3
12. Explain the role of DMA in I/O organization. 2

(2)

13. Draw a block diagram for memory hierarchy, and explain its importance in terms of price and performance of the system.

14. What is cache memory? Explain about cache coherence problem. 5

15. What are the differences between tightly coupled multiprocessors and loosely coupled multiprocessors? 5

FURBANCHAL UNIVERSITY

2014 (New)

Bachelor in Information Technology (B.I.T.)/Fourth Semester /Final

Time: 03:00 hrs.

Full Marks: 80/Pass Marks: 32

BIT271CO: Computer Organization

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

Figure in the margin indicate full marks.

Group A

Answer TWO questions.

Group A

Answer ONE question.

Assume 4-bit registers that hold unsigned number.

Group B

Group B

Answer EIGHT questions.

Group B

4. Describe the design principles for modern computer.

7

5. Draw the block diagram of "Hardwired Control unit" and then describe its operation.

7

6. Discuss the difference between RISC and CISC.

7

7. What is parallel processing? List the different types of parallel processing. Describe about the SIMD array processor organization.

1+1+5

8. Draw block diagram of the hardware for implementing the addition and subtraction operation and then describe.

7

Contd. ...

(2)

9. List the different technique for data transfer between central computer and I/O devices and then describe about interrupt-initiated I/O technique.

7

10. What do you mean by a "mapping process"? Describe about the direct mapping process.

1+6

11. What is multiprocessor system? Discuss about "time shared common bus organization".

1+6

12. $\overbrace{\hspace{1cm}}$ Write short notes on any TWO:

3.5+3.5

(a) Virtual memory
(b) Instruction cycle

(c) Microprogrammed Control
 $\overbrace{\hspace{1cm}}$

Group B

Bachelor in Information Technology (B.I.T.) / Fourth Semester / Final
Time: 03:00 hrs. Full Marks: 80 / Pass Marks: 32

BIT271CO: Computer Organization (New Course)

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

Figure in the margin indicate full marks.

Group A

Answer TWO questions.

$$2 \times 12 =$$

1(a) Draw a block diagram of common bus system and explain a
one operation.

(b) What are the types of instructions? How are they differentiate
Draw its flowchart.

$$1+2$$

2(a) Explain addressing mode? What do you mean by data transi
and manipulation?

(b) Differentiate RISC and CISC.

3(a) Perform $(-13) \times (-9)$ using booth algorithm. Use 5 bit
representation.

(b) Draw hardware diagram for division of fixed point numbers.

Group B

Answer SEVEN questions.

$$7 \times 8 = 5$$

4. Draw the block diagram of hardwired control unit and explain it.

5. Use 2 address and 3 address instruction format to compute.
 $(A+B) * (C+D)$

6. Evaluate the postfix expression $ab + cd - *e +$ when $a = 5$, $b = 2$,
 $c = 3$, $d = 1$ and $e = 4$.

7. Define pipelining concept and explain about arithmetic pipeline
with your own example.

PURBANCHAL UNIVERSITY
2017

Bachelor in Information Technology (B.I.T.)/Fourth Semester/Final
 Time: 03:00 hrs.
 Full Marks: 80/Pass Marks: 32

BIT271CO: Computer Organization (New Course)

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

Figure in the margin indicate full marks.

Group A

2x12=24

Answer TWO questions.

- (1.) Explain instruction cycle with and without interrupt.
2. Explain in brief about different sequencing techniques used in microprogrammed control unit.
3. Draw flow chart for Booth's algorithm and compute (3×7) , using it.

Group B

7x8=56

Answer SEVEN questions.

4. Explain different addressing modes with suitable examples. 8
5. Discuss array processing. 8
6. What we need pipelining? Describe instruction pipeline. 2+6
7. Explain about the different data transfer modes. 8
8. Explain about the interconnection of peripheral devices with computer. 8
9. Explain about input and output processor. 8
10. Draw the memory hierarchy and explain. 8
11. Discuss the significance of virtual memory management hardware. 3+5
12. Write short notes on any TWO:
 (a) System Bus
 (b) Serial Communication
 (c) Cache coherence 4+4

PURBANCHAL UNIVERSITY
2016

Bachelor in Information Technology (B.I.T.)/Fourth Semester/Final
 Time: 03:00 hrs.
 Full Marks: 80/Pass Marks: 32

BIT271CO: Computer Organization (New Course)

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

Figure in the margin indicate full marks.

Group A

2x12=24

Answer TWO questions.

1. What is instruction code? Explain basic computer instruction formats. 2+10
2. Explain hardware multiplication algorithm with example? 12
3. What is I/O module? Explain asynchronous data transfer in terms of strobe and handshaking control. 2+10

Group B

7x8=56

Answer SEVEN questions.

4. What is computer organization? How it is different from computer architecture? Explain design principles for modern computer. 1+2+5
5. Explain interrupt cycle with flowchart. 8
6. What is control memory? Explain hardwired control. 2+6
7. Explain the purpose of addressing modes. Show the differences between direct and indirect addressing modes. 3+5
8. Explain parallel processing? Explain Flynn's classification. 2+6
9. Explain Arithmetic pipeline with example. 8
10. What is virtual memory? How it is different from auxiliary memory? 3+5
11. What is cache coherence? Explain with its solutions. 8
12. Write short notes on any TWO:
 (a) RISC and CISC
 (b) Array Processing
 (c) Daisy-Chaining priority 4+4

PURBANCHAL UNIVERSITY
2014

Bachelor in Information Technology (B.I.T.)/Fourth Semester / Final

Time: 03:00 hrs.

Full Marks: 80/Pass Marks: 32

BPP231EC; Communication System

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

Answer TWO questions.

1. What is modulation? Why modulation is needed? With neat diagram explain the generation method of DSB-AM signal. Using square law modulation method.

2. What does stereo means in FM? Explain about stereo FM transmitter and receiver with necessary figures and frequency spectrum.

3. Draw the general block diagram of digital communication system and explain each block in detail. Also point out some advantages of digital communication system over analog communication system.

Group A:

Answer SEVEN questions.

$$7 \times 8 = 56$$

4. Explain about various types of noise encountered in communication system.

5. An AM transmitter radiates 9KW of power, when the carrier unmodulated and 10.125 KW when the carrier is sinusoidal modulated. Find the modulation index, percentage modulation. Now, if another sine wave, corresponding to 4 percent modulation is transmitted simultaneously, then calculate the total radiated power.

6. The maximum deviation allowed in an FM broadcast system 75KHz. If the modulating signal is a single tone sinusoid of 8KHz.

Contd. ...

(2)

determine the bandwidth of the FM signal. What will be the bandwidth when the modulating signal amplitude is doubled?

7. A discrete source emits one of five symbols once every millisecond with probabilities $\frac{1}{2}, \frac{1}{4}, \frac{1}{8}$ and $\frac{1}{16}$ respectively.

Determine the source entropy and information rate.

8. State the explain shannon's channel capacity theorem. Also indicate its implications.

9. Define shift keying. Compare Ask, Fsk and Psk.

10. With neat and necessary diagram, explain the basic principle of FDM.

11. Draw the basic block diagram of optical fiber communication system and explain each block in brief.

12. Write note on (Any TWO).

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BIT231EC: Communication System (New Course)

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

Figure in the margin indicate full marks.

Answer TWO questions:

Group A: $2 \times 12 =$

- What is communication system? Explain the difference between analog and digital communication. Draw the block diagram of communication system and explain the function of each block. 2+4

- Why is a high-frequency carrier needed in a communication system? Define modulation and explain the need for modulator with neat diagram. Explain balanced modulator for generation of DSB-SC signal. 2+5

- Define Superheterodyne. Mention its importance in communication system. With necessary blocks, explain in detail about superheterodyne receiver system for standard AM radio. 2+2

Group B:

$7 \times 8 =$

Answer SEVEN questions.

