उत्तर प्रदेश राजर्षि टण्डन मुक्त विश्वविद्यालय, प्रयागराज

अधिन्यास 2019–20

Post Graduate Diploma in Computer Application

कोर्स कोड : Course Code: **PGDCA-01**	कोर्स शीर्षकः– (Course Title) **Discrete Mathematics**	अधिकतम अंक : 30 **Maximum Marks : 30**

खण्ड अ **अधिकतम अंक : 18**

Section-A **Maximum Marks : 18**

नोट– (Instructions): Section A consists of long answer questions. Answer should be in 800 to 1000 words.

1. Construct truth tables for
   (i) [(P => Q) /\ (Q => R)] => (P => R)
   (ii) ~ (P => Q) V [(-P) /\ Q] V Q.
2. Write short notes :
   (i) Regular graph
   (ii) Bipartite graph
   (iii) Hamiltonian graph.
3. Show that the relation (x,y) R (a,b) □ x2 + y2 = a2 + b2 is an equivalence relation on the plane. Also describe the equivalence classes.

खण्ड ब **अधिकतम अंक : 12**

Section –B **Maximum Mark : 12**

नोट– (Instructions): Section B consists of short answer questions. Answer should be in 200 to 300 words.

1. Define tautologies and contradictions with examples.
2. Construct the truth table for P v (q ^ r) ⇔ q^ (p v r).
3. What is Lattice? Explain the properties of Lattice.
4. What is planar graph? Also explain Euler's formula.

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कोर्स कोड : Course Code: **PGDCA-02**	कोर्स शीर्षकः– (Course Title) **Programming through 'C'and Data Structures**	अधिकतमअंक : 30 **Maximum Marks : 30**

खण्ड अ **अधिकतमअंक : 18**

Section-A **Maximum Marks : 18**

नोट–(Instructions): Section A consists of long answer questions. Answer should be in 800 to 1000 words.

1. (a) A company insure its drivers in the following case.
   - If the drivers is married.
   - If the drivers is unmarried, male and above 30 year of age.
   If the driver is unmarried female and above 25 year of age.
   In all other case, the driver is not insured. Write a C program without using logical operator to determine whether the driver
   is insured or not.
   (b) Differentiate between the nested..... if and the switch statement in C language with suitable example.
2. Sort the following list of numbers using Quick Sort in descending order:
   1, 3, 2, 5, 4, 6, 12, 10, Show all the passes.
3. What are various data types used in C? Write its range and format also?

खण्ड ब **अधिकतम अंक : 12**

Section –B **Maximum Mark : 12**

नोट–(Instructions): Section B consists of short answer questions. Answer should be in 200 to 300 words.

1. What is the difference between call by value and call by reference parameter passing techniques.
2. Write a function int power (int x, int n) to return x^n
3. Write a function to return the sum of N number.
4. Write a program to find maximum and minimum elements of an array of size N.

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कोर्सकोड : Course Code: **PGDCA-03**	कोर्स शीर्षकः– (Course Title) **Computer Organization and Assembly Language Programming**	अधिकतमअंक : 30 **Maximum Marks : 30**

खण्ड अ **अधिकतमअंक : 18**

Section-A **Maximum Marks : 18**

नोट–(Instructions): Section A consists of long answer questions. Answer should be in 800 to 1000 words.

1. What do you mean by Flip-Flop? Discuss the functions and circuits diagram of different type of flip flop?
2. What is Interrupt? Explain the types of Interrupts.
3. Draw the connections between memory module and processor and explain how data transfer takes place between them.

खण्ड ब **अधिकतमअंक : 12**

Section –B **Maximum Mark : 12**

नोट–(Instructions): Section B consists of short answer questions. Answer should be in 200 to 300 words.

1. What is DMA? Explain DMA transfer modes in detail.
2. Differentiate between RISC and CISC.
3. Explain the key differences between Compiler and Interpreter.
4. Write a assembly language program to compare values of the three variables and print them in descending order as: Largest = %d, Medium = %d, Smallest = %d.

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कोर्स कोड :	कोर्स शीर्षकः– (Course Title)	अधिकतम अंक : 30
Course Code: **PGDCA-05**	**Object oriented programming C++**	**Maximum Marks : 30**

खण्ड अ **अधिकतम अंक : 18**

Section-A **Maximum Marks : 18**

नोट– (Instructions): Section A consists of long answer questions. Answer should be in 800 to 1000 words.

1. Highlight the difference between pure virtual functions and virtual function.
2. Write a program using a try block to detect and throw an exception if the condition "divide by zero" occurs.
3. Explain why Object Oriented Programming approach is better than Structured Programming Approach.

खण्ड ब **अधिकतम अंक : 12**

Section –B **Maximum Mark : 12**

नोट– (Instructions): Section B consists of short answer questions. Answer should be in 200 to 300 words.

1. What is reusability? Which things can be reused?
2. What is friend function? How it is implemented in C++ ?
3. What is template? Explain with suitable example.
4. What are different types of inheritance?

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कोर्स कोड : Course Code: **PGDCA-06**	कोर्स शीर्षकः– (Course Title) **DBMS**	अधिकतम अंक : 30 **Maximum Marks : 30**

खण्ड अ **अधिकतम अंक : 18**
Section-A **Maximum Marks: 18**

नोट–(Instructions): Section A consists of long answer questions. Answer should be in 800 to 1000 words.

1. What is three-tier client/server architectures? Also differentiate between logical data independence independence. And physical data.
2. What is entity and attribute? Give some examples of entities and attributes in a manufacturing environment. Why are relationships between entities important?
3. What do you mean by data redundancy? What is the difference between controlled and uncontrolled redundancy? What is data independence?

