(PGDCA01)

ASSIGNMENT - 1

P.G. DIPLOMA DEGREE EXAMINATION ,MARCH 2023.

Computer Applications

INFORMATION TECHNOLOGY

MAXIMUM : 30 MARKS

ANSWER ALL QUESTIONS

1. Discuss the terms business pressures. organizational responses. and information systems and how they are related to each other.

2. Explain the role of information technology in the global world.

3. Write about different memory devices and their working mechanism.

4. What is operating systems? Discuss different services provided by operating systems.

5. Discuss various elements of Data Base Management Systems with neat architecture the different sources of data.

(PGDCA01)

ASSIGNMENT - 2

P.G. DIPLOMA DEGREE EXAMINATION ,MARCH 2023.

Computer Applications

INFORMATION TECHNOLOGY

MAXIMUM : 30 MARKS

ANSWER ALL QUESTIONS

1. Explain about different types of programming languages and its features.

2. Write about different types of data communications channels and also mention each channel advantages and disadvantages.

3. Discuss about various layers of Internet protocol and mention detail description of each layer.

4. Explain different services provided by Internet and intranet.

5. Write about the following in brief:
   (a) e-mail
   (b) Modems
   (c) Domain Name Services

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(PGDCA01)

(PGDCA02)

ASSIGNMENT - 1

P.G. DIPLOMA EXAMINATION,MARCH 2023.

Computer Applications

PROGRAMMING WITH C++

MAXIMUM : 30 MARKS

ANSWER ALL QUESTIONS

1. (a) Differentiate between user defined data types and derived data types.

   (b) Explain about the Formatted and Unformatted Console I/O Operations.

2. (a) What is a Stream? What are the stream classes in C++?

   (b) Describe the features of object programming language.

3. (a) What are the Operators in C++? Explain with examples.

   (b) What is a friend function? What are the merits and demerits of using a friend function?

4. Write about C++ Operator Overloading working example and also specify which operators cannot be overloaded.

5. How to initialize and declare strings in C++? Write about different string handling functions in C++.

(PGDCA02)

ASSIGNMENT - 2

P.G. DIPLOMA EXAMINATION,MARCH 2023.

Computer Applications

PROGRAMMING WITH C++

MAXIMUM : 30 MARKS

ANSWER ALL QUESTIONS

1. (a) What is a constructor? Write the syntax of declaring the constructor also give the chatacteristics of constructor.

   (b) What is a destructor? Illustrate memory allocation to an object using destructor?

2. Illustrate multilevel inheritance and multiple inheritance with an example.

3. (a) What is a virtual base class? Why it is important to make a class virtual.

   (b) Write a C++ Program to add two integers; two floats and two complex numbers using class templates?

4. Discuss about various container classes with syntax and give example for each of it.

5. What is an exception? List the principles of exception handling. With a suitable program explain exception handling mechanism of C++.

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(PGDCA03)

ASSIGNMENT - 1

P.G. DIPLOMA EXAMINATION,MARCH 2023.

Computer Applications

COMPUTER ORGANISATION

MAXIMUM : 30 MARKS

ANSWER ALL QUESTIONS

1. Write about structural view and functional view of digital computer with neat sketch.

2. Discuss instruction set of IAS computer and also mention its flow charts.

3. Explain about PCI bus structure and PCI commands and data transfer.

4. Explain the Memory Hierarchy in computer system with neat sketch.

5. (a) Explain about Input-output interface with an example.

   (b) Explain any four addressing modes in detail with examples.

(PGDCA03)

ASSIGNMENT - 2

P.G. DIPLOMA EXAMINATION,MARCH 2023.

Computer Applications

COMPUTER ORGANISATION

MAXIMUM : 30 MARKS

ANSWER ALL QUESTIONS

1. Discuss about different RAID levels and give their characteristics.

2. Design a hardwired control unit for CPU. Why hardwired CU are suitable for RISC.

3. Explain the procedure to multiplication of two floating point numbers with neat flowchart.

4. Explain about magnetic read / write mechanism and disk layout.

5. Discuss in detail different states of instruction cycle with neat diagram.

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(PGDCA04)

ASSIGNMENT - 1

P.G. DIPLOMA EXAMINATION,MARCH 2023.

Computer Applications

DATA STRUCTURES

MAXIMUM : 30 MARKS

ANSWER ALL QUESTIONS

1. Explain about different classification of data structures with example.

2. Explain sequential. selection and iterative logic for implementing the algorithm with example

3. (a) What is sparse matrix? Discuss its implementation using arrays.

   (b) Explain Abstract data type model with neat sketch.

4. How the string is stored in memory? Discuss about different string operations and string handling functions.

5. (a) Explain an algorithm for evaluating postfix expression with suitable example.