- What is meant by stereo in FM system? Explain about stereo FM transmitter. 4

- Show that PLL can be used as AM demodulator with neat block diagram. Also point out its important merits. 5

- Determine the percentage power saving when the carrier wave and one of the sidebands are suppressed in an AM wave modulated to a depth of (i) 100% and (ii) 50%. 6

- Explain the importance of Fourier Series and Fourier Transform Note down some important properties of Fourier series. 7

- Explain the working principle of PCM system with necessary diagram. 8

(2)

In an FM system, a 7 KHz modulating signal modulates 107.6 MHz carrier wave so that the frequency deviation is 50 KHz. Find.

MHz carrier wave so that the frequency deviation is 50 KHz. Find.

(a) Carrier swing in the FM signal and modulating index

(b) The highest and lowest frequencies attained by the FM signal

10. Draw the block diagram of optical fiber communication system & explain each block. 8

11. Write short notes on any TWO: 4+4

- (a) Shannon's channel capacity theorem
 (b) Shift keying
 (c) Zero condition for ISI

PURBANCHAL UNIVERSITY

2016

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Time: 03:00 hrs. Full Marks: 80/Pass Marks: 32

BIT231EC: Communication System (New Course)

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

Figure in the margin indicate full marks.

Answer TWO questions.

Group A

$$2 \times 12 = 24$$

1. Draw the block diagram of Superhetrodyne receiver and explain each block in brief.
2. What do you mean by modulation? Describe its benefits. Explain generation of DSB-SC with help of Block diagram.
3. The output signal of an AM modulator is

$$u(t) = 5 \cos 1800\pi t + 20 \cos 2000\pi t + 5 \cos 2200\pi t$$

Determine:

- (a) $m(t)$ and $c(t)$
- (b) Modulation Index
- (c) Types of Modulated Signal
- (d) Efficiency
- (e) Sketch the Spectrum
- (f) Estimate the Bandwidth

Group B

Answer SEVEN questions.

$$7 \times 8 = 56$$

4. Differentiate between Digital and Analog signals. What is change in SQNR in db if number of bits assigned to each level is changed from 11 bits/sec to 12 bit/sec.
5. What do you mean by line coding schemes? Explain each with examples.
6. Why do we need modulation? Describe any one demodulation method of AM signals.

Contd. ...

(2)

7. What do you mean by noise? Explain how it affects communication system. Describe its type.

8. What is multiplexing? Discuss basic principles of FDM.

9. What is difference between AM and FM. Also show the generation of narrow band FM.

10. A signal tone FM is represented by voltage equation as,
 $u(t) = 12 \cos [6 \times 10^8 t + 5 \sin 1250t]$. Determine:

- (a) Carrier frequency
- (b) Carrier flag
- (c) Modulating frequency
- (d) Modulation index
- (e) Maximum Deviation
- (f) What power will this FM wave dissipate power with this FM wave dissipate in 10Ω resistor.

11. Draw the block diagram of optical fiber communication system and explain each block.

12. What do you mean by pulse code modulation? Explain sampling, quantizing and encoding in brief.

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2017

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 Time: 03:00 hrs.
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BR231EC: Communication System (New Course)

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

Figure in the margin indicate full marks.

Group A

2x12=24

- Draw the basic block diagram of analog communication system and explain each block in brief. Also compare analog communication and digital communication systems.
- Explain in detail about stereo FM transmission and reception systems with necessary diagrams and band allocations.
- Discuss on the importance of modulation and modulation index. How can you generate and detect SSB-SC signals? Explain with necessary blocks and mathematical relations.

Group B

7x8=56

- Answer SEVEN questions.
- An AM broadcast radio transfer 35 Kw of power if the modulation percentage is 80. Calculate how much of this is the carrier power? If modulation percentage would be 50, calculate the power required to transmit the signal.
- State and explain Shannon's channel capacity theorem along with its implications and limitations.
- What do you mean by M-ary data communication system with necessary blocks, explain about QPSK transmitter.
- Why multiplexing is important in communication system?
- Explain the basic principle of TDM system with necessary diagram.

8.

Define frequency deviation. The maximum deviation allowed in an FM broadcast system is 75 KHz. If the modulating signal is a signal tone sinusoid of 12 KHz, determine the bandwidth of FM signal. What will be the bandwidth if the modulating signal amplitude is doubled?

9.

The probabilities of the five possible outcomes of an experiment are given as: $1/2$, $1/4$, $1/8$, $1/16$ and $1/16$ respectively. Determine the information contained in each symbol and the entropy. If there are 20 outcomes per second, what will be the information rate?

10.

Explain about GSM architecture with necessary figures.

11.

Write short notes on any TWO.

- Present Scenario of Communication system in Nepal
- PLL
- Optical communication system

2x4=8

PURBANCHAL UNIVERSITY
2010

Bachelor in Information Technology (B.I.T.)/Fourth Semester /Final
 Time: 03:00 hrs. Full Marks: 80/Pass Marks: 32

BIT222CS: Database Management System

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

Group A: Long-answer Questions

Answer TWO questions.

$$2 \times 12 = 24$$

1(a)

Read the following case and draw and ER diagram.

8

A departmental store has various departments; each of which has a unique department name and a location. We keep track of manager of each department. Employees work in a department who have unique employee number, name and address. Departments sale various items. We keep each items brand name, cost price, sell price and a unique item number. Items are supplied by various suppliers and we keep each suppliers name, address and unique number to identify each supplier. (Make additional assumptions if necessary).

(b) Convert the ER diagram of Q1(a) into relations.

$$3+3+3+3$$

2. Write syntax to create the following tables in SQL.

(a) EMPLOYEE			
Attribute	Data Type	Size	Constraint
SSN	NUMBER	5	PRIMARY KEY
name	VARCHAR	20	NOT NULL
address	VARCHAR	20	Only BHATNAGAR is valid
Salary	Number	10	Only positive values are allowed

(b) PROJECT

Attribute	Data Type	Size	Constraint
PNO	number	5	PRIMARY KEY
Pname	Varchar	20	NOT NULL
Location	Varchar	10	BRT and KTM are only valid

(3)

(c) WORKS-IN	
Attribute	Data Type
SSN	Number
PNO	Number
HOURS	Number

- (a) Write relational algebra query to find all from EMP table of department number 1 or 2.

- (b) Write relational algebra query to find name of the employee who works in department number 1 and whose salary is greater than 10000.

- (c) Write SQL query to name and salary of all employees who work in the same department in which Deepak works (Assume that you do not know the department number of Deepak).

- (d) Write SQL syntax to add a new field telephone_no to empLOYEE table whose data type is number. The telephone_no field should contain unique values.

- 3(a) Define functional dependency. Consider the following two sets of functional dependencies.

$$F1 = \{A \rightarrow C, AC \rightarrow D, E \rightarrow AD, E \rightarrow H\}$$

$$F2 = \{A \rightarrow CD, E \rightarrow AH\}$$

Check whether the two sets are equivalent.

- (b) What is normalization? Explain 2NF and 3NF with example.

Group B: Short-answer Questions

Answer EIGHT questions.

2+2

2+4

8x7=56

SSN	PNO	DNO
101	P1	10
101	P2	10
101	P1	20
101	P2	20

9. What do you mean by multivalued dependency? Does the following table have multivalued dependency? Give reason.

1

1

2

10

10. Explain the three schema architecture for database system.

11. What is a database trigger? Explain with a example.

Explain various interfaces provided by DBMS.

12. Why security of database is important? Explain how integrity constraints secure a database.

13. Consider the following table named EMP

3.5+3.5

empno	ename	salay	deptno
1	Maresh	10000	1
2	Surej	12000	1
3	Rajiv	3800	2
4	Bined	7000	2
5	Deepak	8000	1

FURJANIAH UNIVERSITY
ZOIS

Bachelor in Information Technology (B.I.T.)/Fourth Semester /Final
 Time: 03:00 hrs. Full Marks: 80 /Pass Marks: 32

BIT222CS: Database Management System

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

Figure in the margin indicate full marks.