खण्ड ब **अधिकतम अंक : 12**
Section –B **Maximum Mark : 12**

नोट–(Instructions): Section B consists of short answer questions. Answer should be in 200 to 300 words.

1. Who is a DBA? What are the responsibilities of a DBA?
2. What is a transaction? Which are the properties of a transaction and explain each.
3. What is a database trigger? Which are the different kinds of triggers?
4. You are given the following relational schema:

   Person(PersonID, Name, Sex, CityOfBirth)

   Parent(ParentID, ChildID)

   ParentID and ChildID are foreign keys referring to Person.PersonID.

   Write the following queries in SQL:

   Find the names of all people who were born in the same city as their father.

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कोर्स कोड : Course Code: **PGDCA-07A**	कोर्स शीर्षकः– (Course Title) **Computer Fundamental**	अधिकतम अंक : 30 **Maximum Marks : 30**

खण्ड अ अधिकतम अंक : 18

Section-A **Maximum Marks : 18**

नोट– (Instructions): Section A consists of long answer questions. Answer should be in 800 to 1000 words.

1. Explain the working of a laser printer.
2. Explain any three types of ROM.
3. Explain Virtual memory.

खण्ड ब अधिकतम अंक : 12

Section –B **Maximum Mark : 12**

नोट– (Instructions): Section B consists of short answer questions. Answer should be in 200 to 300 words.

1. Discuss some popular character codes used for representing characters in computer.
2. How are floating point numbers represented in computer? Explain.
3. List the characteristics of computer.
4. Discuss the units of memory.

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कोर्स कोड : Course Code: **PGDCA-E1**	कोर्स शीर्षकः– (Course Title) ***Computer Architecture***	अधिकतम अंक : 30 **Maximum Marks : 30**

खण्ड अ **अधिकतम अंक : 18**

Section-A **Maximum Marks : 18**

नोट– (Instructions): Section A consists of long answer questions. Answer should be in 800 to 1000 words.

1. Explain the interrupt driven mode of data transfer and the DMA driven data transfer, elaborating on how they are accomplished and their relative merits and demerits.
2. Explain the importance of different addressing modes in computer architecture with suitable example. What are the different addressing modes?
3. I) What do you mean by instruction cycle and interrupt cycle?
   II) Distinguish between hardwired and micro-programmed control unit.

खण्ड ब **अधिकतम अंक : 12**

Section –B **Maximum Mark : 12**

नोट– (Instructions): Section B consists of short answer questions. Answer should be in 200 to 300 words.

1. How many memory chips are needed to construct 2 M x 16 memory system using 512 K x 8 static memory chips?
2. Explain How interrupt requests from multiple devices can be handled?
3. Explain the difference between Horizontal and Vertical Microinstructions
4. An address space is specified by 24 bits and the corresponding memory space by 16 bits: How many words are in the
   (a) virtual memory (b)main memory

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कोर्स कोड : Course Code: PGD**CA-E2**	कोर्स शीर्षकः– (Course Title) ***Microprocessor and its Applications***	अधिकतम अंक : 30 **Maximum Marks : 30**

खण्ड अ **अधिकतम अंक : 18**

Section-A **Maximum Marks : 18**

नोट– (Instructions): Section A consists of long answer questions. Answer should be in 800 to 1000 words.

1. Explain I/O addressing scheme used in 8086 with neat block diagram.
2. With block diagram describe the working of a DMA controller.
3. Explain the layout and operation of the PCI bus.

खण्ड ब **अधिकतम अंक : 12**

Section –B **Maximum Mark : 12**

नोट– (Instructions): Section B consists of short answer questions. Answer should be in 200 to 300 words.

1. What are the advantages of segmentation?
2. List the feature of 8086 Microprocessor?
3. What are the advantages of segmented memory scheme?
4. What is the use of ALE?

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कोर्स कोड : Course Code: **PGDCA-E3**	कोर्स शीर्षकः– (Course Title) ***Data Warehouse and Mining***	अधिकतम अंक : 30 **Maximum Marks : 30**

खण्ड अ **अधिकतम अंक : 18**

Section-A **Maximum Marks : 18**

नोट– (Instructions): Section A consists of long answer questions. Answer should be in 800 to 1000 words.

1. Explain basic data mining tasks with an example.
2. Give details on data mining versus knowledge discovery in databases.
3. Discuss data mining issues and data mining metrics.

खण्ड ब **अधिकतम अंक : 12**

Section –B **Maximum Mark : 12**

नोट– (Instructions): Section B consists of short answer questions. Answer should be in 200 to 300 words.

1. What is Classification?
2. What do you mean by data cleaning?
3. Explain various data reduction techniques.
4. Briefly discuss the forms of Data preprocessing with neat diagram.

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कोर्सकोड : Course Code: **PGDCA-E4**	कोर्स शीर्षकः– (Course Title) **System Analysis and Design**	अधिकतमअंक : 30 **Maximum Marks : 30**

खण्ड अ **अधिकतमअंक : 18**

Section-A **Maximum Marks : 18**

नोट–(Instructions): Section A consists of long answer questions. Answer should be in 800 to 1000 words.

1. Explain prototype model of software development. Is prototype model a suitable
2. Model for courier company management system? Justify your answer.
3. What is function point analysis? List four features of it.

अधिकतम अंक : 12

खण्ड ब **Maximum Mark : 12**

Section –B

नोट– (Instructions): Section B consists of short answer questions. Answer should be in 200 to 300 words.

1. Differentiate between decision table and decision tree.
2. What are the attributes of good analyst?
3. Explain the system development life cycle.
4. Distinguish between hierarchical structure and network structure.