   (b) Consider an example where the size of the queue is four elements. Initially the queue is empty. It is required to insert symbols A', 'B' and 'C'. delete 'A' and 'B' and insert 'D' and 'E'. Show the trace of the contents of the queue.

ASSIGNMENT - 2

P.G. DIPLOMA EXAMINATION,MARCH 2023.

Computer Applications

DATA STRUCTURES

MAXIMUM : 30 MARKS

ANSWER ALL QUESTIONS

1. Explain about insertion and deletion operations on single linked lists. Write pseudo code for the same.

2. (a) What is binary tree? Explain the different types of binary trees with an example.

   (b) Explain the binary tree traversals with an example.

3. What is AVL tree? Describe insert and delete operations on AVL trees with example.

4. Explain the recursive merge sort algorithm to sort the following elements:
   12, 25, 5, 9, 1, 84, 63, 7, 15, 4, 3.

5. Explain the trace of selection sort on following data:
   42, 23, 74, 11, 65, 58, 94, 36, 99, 87

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(PGDCA05)

ASSIGNMENT - 1

P.G. DIPLOMA EXAMINATIONMARCH 2023.

Computer Applications

OPERATING SYSTEMS

MAXIMUM : 30 MARKS

ANSWER ALL QUESTIONS

1. Explain about the operating system structure and its functions.

2. (a) Explain various steps involved in change of a process state with process state neat transition diagram.

   (b) Discuss Multithreading Models with neat diagrams.

3. (a) What is a Critical Section? Discuss the solution of the Critical Section problem.

   (b) Explain in detail Readers and Writers Problem of Synchronization.

4. What is IPC? Explain in detail the inter process communication models.

5. Explain the concept of demand paging in detail with neat diagrams.

(PGDCA05)

ASSIGNMENT - 2

P.G. DIPLOMA EXAMINATIONMARCH 2023.

Computer Applications

OPERATING SYSTEMS

MAXIMUM : 30 MARKS

ANSWER ALL QUESTIONS

1. What is a Virtual Memory? Discuss the benefits of virtual memory technique.
2. Discuss in detail about the sequential, indexed and linked file allocation techniques.
3. Discuss various issues involved in selecting appropriate disk scheduling algorithm.
4. Describe life cycle of I/O request and I/O interface.
5. What is meant by threat? Discuss different categories of threats.

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(PGDCA06)

ASSIGNMENT - 1

P.G. DIPLOMA EXAMINATION, MARCH 2023.

Computer Applications

DATABASE MANAGEMENT SYSTEMS

MAXIMUM : 30 MARKS
ANSWER ALL QUESTIONS

1. What is File? Explain about various associations between files with an example.

2. Describe different components of information system and also explain various types of information systems.

3. Explain about different pointer types and location methods with suitable example.

4. Explain about queue, ring, multi list and tree data structures with example.

5. What is meant by database action? Discuss different notations used in database action diagrams.

(PGDCA06)

ASSIGNMENT - 2

P.G. DIPLOMA EXAMINATION, MARCH 2023.

Computer Applications

DATABASE MANAGEMENT SYSTEMS

MAXIMUM : 30 MARKS
ANSWER ALL QUESTIONS

1. Explain about the guidelines for mapping conceptual data model to hierarchical and network models.

2. (a) What is DML? Explain DML operations with examples.

   (b) Explain about inheritance, specialization and generalization using E-R diagrams.

3. Explain about PC – FOCUS manipulation and PC – FOCUS description.

4. What is transaction and explain desirable properties of transactions?

5. Explain Concurrency control with locking methods.

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(PGDCA07)

ASSIGNMENT - 1

P.G. DIPLOMA EXAMINATION, MARCH 2023.

Computer Applications

ACCOUNTS AND FINANCE

MAXIMUM : 30 MARKS

ANSWER ALL QUESTIONS

1. Define 'Accounting'. Briefly write about different concepts of accounting.

2. What do you understand by final accounts? What are the objectives of preparing final accounts?

3. Discuss briefly about different types of costs.

4. What are the significant functions of finance?

5. Discuss the need and importance of working capital in a large scale organisation.

(PGDCA07)

ASSIGNMENT - 2

P.G. DIPLOMA EXAMINATION, MARCH 2023.

Computer Applications

ACCOUNTS AND FINANCE

MAXIMUM : 30 MARKS

ANSWER ALL QUESTIONS

1. On 30th June, 2013 the pass book of Sunil & Co, showed a balance of Rs. 9,800 as cash at bank (a) Prior to that date they had issued a cheque amounting to Rs. 3,500 of which, cheque amounting to Rs. 1,900 have so far been presented for payment ; (b) out of cheques for Rs. 2,000 paid by him into the bank before that date, only cheques for Rs. 1,300 were credited in the pass book ; (c) he had also received a cheque for Rs. 680 which, although entered by them in the cash book has been omitted to be paid into the bank. Prepare a reconciliation statement.