Group A

2x12=24

Answer TWO questions.

- 1(a) A company database needs to store information about employees (identified by emp_id, with salary and phone attributes), departments (identified by dept_id, with dept_name and budget as attributes), and children of employees (with name and age as attributes). Employees work in departments; each department is managed by a employee; a child must be identified uniquely by name when the parent (who is an employee; assume that only one parent works for the company) is known. Draw an ER diagram that captures this information.

8

- (b) Explain Strong Entity and Weak Entity sets with examples.

4

2. Consider the insurance database given below where the primary keys underlined:
- | | |
|---|----|
| <u>person</u> (derived-id, name, address)
<u>car</u> (license, model, year)
<u>accident</u> (report-number, date, location)
<u>owns</u> (driver-id, license) | 12 |
|---|----|

- participated (driver-id, license, report-number, damage-amount)
- Construct the following SQL queries for this relational database:

- (a) Create table participated with the keys driver-id, license, report-number, referencing corresponding tables persons, car and accident. Assume necessary data types and size of the attributes.
- (b) Find the total number of people who owned cars that were involved in accidents in 2012.
- (c) Find the number of accidents in which the cars belonging to "Hari" was involved.

Group B

8x7=56

Answer EIGHT questions.

4. List a major difficulties of storing data in file system. How it is overcome by DBMS? 3+4

5. Explain the difference between physical and logical data independence. 7

6. - What is relational algebra? Explain SELECT, PROJECT and RENAME operations used in relational algebra with examples. 2+5

7. Explain briefly different aggregate functions used in SQL with example. 7

8. What are integrity constraints? Define the term primary key constraint and foreign key constraint. How are these constraints expressed in SQL? 2+3+3

9. Differentiate between encryption and decryption. Explain the different methods of encryption. 3+4

10. What do you mean by triggers? Explain with example. 2+5

11. What is transaction? Explain the ACID properties of transaction. 2+5

12. What is concurrency control? Explain lock based protocol. 2+5

3.5+3.5

13. Write short notes on any TWO:

- (a) Super key, Candidate key

- (b) Functional dependency

- (c) Simple and Composite attribute

- (d) Transaction states

(2)

- (d) Add a new accident to the database, assume any values for required attributes.

- (e) Delete the model "Sherpa" belonging to "Rani".

- (f) Update the damage amount for the car with license number "BA46PA2012" and report-number "AR2197" to Rs. 10000.

3. What are the pitfalls of relational database? Explain 3NF and BCNF with suitable examples. 4+4+4

FURBANCHAL UNIVERSITY
2014

Bachelor in Information Technology (B.I.T.)/Fourth Semester /Final

Time: 03:00 hrs.

Full Marks: 80 /Pass Marks: 32

BIT276CO: Database Management System

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

Figure in the margin indicate full marks.

Answer TWO questions.

Group A

1. Consider the following relational database schema: $2 \times 12 = 24$

$6 \times 2 = 12$

$\text{employees}(\text{emp_name}, \text{street}, \text{city})$

$\text{works}(\text{emp_name}, \text{company name}, \text{salary})$

$\text{company}(\text{companyname}, \text{city})$

$\text{manages}(\text{companyname}, \text{manager_name})$

Write SQL queries for the following needs.

- Give all the employees name, city and salary who live in "KATHMANDU" city.
- Insert data ("Univea Tech", "kathmandu") into company relation.
- Provide 20% increase in salary to those salaries which is less than or equal to RS 10000.
- Give all managers name whose company is located in the city containing "pur" as substring.
- Give the company name and average salary that company provides to their employees.
- Delete the information of employee who lives in "battiaptali" street.

2(a) Construct an ER diagram for a Hospital Management System. 8

(b) Define attributes. Explain its types with examples.

(2)

3(a) What is normalization? Why normalization is required? Explain 3NF in brief with example.

(b) Define the concept of Multi valued Dependency and 4NF.

Group B

Answer SEVEN questions.

4. Define database and database management system. What are the advantages of DBMS?

5. What is Data abstraction? Explain 3 schema architecture of DBMS.

6. Define relational algebra. How SELECT and PROJECT operations are performed in Relational algebra. Explain with example.

7. What are constraints in DBMS? Explain integrity constraints and referential integrity constraints with example.

8. What is decomposition? Explain lossy decomposition and los less decomposition with example.

9. What is a transaction? Explain ACID properties.

10. What is deadlock? Explain the deadlock prevention protocols.

11. Define database security. Explain the actions that we perform in discretionary access control to protect database.

PURBANCHAL UNIVERSITY
2015

Bachelor in Information Technology (B.I.T.)/Fourth Semester /Final
 Time: 03:00 hrs
 Full Marks: 80/Pass Marks: 32

311276CO: Database Management System (New Course)

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

Group A

Answer TWO questions.

1. Draw an ER diagram for a database of a hospital with a set of patients and a set of medical doctors. With each patient a log of the various tests conducted is associated. Make additional assumptions if needed. Convert the ER diagram into relation showing primary key and foreign key for each relation.
2. State the difference between the following:
 (i) a file management system and database management system
 (ii) Logical and physical data independence
 (iii) Network and Hierarchical data model
 (iv) Centralized and distributed database

3(a) Consider the following relations

Member(memberID, name, age).

Book (isbn, title, author, publisher)

Borrower (MemberID, isbn, date).

Now answer the following questions:

- (a) Write SQL syntax to create the above tables with primary key and foreign key clearly specified for each table.
- (b) Write SQL query to display total number of books taken by each number.
- (c) Write SQL query to display member name, age, isbn, title and date for all members.

- (d) Write SQL query to display name, age of member who have taken a book written by "James Smith".

(2)
Group B

Answer SEVEN questions.

7x8=56

4. Differentiate between functional dependency and multivalued dependency. Explain 3NF and 4NF with example.
5. Explain various methods of transaction execution. Why concurrent execution of transactions should be controlled? Explain for problems that may occur if concurrent executions of transactions are not controlled.

2x12=24

6. What is relational algebra? Differentiate between cartesian product and join operation. Explain outer join with example.
7. Explain the functions of DBA in database security. What is public key encryption?
8. What is deadlock? Explain how deadlock can be detected using wait-for graph? Explain timestamp method of deadlock prevention.

5

What is the difference between a DBMS's physical and logical structure? What are the three logical views supported by DBMS

10. Discuss about usefulness of integrity constraints. Explain types of integration constraints with appropriate example.

11. 4x3=12

11. Write short note on any TWO:

- (a) Query Processing
- (b) Conflict Serializability
- (c) COMMIT vs ROLLBACK

PURBANCHAL UNIVERSITY
2017

Bachelor in Information Technology (B.I.T.)/Fourth Semester/Final
Time: 03:00 hrs.

Full Marks: 80/Pass Marks: 32

BR276CO: Database Management System (New Course)

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

Figure in the margin indicate full marks.

Group A

Answer TWO questions.

1. Explain the three-schema architecture of a DBMS. Differentiate between logical and physical data independence with the help of three-schema architecture of Database System.

2(a) What is rational algebra? How does it differ from relational calculus?

(b) What is the role of functional dependency in normalization? Differentiate between 3NF and BCNF.

3. Why is it necessary to control the concurrent execution of transactions? Explain deadlock handling in database transaction.

2x12=24

Answer TWO questions.

1. Nepali Football Association runs a number of football teams among various teams/clubs.

(a) There are various set of teams, each team has an identifier, name, stadium (eg: Pokhara Stadium, Dharan Stadium etc.) and to which city it belongs.

(b) Each team has many players, and each player belongs to one team only. Each player has a unique identifier, name, birth, and jersey number.

(c) Teams play matches. In each match there is a host team, a guest team. The match takes place in the stadium.

