

Roll No.

Total No. of Pages: 02

Total No. of Questions: 18

M.Sc.(IT)/MCA/PGDCA (2019 Batch) (Sem.-1) TECHNICAL COMMUNICATION

Subject Code: PGCA-1905 M.Code: 76975

Time: 3 Hrs.

Max. Marks: 70

INSTRUCTIONS TO CANDIDATES :

- SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.
- 2. SECTION B & C have FOUR questions each.
- 3. Attempt any FIVE questions from SECTION B & C carrying TEN marks each.
- 4. Select atleast TWO questions from SECTION B & C.

SECTION-A

Attempt all questions:

- 1. What is circular?
- 2. Define E-mail.
- 3. Write two barriers to effective communication.
- 4. Define technical writing.
- 5. Explain Extempore.
- 6. Define the term technical communication.
- 7. Define the term technical writing.
- 8. What is non-verbal communication?
- 9. What is ROBO?
- 10. What is the importance of conference?

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- 11 a) What is effective communication? Explain with the help of suitable example.
 - b) Explain the essentials of effective communication along with 7 C's and other principles.
- 12. What is technical paragraph writing? Discuss the descriptive and imaginative writing.
- 13. Write a technical letter to the newspaper editor regarding printing mistakes in the newspaper atleast in two different formats.
- 14. Explain Shannon's model of communication.

SECTION-C

- 15. Write the (at least 2) difference between the following:
 - a) Press release and newsletters
 - b) Dissertation and thesis
- 16. Write a technical proposal to government of India for the grant of high school. Explain it with instruction manuals with technical descriptions.
- 17. Define verbal communication and its importance. Discuss different presentation techniques and its benefits with example.
- 18. What is group discussion? Discuss the importance of group discussion and how it is helpful in interviews.



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M.Sc. (IT) / MCA / PGDCA (2019 Batch) (Sem.-1)
RDBMS

Subject Code: PGCA-1904 M.Code: 76974

Time: 3 Hrs.

Max. Marks: 70

INSTRUCTIONS TO CANDIDATES:

- SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each
- 2. SECTION B & C. have FOUR questions each.
- 3. Attempt any FIVE questions from SECTION B & C carrying TEN marks each.
- 4. Select atleast TWO questions from SECTION B & C.

SECTION-A

Answer the following questions in brief:

- 1. What is data mining?
- 2. What are the different types of languages which are available in the DBMS?
- 3. What is the difference between Primary key and Candidate key?
- 4. What are specialty databases?
- 5. How to ensure data recovery?
- 6. What are the differences between DROP, TRUNCATE and DELETE commands?
- 7. What is the meaning of an entity in ER diagram?
- 8. What are ACID properties in DBMS? List each one.
- 9. What is the difference between embedded SQL and dynamic SQL?
- 10. What is meant by integrity constraints?

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- 11. Explain the three-schema architecture with reference to data independence in DBMS Justify your answer properly.
- 12. Discuss in detail:
 - a) Database storage
 - b) Database indexing and retrieval
- 13. Explain the concept of transaction management in DBMS using a real life example. Why conflict serializability is important?
- 14. Discuss various aggregate functions available in SQL Also throw some light on the concept of join expressions.

SECTION-C

- 15. Explain the following:
 - a) Schema
 - b) View
 - c) Instance
 - d) Null values
 - e) Foreign key
 - 16. Why normalization is required? Explain various normal forms available in DBMS in detail.
 - 17. What are the features of a good relational design? Explain by citing instances.
 - 18. Discuss various concurrency control techniques in detail.

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M.Sc. (IT)/MCA/PGDCA (2019 Batch)
OPERATING SYSTEM

(Sem.-1)

Subject Code: PGCA1903

M.Code: 76973

Time: 3 Hrs.

Max. Marks: 70

INSTRUCTIONS TO CANDIDATES:

- SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.
- 2. SECTION B & C. have FOUR questions each.
- 3. Attempt any FIVE questions from SECTION B & C carrying TEN marks each.
- 4. Select atleast TWO questions from SECTION B & C.

SECTION-A

Write briefly:

- 1. RTS
- 2. Thread
- 3. Segmentation
- 4. RAID
- 5. Virtual memory
- 6. Time sharing
- 7. Context switch
- 8. Distributed OS
- 9. Mutual exclusion
- 10. Dirty bit



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- 11. Why OS is termed as resource allocator? Also compare RTS and Time sharing systems.
- 12. Write overviews of Inter process Communication and synchronization.
- 13. What is deadlock? How it is prevented and avoided?
- 14. Find waiting and turnaround time for the given processes using FCFS and SCF algorithms.