2. The following details are available from a company.

Liabilities	31.12.2012 Rs.	31.12.2014 Rs.	Assets	31.12.2012 Rs.	31.12.2014 Rs.
Share capital	70,000	74,000	Cash	9,000	7,800
Debentures	12,000	6,000	Debtors	14,900	17,700
Reserve for			Stock	49,200	42,700
Doubtful			Land	20,000	30,000
debts	700	800	Goodwill	10,000	5,000
Trade creditors	10,360	11,840			
P/L A/c	10,040	10,560			
	1,03,100	1,03,200		1,03,100	1,03,200

Prepare cash flow statement with the following information :

(a) Dividend paid total Rs. 3,500

(b) Land was purchased for Rs. 10,000. Amount provided for amortization of goodwill Rs. 5,000

(c) Debentures paid off Rs. 6,000.

3. Enter the following transaction in a triple column cash book of Ram. On 1st January 2012 Ram had Rs. 450 cash in hand and Rs. 6,000 in bank.

		Rs.
Jan. 2nd, 2012	Cheque received from Ali Babu in full	

	settlement of debts Rs. 650	620
Jan. 3rd, 2012	Cash sales	250
	Paid for advertizement by cheque	350
Jan. 4th, 2012	Amount withdrawn from bank for use in office	600
Jan. 5th, 2012	Draw cash for personal use	200
Jan. 6th, 2012	Issue cheque in favour of Rao & Sons (Discount Received Rs. 20)	1,000
Jan. 8th, 2012	Received cheque from Mehta Brothers (discount allowed Rs. 20)	800
Jan. 10th, 2012	Sales of machinery payment received in cheque	2,500
Jan. 12th, 2012	Bank returns cheque of Mehta Brothers dishonoured	
Jan. 15th, 2012	New Machinery purchased and cheque issued	10,000
Jan. 15th, 2012	Paid installation expenses in cash	500
Jan. 15th, 2012	Bank charges as per pass book	10

4. Calculate :

   (a) Debt equity ratio

   (b) Liquidity ratio

   (c) Fixed assets to current assets ratio

   (d) Fixed assets turnover ratio.

	Rs.
Sales	5,60,000
Equity capital	1,00,000
Reserves	50,000
Secured loan	1,00,000
Goodwill	60,000
Land and buildings	1,40,000
Stock	30,000
Debtors	40,000
Cash	10,000

5. From the following balance of Ram Lal and sons, on 31.3.2012 prepare trading and profit and loss account and balance sheet, as on 31.3.2012.

Particulars	Amount (Rs.)

Bank	7,500
Purchases (adjusted)	34,96,000
Salaries	21,000
Carriage on sales	2,500
Capital	2,00,000
Carriage on purchases	2,000
Bills payable	50,000
Sales	36,00,000
Loan	1,00,000
Lighting	1,500
Building	1,35,000
Rates and taxes	2,000
Commission received	500
Sundry creditors	1,00,000
Furniture	30,000
Discount received	2,000
Sundry debtors	40,000
Cash in hand	1,250
Stock (31st March 2012)	3,06,250
Bills receivable	7,500

Further information :

(a) Rates and taxes have been prepaid to the extent of Rs. 600

(b) During the year, bad debts amounted to Rs. 2,500

(c) A provision @ 5% has to be made on debtors.

(d) Building have to be depreciated at 2 percent.

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(PGDCA08)

ASSIGNMENT - 1

P.G. DIPLOMA EXAMINATION,MARCH 2023.

Computer Applications

COMPUTER GRAPHICS

MAXIMUM : 30 MARKS

ANSWER ALL QUESTIONS

1. Explain in detail Raster scan display system with complete architecture diagram.

2. Give advantages of Bresenham line drawing algorithm. Draw a line from (20, 10) to (30, 18) using it.

3. A triangle is defined by P (2, 2), Q (4, 2) and R (5, 5). Find the transformed coordinates after 90 degree clockwise rotation followed by reflection about line $y = -x$.

4. Discuss about graphic input techniques.

5. Explain about polling and event queue in event handling.

ASSIGNMENT -2

P.G. DIPLOMA EXAMINATION,MARCH 2023.

Computer Applications

COMPUTER GRAPHICS

MAXIMUM : 30 MARKS

ANSWER ALL QUESTIONS

1. Discuss about 2 – D transformation principles and with example.

2. Explain different issues in simple graphic package.

3. (a) Explain the geometric construction of statistically self-similar fractals.
   (b) Write a routine to implement texture mapping for polyhedrons.

4. (a) Describe the structure of Picture with neat sketch.
   (b) Explain the procedure for drawing three dimensional scenes.

5. Explain Cohen Sutherland line clipping algorithm with example.

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