7x8=56

Group B

4. Define DBMS. List and explain various types of DBMS.

2+6

5. Explain database languages and interfaces.

8

6. What is SQL? How does it differ from PL/SQL? Explain.

2+6

7. List and explain all the commands that fall under DDL, DCL, DML and TCL with appropriate syntax for each.

8

8 Explain referential integrity constraint with its function.

8

9. Explain multi-valued dependency and 4NF with suitable example.

8

10. Explain the needs of database security. Differentiate between encryption and decryption.

4+4

11. Write short note on any TWO:

4+4

(a) Nested Queries (b) ER Diagram (c) Triggers

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

Figure in the margin indicate full marks.

Group A

Answer TWO questions.

1. Bachelor in Information Technology (B.I.T.)/Fourth Semester/Final
Time: 03:00 hrs.

Full Marks: 80/Pass Marks: 32

BR276CO: Database Management System (New Course)

PURBANCHAL UNIVERSITY
2016

Bachelor in Information Technology (B.I.T.)/Fourth Semester/Final
Time: 03:00 hrs.

Full Marks: 80/Pass Marks: 32

BR276CO: Database Management System (New Course)

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

Figure in the margin indicate full marks.

Given below the relational database as follow:

EMPLOYEE (employee-name, company-name, salary)

COMPANY (company-name, city).

MANAGER (employee-name, manager-name)

Give an expression in SQL for each of the following queries.

(a) Find the names, street and cities of residence of all employees

who work for ABC Company and earns more than NRs.

35000.

(b) All employees of company named "RAM" whose salary is less

than 5000.

(c) Find all the employees who live in the same cities as the

companies they work for.

(d) Write each separate query to insert data into employee and

company table.

(e) Write command to change city name of ABC Company from

"Kathmandu" to "Pokhara".

What is database transactions and concurrency control? What
are the properties of transaction? Explain.

Group B

7x8=56

What is Database, Database Management System? What are the
advantages of DBMS?

4+4

5. What do you mean by integrity constraints? Explain all the
integrity constraints you know about.

2+6

What is need of database security? Explain encryption and
decryption with example.

2+6

Write commands, query, relational algebra query as directed below,

(a) Write relational algebra query (using Π , ρ etc. notations) to
display first name, last name of employee with salary greater

than 25000.

(b) Write relational algebra query (using Π , ρ etc. notations) to

get list of customer name who have deposits but no loans.

(c) Write SQL to delete record from student having student code

as "BT45".

Contd ...

Lecture notes were

with example.

9. What are database keys? Explain all the types of keys you

are aware with.

10. Consider the group of four relations listed below:

STUDENT (Student_ID, First_Name, Last_Name)

REGISTER (Student_ID, Module_ID, Semester-Start-Date)

LECTURER (Lecturer_ID, First_Name, Last_Name)

MODULE (Module_ID, Module_Name, Lecturer_ID)

Make a relational diagram / model to meet above requirements. 8

11. What is normalization? How do you convert 1NF to 3NF? Explain
with example.

12. Write short note on any TWO:

(a) Functional Dependencies

(b) Procedures and Functions

(c) Functions of DBA

m

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

Group A:

$$2 \times 12 = 24$$

Answer TWO questions.

1. Define symmetric, asymmetric, reflexive, irreflexive transitive and non transitive properties of a relation. Let $A = \mathbb{Z}$, the set of integers and Let $R = \{(a, b) \in A \times B \mid a < b\}$. Verify if R is an equivalence relation or not?

2. Define semi group and Group. Prove that $(Q, *)$ is a group where Q is a set of rational number and $*$ is a binary operation defined by $a * b = a + b - ab \forall a, b \in Q$.
3. Use Warshall's algorithm to find the transitive Closure of the relation R defined on $A = \{1, 2, 3, 4, 5\}$ given by

$$R = \begin{bmatrix} 1 & 1 & 0 & 0 & 0 \\ 1 & 1 & 0 & 0 & 0 \\ 0 & 0 & 1 & 1 & 0 \\ 0 & 0 & 1 & 1 & 0 \\ 0 & 0 & 0 & 0 & 1 \end{bmatrix}$$

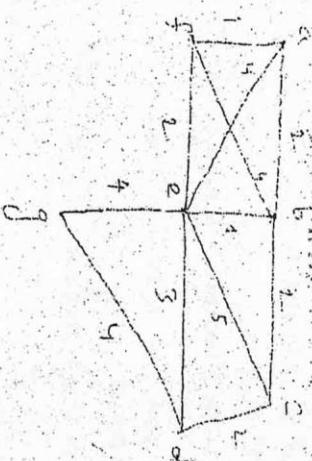
Group B:

$$7 \times 8 = 56$$

Answer SEVEN questions.

4. What is mathematical Induction? Prove the following statement using mathematical induction
- $2+4+6+\dots+2n = n(n+1)$
5. What is minimal Spanning tree. Draw the minimal spanning tree the following graph using Prim's algorithm.

Contd. ...



Ans

6. Define POSET. What are the external elements of PO. Explain lattice with suitable example.
7. Define euler path and euler Circuit with example. What transport Network?
8. Define Set, Subset, power set and universal set with example. Differentiate between recursive and explicit formula.
9. What are propositional logic? Construct truth table for $(P \vee Q) \leftrightarrow (\neg Q \vee P)$ and verify whether it is a tautology or not?
10. Define Permutation and Combination. Explain the pigeon hole principle.

11. What are functions? Explain one one onto and composite function.

12. Write short note on (Any TWO):
- (a) Product set and Partition
- (b) Tree Searching
- (c) Boolean Matrix

Ans

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

Figure in the margin indicate full marks.

Group A:

$$2 \times 12 = 24$$

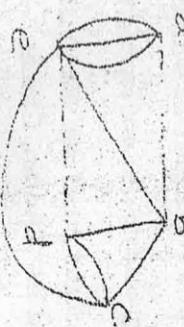
Answer TWO questions.

- 1(a) List the ordered pairs in the relation R from $A = \{0, 1, 2, 3, 4\}$ to $B = \{0, 1, 2, 3, 4\}$ where $(a, b) \in R$ if and only if $a+b < 4$.

- (b) Find the transitive closure of the relation represented by following matrix using Warshall's algorithm.

$$\begin{bmatrix} 1 & 0 & 1 \\ 0 & 1 & 0 \\ 1 & 1 & 0 \end{bmatrix}$$

2. Define Euler circuit. What is the necessary and sufficient condition for a graph to have an euler circuit. Determine whether the following graph has an euler path and/or euler circuit.



- 3(a) Perform inorder traversal for the following tree.



Group B:

$$7 \times 3 = 56$$

Answer SEVEN questions.

4. Prove by mathematical induction, $1+2+3+\dots+n = \frac{n(n+1)}{2}$.

5. State the definitions of semi group and group. Consider a binary operation \square on A such that, for every x and y in A , $x \square y = x^a y^a$, where a is an element in A and $\{A^a\}$ is a semigroup. Prove that \square is an associative operation.

6. State pigeon hole principle. In how many ways 3 red and 2 black balls can be chosen from a box containing 15 balls, of which 8 are red and 7 are black, when 5 balls are drawn.

7. Define tautology and contradiction with example.

Prove that $\neg(p \rightarrow q)$ and $p \wedge \neg q$ are logically equivalent.

8. Define Cartesian product of set. Verify that $A \times B \neq B \times A$ when $A = \{\text{Nepal, India}\}$ and $B = \{\text{Bhutan, China}\}$.

9. Define one-to-one and onto functions with example.

Find $g \circ f(x)$ if $f(x) = 2x + 3$ and $g(x) = x^2 - 9$.

10. Define poset and lattice. Show that \geq is a poset.

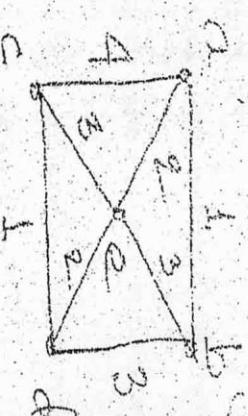
11. Write short notes on any TWO:

- (a) Recurrence Relation

- (b) Transport Network

- (c) Groups and semi-groups

- (b) Use kruskal's algorithm to find the minimum spanning tree from the following weighted graph.



PURBANJALI UNIVERSITY

2016

Bachelor in Information Technology (B.I.T.)/Fourth Semester/Paper

Time: 03:00 hrs.

Full Marks: 80/Pass Marks:

BIR281CO: Discrete Mathematics (New Course)

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

Figure in the margin indicate full marks.

Group A

Answer TWO questions.

What do you understand by mathematical induction? Show that

$$1^2 + 2^2 + 3^2 + \dots + x^2 = \frac{x(x+1)(2x+1)}{6} \text{ by mathematical induction.}$$

2. Define group with a suitable example. Let G be the set of all

nonzero real number and let $a*b=ab/2$. Show that $\{G, *\}$ is an Abelian group

3(a) Prove that congruence mod 2 is an equivalence relation.

(b) Let U={1, 2, 3, 4, 5, 6, 7}, A={2, 4, 6} B={2, 4, 6} and C={4, 5, 6}. Then FA(x) has value 1 when x is 1, 2 or 7 otherwise 0. Find FB(x) and FC(x).

Group B

Answer SEVEN questions.

4(a) What do you mean by binary operation? Explain its associative and commutative property.

(b) If e is an identity for a binary operation \square , then prove that e is unique.

5X Define permutation and combination. In how many ways the word Biratnagar can be arranged?

6. State the pigeonhole principle. The shirts numbered from 1 to 20 are worn by 20 members of bowling league. When any 3 of these members are chosen to be a team, the sum of their shirt's number is used as code number of team. Show that if any 8 of 20 are selected, then from these 8 we may form at least two different teams having the same code number.

(2)

- Consider a relation R defined on $A = \{1, 2, 3, 4\}$ as $\{(1, 2), (2, 3), (3, 4), (2, 1)\}$. Then find R^m using Warshall's algorithm.
- Define permutation, cyclic, even and odd permutation function.
- Let $A = \{1, 2, 3, 4, 5, 6\}$ and $P = \begin{bmatrix} 1 & 2 & 3 & 4 & 5 & 6 \\ 2 & 4 & 3 & 1 & 5 & 6 \end{bmatrix}$ be a permutation of A .

(a) Write P as a product of disjoint cycles.

(b) Compute P^{-1}

(c) Compute P^2

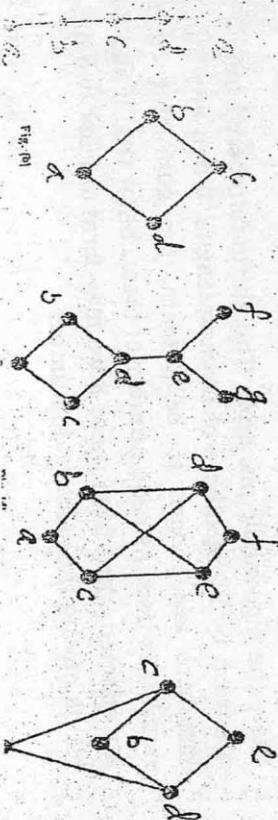
(d) Find the period of P , that is, the smallest positive integer k such that $P^k = 1$, identity function.

How do you define Hamiltonian path. Let the number of edge of graph G be m . Prove that G has a Hamilton Circuit that if $m = 1/2(n^2 - 3n + 6)$ where n is the number of vertices in G .

Construct an Euler circuit for the following graph using Fleury's algorithm:

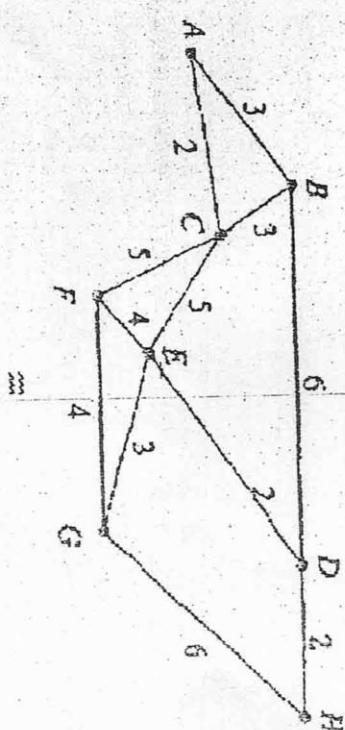


Define lattice with an example. Which of the following Hasse diagram represents the lattices? Explain with reason.



12

Write down the steps of Prim's algorithm for minimal spanning tree. Use it to find a plan for the town's paving to link all the recreational areas with bicycle paths as cheaply as possible in the social circle system as shown in the weighted graph in figure below. The weights represent distance in kilometer between the sites.



(3)

PURBANCHAL UNIVERSITY
2017

Bachelor in Information Technology (B.I.T.)/Fourth Semester /Final
 Time: 03.00 hrs.
 Full Marks: 80/Pass Marks: 32

BIT281CO: Discrete Mathematics (New Course)

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

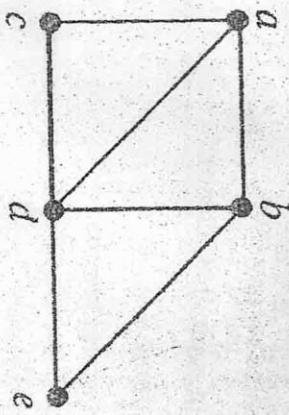
Figure in the margin indicate full marks.

Group A

Answer TWO questions.

$$2 \times 12 = 24$$

- What is diagonal matrix and transpose of matrix? A survey of 500 television watchers produced the following information: 285 watch football games, 195 watch hockey games, 115 watch basketball games, 45 watch football and basketball games, 70, watch football and hockey games, 50 watch hockey and basketball games, and 50 do not watch any of the three kinds of games. How many people on the survey watch all three kinds of games? How many people watch exactly one of the sports? 4+4+4
- What do you mean by a complete graph? State necessary and sufficient conditions for Euler circuit and path. Determine whether following graph contains Euler circuit and/or path. 2+5+5



(2)

- Define implication, tautology and conjunction. Determine whether a given statement is a tautology by constructing a truth table: $((p \rightarrow r) \wedge (p \rightarrow q)) \rightarrow r$. 4+4
- What is mathematical induction: Show that: $1^2 + 2^2 + 3^2 + \dots + n^2 = \frac{n(n+1)(2n+1)}{6}$ by mathematical induction. 6

$$\text{Show that: } 1^2 + 2^2 + 3^2 + \dots + n^2 = \frac{n(n+1)(2n+1)}{6} \text{ by mathematical induction.}$$

- Find the solution of the following recurrence relation: 7

$$a_n = 3a_{n-1} - 2a_{n-2} \text{ with } a_0=5 \text{ and } a_1=3.$$

- Write Prim's algorithm for finding minimal spanning tree with example. 8

- Given asset A $\{1, 2, 3, 4\}$ and a relation R on set A is given as $R = \{(1, 1), (1, 2), (2, 1), (2, 2), (2, 3), (2, 4), (3, 4), (4, 1)\}$. Compute the diagram and matrix of the given relation R. Also find R^2 from the R matrix. 4+4

- What do you mean by Lattices? Determine whether the relation \leq (less than or equal to) is a partial order on set A = {1, 2, 3, 4}. 8

- Explain the process of drawing Hasse Diagram from the diagram of the poset with example. 8

- Write short notes on any TWO. 4+4

- (a) Function of computer science
- (b) Tree searching
- (c) Semi groups and groups

- (a) Function of computer science
- (b) Tree searching
- (c) Semi groups and groups

- Explain the properties of relations? Explain Warshall's Algorithm for transitive closure with an example. 4+8

Group B

Answer SEVEN questions.

$$7 \times 8 = 56$$

- What is counting? State Pigeonhole principle. In how many ways the word statistics can be arranged. 3+2+3

URBANCHAL UNIVERSITY

2009

Bachelor in Information Technology (B.I.T.)/Fourth Semester/Final
Time: 03:00 hrs.

Full Marks: 80/Pass Marks: 32

BIT225MS: Marketing Management

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

Figure in the margin indicate full marks.

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

Figure in the margin indicate full marks.

Group A: Long-answer Questions

2x12=24

1. Define marketing. Explain the concepts of marketing.
2. Explain external environment factors and their impact on marketing.
3. What do you understand by consumer behaviour? Explain the stages of the buyer decision process.

Group B: Short-answer Questions

2x7=14

Answer EIGHT questions.

1. Define what marketing is and discuss its core concepts.
2. Explain how changes in the demographic and economic environments affect marketing decision.
3. Define the business market and explain how business markets differ from consumer markets.
4. List and discuss the major levels of market segmentation.
5. Describe the major strategies for pricing initiative and new product.
6. What do you mean by new product pricing strategies? Explain.

Group B: Short-answer Questions

8x7=56

Answer EIGHT questions.

7. Differentiate between the cost based pricing and competitive based pricing strategies.
8. Explain why companies use distribution channels and discuss the functions that these channels perform.
9. For your university ad, would you rather buy an online ad or place a magazine or radio ad? Explain.
10. Define product and explain the levels of product....
11. Discuss about internal and external factors affecting pricing.
12. Write about nature of advertising and sales promotion.
13. What are the benefits of online marketing and what is the status of e-commerce in Nepal.

Figure in the margin indicate full marks.

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

Group A: Long-answer Questions

2x12=24

1. Compare the institutional and government markets and explain how institutional and government buyers make their buying decisions.

Group B: Short-answer Questions

8x7=56

2. What are the primary differences between products and services? Give illustration of marketing offers that highlight these differences. Provide an example of a "hybrid offer".

3. E-commerce and the internet bring many benefits to both buyers and sellers. List and briefly describe the major benefits to (a) buyers and (b) sellers.

PURBANCHAL UNIVERSITY

2012

Bachelor in Information Technology (B.I.T.)/Fourth Semester/Final
Time: 03:00 hrs. Full Marks: 80/Pass Marks: 32

BIT226MS: Marketing Management

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

Figure in the margin indicate full marks.

Group A

Answer TWO questions.

$2 \times 12 = 24$

1. What do you understand by consumer behaviour? Explain the stages of the buyer decision process.

2. Discuss about market segmentation. Explain the segmentation variables for consumer market.

3. What is pricing? Discuss the various types of pricing methods.

Group B

Answer EIGHT questions.

$8 \times 7 = 56$

4. Show the differentiation between production concept and product concept.

Answer EIGHT questions.

$8 \times 7 = 56$

5. What is direct marketing? Explain the benefits of direct marketing.

6. Explain how changes in the demographic and economic environments affect marketing decisions.

7. What are the various product line decisions? Discuss.

8. Describe the stages of the product life cycles.

9. Mention the various types of discount and allowance.

10. What do you mean by distribution channel levels? Explain with figures.

11. Define the roles of advertising, sales promotion and pull relation in the promotion mix.

Contd. ...

12. What is web marketing?

13. Write short notes on any TWO:

(a) Customer data base

(b) 4Ps and 4Cs

(c) Institutional and government market

PURBANCHAL UNIVERSITY

2011

Bachelor in Information Technology (B.I.T.)/Fourth Semester/Final
Time: 03:00 hrs. Full Marks: 80/Pass Marks: 32

BIT226MS: Marketing Management

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

Figure in the margin indicate full marks.

Group A

Answer TWO questions.

$2 \times 12 = 24$

1. Compare the two types of online marketing channels and explain the effect of the internet on e-commerce. How these channels build up customer relationship in global market.

2. Compare the institutional and government markets and explain how institutional and government buyers make their buying decisions.

3. Illustrate the concept that segmenting is an aggregating process by referring to the admission policies of your own college/university for BE and BE in IT program.

Group B

Answer EIGHT questions.

$8 \times 7 = 56$

4. Explain the key changes in the political and cultural environments.

5. What are the factors that influence the consumer behavior?

6. What cultural and social classes' factors might affect the decision to buy a laptop of Acer Company or Compaq?

7. Explain any two dimensions/variable used to segment a consumer markets.

8. Define in your own words, what product is.

9. Briefly explain the "new product planning process" and what do you understand by product life cycle.

10. Differentiate between the cost-based pricing and value based pricing.

11. Discuss the nature and importance of physical distribution.

12. Explain the methods for setting the promotion budget and factors that affect the design of the promotion mix.

13. Describe the major decisions involved in developing an advertising program.

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

Group A

Answer TWO questions.

$$2 \times 12 = 24$$

1. What are the different basis are used to segment the market for the following products: laptop, personal computer, or color television.

2. What is product life cycle? Describe how marketing strategies change during the product life cycle.

3. Define the consumer market, construct a simple model of consumer buyer behavior, and discuss the characteristics affecting of consumer buyer behaviors.

Group B

Answer EIGHT questions.

$$8 \times 7 = 56$$

1. Explain the different concepts of marketing.
2. Explain how changes in the demographic and economic environments affect marketing decisions.
3. Define product. Explain the various types of consumer products.
4. Compare the institutional and government markets and explain how institutional and government buyers make their buying decisions.
5. Explain the 4Ps of marketing.
6. What are the differences between mass marketing and niche marketing? Compare.

(2)

10. Discuss about the cost-based pricing and competition based pricing approaches of product.
11. Differentiate between promotional pricing strategy and geographical pricing strategy.
12. What are the tools for online marketing? Explain.

$$2 \times 3.5 = 7$$

13. Write short notes on any TWO:
- (a) Components of promotion
- (b) Channel of distribution for consumer product
- (c) Web advertising

Contd. ...

PURBANCHAL UNIVERSITY
2015

Bachelor in Information Technology (B.I.T.)/Fourth Semester/Final
Time: 03:00 hrs.

Full Marks: 80/Pass Marks: 32

BIT292MS: Marketing Management (New Course)

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

Figure in the margin indicate full marks.

Group A

$$2 \times 12 = 24$$

- Answer TWO questions.
1. List out discuss the major levels of market segmentation and bases for segmenting consumer markets.
 2. Discuss the various product decisions.
 3. Define consumer markets and illustrate a simple model of consumer buyer behaviour.

Group B

$$8 \times 7 = 56$$

- Answer EIGHT questions.
4. Compare the five marketing management philosophies.
 5. Describe the company's macro environmental forces that affect the company's ability to serve its customers.
 6. What are the steps in the business buying decision process. Explain.
 7. Describe how marketing strategies change during the product's life cycle.
 8. State and explain the general approaches to setting prices.
 9. Discuss new product pricing strategies.
 10. Explain why companies use distribution channels and discuss the functions that these channels perform.
 11. Write in brief the principles of selling.
 12. Define the nature of advertising, sales promotion and public relations in the promotion mix.

Contd. ...

(2)

13. Write short notes on any TWO:

(a) E-commerce

(b) Differences between 4Ps and 4 Cs

(c) Customer database

(d) Institutional and government markets

PURBANCHAL UNIVERSITY
2014 (NEW)

Bachelor in Information Technology (B.I.T.)/Fourth Semester/Final
Time: 03:00 hrs.

Full Marks: 80/Pass Marks: 32

BIT292MS: Marketing Management

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

Figure in the margin indicate full marks.

Group A

$$2 \times 12 = 24$$

- Answer TWO questions.
1. Define marketing and marketing mix. Modern Marketing is customer oriented. Discuss the marketing mix elements.
 2. What is Product Life Cycle? Discuss marketing strategy corresponding to each stage of product life cycle.
 3. What is pricing? Explain the pricing methods.

Group B

$$8 \times 7 = 56$$

- Answer EIGHT questions.
4. What do you understand by micro environment? Explain the components of the company's micro environment.
 5. List out the levels of market segmentation. Explain the segmentatic variables required for consumer market segmentation.
 6. Explain product line decisions.
 7. What do you understand by buyers' behavior? Explain in brief the buying process.
 8. What role does wholesalers and retailers play in the channel distribution.
 9. Identify and explain the number of channel levels for distributing consumer goods.
 10. What is sales promotion? What are the major decisions in sale promotion?
 11. Explain online marketing and e-commerce. Also explain its benefits.

Contd. ...

(2)

12. Describe the principles of personal selling.

13. Write short notes on any TWO:

(a) Service and its characteristics

(b) Advertising and its nature

(c) Positioning

(5)

(6)

Contd. ...

PURBANCHAL UNIVERSITY
2017

Bachelor in Information Technology (B.I.T.)/Fourth Semester/Final
Time: 03:00 hrs. Full Marks: 80/Pass Marks: 32
BIT292MS: Marketing Management (New Course)

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

Figure in the margin indicate full marks.

Group A

2x12=24

Answer TWO questions.

1. Critically analyze various concepts of marketing. Which concept of marketing seems to be more applicable in rural market of Nepal?
2. Define Product Life Cycle. Suggest various strategies to be adopted throughout various stages of product life cycle.
3. What are the various tools of promotion you recommend to a company to promote its product in market?

Group B

7x8=56

4. Identify and explain the various marketing concepts.
5. Define personal selling. Discuss the principles of personal selling.
6. What is product life cycle? Discuss the marketing strategies applied during the various stages of the product life cycle.

Group B

7x8=56

7. Explain the various functions of distribution channels with examples
8. How do you segment market of T shirt and motorcycle?
9. Define product. How do you differentiate between goods and services? Give examples.
10. Highlight importance of marketing communication for the success of a company
11. Explain Product mix of any company that you are familiar with.

PURBANCHAL UNIVERSITY
2016

Bachelor in Information Technology (B.I.T.)/Fourth Semester/Final
Time: 03:00 hrs. Full Marks: 80/Pass Marks: 32
BIT292MS: Marketing Management (New Course)

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

Figure in the margin indicate full marks.

Group A

2x12=24

Answer TWO questions.

4. Define consumer behavior. Briefly explain how a cultural and behavioral characteristics affect the buyer's behavior.
5. Distinguish 'cost -based pricing' with value-based pricing.
6. Describe the nature and characteristics of a service. Explain,
7. Explain the different channel levels involved in consumer goods.
8. Differentiate between penetration pricing and skimming pricing strategies.

9. What is market segmentation? What are the requirements for effective segmentation? Explain.
10. Discuss the concept of vertical marketing systems and provide an example that suits with it.
11. Acquaint yourself with the major decision in advertising.

PURBANCHAL UNIVERSITY

2010

Bachelor in Information Technology (B.I.T.)/Seventh Semester /Final

Time: 03:00 hrs.

BIT412CS: Web Technology & Programming

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

Figure in the margin indicate full marks.

Answer TWO questions.

Group A:

$$2 \times 12 = 24$$

1. What is Java Script? Design a form with name, address, email and date field. Write a script for form validation and also to insert the data into database.

2(a) What is XML? Create well-formed XML document which contains the following information.

Book (title, publisher, category)

Publisher (Name, phone, mail address)

Category-(IT / science / history)

(b) What do you mean by XML schema and valid document of XML?

Justify your answer with examples.

3(a). What is CSS? What are the advantages of XSLT over CSS?

Explain with the help of example.

(b) Why authentication is necessary for dynamic web application?

Discuss with example.

Group B:

Answer EIGHT questions.

$$8 \times 7 = 56$$

4. What is dynamic web page? Explain why error handling is the major part of any web application.

5. What do you mean by tier architecture? Discuss 1-tier, 2-tier, 3-tier and N-tier architecture with diagram.

6. What is web server? Discuss how a web browser communicates with web server.

(2)

7. What is tag library? Discuss the advantaged issues of servers side scripting.

8. What is session and state? Give example to handle session in ASP page.

9. Discuss the difference client-side and server side scripting with suitable example.

10. HTML has two commands (tags) which are used to apply formatting to elements within the page. Compare and contrast the use of <div> and with the help of example.

11. What is regular expression? How will you create a regular expression? Discuss with suitable example.

12. Write short notes:

(a) SAX vs DOM

(b) ASP vs ASP.net

(c) ADO vs ADO.net

INTERFACES

PURBANCHAL UNIVERSITY

2011

Bachelor in Information Technology (B.I.T.)/Seventh Semester/Chance
Time: 03:00 hrs. Full Marks: 80 / Pass Marks: 32

BIT412CS: Web Technology & Programming

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

Group A:

$$2 \times 12 = 24$$

Answer TWO questions.

1. Create a valid and well-formed xml document that has following element for person's detail.

Person's id, person's Name, Home Address (city/vdc, ward, district, zone), Home phone, Mobile, Office Address (city/vdc, ward, district, zone), office phone, fax number

Add the following formatting to the xml document using xsl:

Person's Name: font name/Helvetica, font color/Green, font style/italic, font size 16pt

Home Address: font name/Helvetica, font color/Green, font style/italic

Home Phone: font name/Arial, font color/Blue, font style/Bold

Person's id: Browser default

Home Phone : Browser default

Fax Number : font name/Arial, font color/Blue, font style/Bold.

When submit button clicked, the form validation should be based upon the following criteria:

- 2 (a) Explain XSLT with a suitable example. How XSLT is different from CSS? 4+2

- (b) Define document object model. Explain the occurrence indicators and connectors with proper example. 1+5

- 3 (a) Write the html code for the following table.

Good Detail				
S.N.	Particular	Qty	Rate	Amount
01	Note Book	10	20	200
02	Pen	15	5	75
03	Pencil	12	2	24
04	Eraser	10	2	20
05	Marker	12	20	240
			Total	559

- (b) What is web server? How does a client browser communicate with the web server? Explain. 1+4

- (c) What is valid document of xml? 2

Group B:

Answer SEVEN questions.

4. Write a program in VBScript for the given display and form validation. 7x3=21

validation.

Name	<input type="text"/>
Address	<input type="text"/>
Email	<input type="text"/>
Age	<input type="text"/>
<input type="button" value="Submit"/>	

PURBANCHAL UNIVERSITY

2012

Bachelor in Information Technology (B.I.T.) / Seventh Semester / Final
Time: 03:00 hrs. Full Marks: 80 / Pass Marks: 32

BIT412CS: Web Technology & Programming

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

Figure in the margin indicate full marks.

Group A:

Answer TWO questions.

1. Define the term HTML. How it is differ from XML? Write a HTML code to generate the following output.

Name	<input type="text"/>
Age	<input type="text"/>
Email	<input type="text"/>

(a) Validate the name, age and email fields by using regular expression.

(b) Write a sever side scripting to insert the name, age and email fields when user click ok button. Assume your own database field.

2(a) Is JavaScript a object oriented programming language? Discuss its features. Write a program in JavaScript to determine whether the number given by the user is prime or not.

What is CSS? Give an XML style sheet example to transfer your created XML document into HTML page.

3(a) What is XML name space? Define DTD and schema. Explain why we need to have XML schema when we have already DTD. Justify your answer with an example of each DTD, schema & XML file.

1+2+5

Contd....

(b) Define XSLT. Explain the advantages of XSLT over CSS. 1+3

Group B:

8x7=56

4 Define tier technology. What are the advantages of 3-tier application over 2-tier application? 2+5

5 What is web browser and web-server? Discuss functions of web server.

Define authentication. How can authentication be handled with server side scripting? Discuss with example. 2+5

6 What is dynamic web page? How it is differ from static web page? Discuss different server side issues that may arise when developing web applications? 3+4

7 What is entity in HTML? Discuss passed, unpassed entity. 1+6

8 Define error handling. Give a suitable example to handle an error when it occurs in script program. 2+5

9 What is tag-library? Discuss SAX and DOM. 2+5

10 What is ASP.net? Create well formed document which contains the following information. 1+5

Book (Title, ISBN, Publisher, Category)
Publisher (Name, phone, mailing address)

Category (IT/History/Science)
11 Write short notes on any TWO 2x3.5=7

12 Session & state. 2+4

13 (a) HTTP and FTP 2+4

(b) PI

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

Figure in the margin indicate full marks.

Group A:

Answer TWO questions.

2x12=24

1. Create a HTML document that includes 2 rows of frames with 2 frames in each row. The 2 left frames must occupy 25% of the width of the display. The bottom 2 frames must occupy 40% of the height of the display. The top left frame must display the name and address of your college and the bottom left frame must display the name and address of your school. Names in each of the left frames must be a link to a document about the short descriptions that is displayed in the right frame when the link is selected.

12

2. Create a form with a text box for accepting the user input and a "Calculate" button, clicking on which calculates the factorial of the input and displays the result on another text box. Write JavaScript code to perform necessary data validation on user input.

12

- 3(a) Explain table-based designs and tableless designs.

6

- (b) What is Box Model in CSS? Which CSS properties are parts of it?

6

Group B:

Answer SEVEN questions.

4. What is licensing? Differentiate between commercial and open source licensing.

7x8=56

(2)

5. Explain length property of JavaScript Strings with syntax. Write JavaScript code to convert a lower case input string into upper case.

4+4

6. Explain static and dynamic web pages. What do you mean by hosting?

4+4

7. What is the purpose of using CSS file? In how many ways can you embed a CSS file into an HTML page? Give examples.

2+6

8. What is JavaScript event handling? Write a JavaScript program that uses "onChange" event handler to find the area of circle after entering the value of radius in text box.

2+6

9. What are web browsers and web servers? Give examples. Explain how requested pages get displayed on a web browser.

4+4

10. What is HTML list? Explain its types with examples.

2+6

11. Write HTML code to display the following table; and apply appropriate CSS formatting.

	Average	Height	Weight	Red eyes
Males	5.4	59	33%	
Females	4.9	50	41%	

Table: Hypothesis-I

12. Write note on (Any TWO):
 - (a) Cookies
 - (b) Lexical structure
 - (c) FTP

12

12

12

12

PURBANCHAL UNIVERSITY

2015

Bachelor in Information Technology (B.I.T.)/Fourth Semester /Final

Time: 03:00 hrs. Full Marks: 80/Pass Marks: 32

BR274CO: Web Technology-I (New Course)

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

Figure in the margin indicate full marks.

Group A:

Answer TWO questions.

- 1(a) Discuss the basics of tier technology. Explain the advantages 3-tier technology.
- (b) Distinguish between proprietary software and open source software. Write the advantages of open source software.
2. Wrote HTML code to display the following table:

ROLL NO.	MAME	MARKS		
		C	VE	Java
12	Kundan	75	60	70
17	Ramesh	36	51	62
19	Sonali	41	48	55
		52	60	35

Marksheet

Link an external CSS file to add these features in the above table alignment, background, border, cell padding, and font color. 7

3. What is client-side scripting? Write a JavaScript code to imp names and age of 10 different person in two different arrays, a display the name of the oldest person on a text box after clicking on a Display button.
- 2+

Group B:

Answer SEVEN questions.

7x8=56

4. What is CSS? How does internal style sheet differ from initial style? Give examples of each. 2
- What is a JavaScript function? Write JavaScript code to determine an input number is Even or Odd using conditional operator. 2

(2)

6. Write the purpose of these HTML elements: <a>, <hr>, <i>, <g>, and <caption>.

7. What do you mean by regular expression? Demonstrate with an example.

8. What is DOM? Explain DOM hierarchy of JavaScript.
Explain display and visibility properties in CSS.

9. Explain notes on any TWO:
(a) Frames
(b) Garbage collection
(c) JSON

PURBANCHAL UNIVERSITY
2016

Bachelor in Information Technology (B.I.T)/Fourth Semester/Final
Time: 03:00 hrs.

Full Marks: 80/Pass Marks: 32

BIT274CO: Web Technology-I (New Course)

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

Figure in the margin indicate full marks.

Group A

Answer TWO questions.

$$2 \times 12 = 24$$

1.(a) What do you understand by Free and Open Source Software?

Briefly explain about Advantages and Disadvantages of Free and

Open-Source Software

(b) Differentiate between Commercial License and Open Source

License.

2.(a) "Table-less design" are more preferred than traditional "Table

Based Design". Justify this statement.

8

(b) Discuss on CSS and its significance. Briefly list out measurement units used in CSS/HTML.

4

3. Create HTML form as below and validate.

Email:	<input type="text"/>
Password:	<input type="password"/>
Mobile No.:	<input type="text"/>
SUBMIT	

Email Address: cannot start with number

Password: minimum 8 characters and maximum 12 character

Mobile Number: required, must 10 digit number

Remember: input fields size need to be 20

Use external CSS for: Background Color, Font Family, Form

Background, Font Color and other as you need.

Answer EIGHT questions.

Group B

$$8 \times 7 = 56$$

4. Distinguish between HTML and HTML5. What are Block level elements?

4+3

5. What are JavaScript Myths? Why does JavaScript differs from Java or OPP?

3+4

6. How garbage collection is handled in JavaScript? What is DOM? Discuss in details.

2+5

7. Define event handling in JavaScript. Discuss on JavaScript dialogue boxes.

4+3

8. Explain cookie syntax. What are its limitation? Differentiate between Session Cookie and Persistent Cookie.

2+2+3

9. List out various methods for integrating CSS and JavaScript.

7

10. Discuss on Lexical Structure in JavaScript in Details.

7

11. What are CSS selectors? Explain with examples

7

12. How lists are implemented in HTML? Give proper examples

7

13. Write notes on any TWO:

2x3.5=7

(a) Pseudo Class

(b) jQuery Integration

(c) JSON

PURBANCHAL UNIVERSITY

2017

Bachelor in Information Technology (B.I.T.)/Fourth Semester/Final
Time: 03:00 hrs.
Full Marks: 80/Pass Marks: 32

BIT274CO: Web Technology-I (New Course)

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

Figure in the margin indicate full marks.

Group A

$2 \times 12 = 24$

Answer TWO questions.

1(a) What is HTTP protocol? How does web browser communicate with web server? Explain the functions of web server.

6
1(b) Explain importance of web protocol. What are protocols used in web communication? Explain with application.

3+3
2. Compare with an example
(a) HTML and HTML5
(b) CSS and CSS3.
(c) Free software and Open software
(d) JSON and JQuery

4
3(a) Define objects. How is object concerned with properties, method and event.

4
(b) Design a web page application for entering name, age, password, and email address and also write a program in JavaScript for validate those entered data when user clicks on submit button. 8

Group B

(2)

6. Define memory management in JavaScript. Explain advantages of CSS and its types with an appropriate example.

2+6

7. Define DOM. Explain different CSS properties with its type.

2+6

8. What do you mean by script? What are different scripts used in web page. Write a program in script language to display list and image.

1+1+6

9. What are input and output functions used by JavaScript? Write a simple program in JavaScript to display simple calculating program.

2+6

10. Explain importance of cookies and events. Explain regular expression with an example.

3+5

11. Write notes on any TWO:
(a) Literals and reserved words
(b) Compare JavaScript with JAVA

12. Write notes on any TWO:
(a) Literals and reserved words
(b) Compare JavaScript with JAVA

13. (c) Table based design and Table less design

Answer SEVEN questions.

$7 \times 8 = 56$

14. Explain advantages of dynamic web page over static. What are the elements which makes web page dynamic. Explain.

2+6

5. Differentiate between frames and table. Explain interactive elements and form elements with an example.

2+6