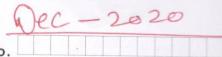
Process	Arrival Time (ms)	Burst Time (ms)
P1	1	5
P2	2	4
P3	2	7
P4	3	2

SECTION-C

- 15. Explain various page replacement algorithms used in demand paging.
- 16. Explain various levels of RAID structure.
- 17. Write a detailed note on security threats on Operating System.
- 18. Explain various types of fragmentation algorithms.



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M.Sc. (IT) / MCA / PGDCA (2019 Batch) (Sem.-1)
MATHEMATICS

Subject Code: PGCA-1901

M.Code: 76971 Time: 2 Hrs.

Max. Marks: 35

INSTRUCTIONS TO CANDIDATES :

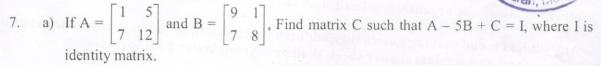
- 1. Attempt any FIVE question(s), each question carries 7 marks.
- 1. Is 2352 is perfect square? If not find smallest multiple of 2352 which is perfect square. Find square root of the new number.
- 2. a) Find cube root of 13824.
 - b) Find the value of $\frac{\sqrt[3]{729} \sqrt[3]{27}}{\sqrt[2]{144} + \sqrt[3]{64}}$.
- 3. a) Show that if A and B are any two sets, then prove that $A B = A (A \cap B)$.
 - b) Which of the following sets are equal?

A = $\{x : x^2 + 5x + 6 = 0, x - 3 = 0\}$, B = $\{x : x \in \mathbb{N}, x < 5\}$, C = $\{x : x \in \mathbb{N}, x \text{ is a prime number } < 5\}$.

4. a) How many subsets can be formed from a set of *n* elements? How many of these will be proper and how many improper?

b) Define symmetric difference of sets? Also find the symmetric difference of $A = \{1, 2, 3, 4, 5, 6\}$ and $B = \{4, 5, 6, 7, 8, 9\}$.

- 5. a) Prove that $p \lor \sim (p \land q)$ is tautology.
 - b) State and prove De-Morgan's law with help of Logics.
- 6. a) Show that $(p \land q) \rightarrow r$ and $(p \rightarrow r) \land (q \rightarrow r)$ are not equivalent.
 - b) Determine whether $(\sim q \land (p \rightarrow q)) \equiv \sim p$.



b) State and prove two properties of Transpose of a matrices.

8. a) Given that
$$A = \begin{bmatrix} 2 & 3 \\ 1 & 4 \end{bmatrix}$$
, $B = \begin{bmatrix} 0 & 1 & 4 \\ 3 & 2 & 0 \end{bmatrix}$, Find A'B and B'A. Is A'B' is defined.

b) If
$$A = \begin{bmatrix} 1 & 2 \\ 2 & 3 \end{bmatrix}$$
 and $B = \begin{bmatrix} 3 & 0 \\ 0 & 3 \end{bmatrix}$, Is it true $(A + B)^2 = A^2 + B^2 + 2AB$.

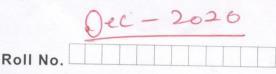


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M.Sc. (IT)/MCA/PGDCA (2019 Batch) (Sem.-1) FUNDAMENTALS OF COMPUTER AND PROGRAMMING IN PYTHON

Subject Code: PGCA1902 M.Code: 76972

Time: 3 Hrs.

Max. Marks: 70

INSTRUCTIONS TO CANDIDATES:

- SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.
- 2. SECTION B & C. have FOUR questions each.
- 3. Attempt any FIVE questions from SECTION B & C carrying TEN marks each.
- 4. Select atleast TWO questions from SECTION B & C.

SECTION-A

Explain the following:

- 1. Software
- 2. Memory
- 3. OMR
- 4. Interface
- 5. Printer
- 6. Big Data
- 7. Variable
- 8. Lifetime
- 9. Package
- 10. Class and Object

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- Q11. What are the attributes of a class? How they are accesses and edited?
- Q12. Discuss any 3 input and 3 output devices.
- Q13. Write a note on memory hierarchy.
- Q14. Write a note on Big Data, IoT and Data Mining.

SECTION-C

- Q15. What are different types of loops in python? Explain with help of example.
- Q16. Differentiate between call by value and call by reference in python.
- Q17. What is a module? How it is created and why we need it?
- Q18. What are the operations on files? Explain with help of example.



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MCA (2015 to 2018) (Sem.-1) OBJECT ORIENTED PROGRAMMING IN C++

Subject Code: MCA-102 M.Code: 72708

Time: 2 Hrs.

Max. Marks: 30

INSTRUCTIONS TO CANDIDATES:

- 1. Attempt any FIVE question(s), each question carries 6 marks.
- 1. What is classes and what are its various types of members? Give relevant examples to explain.
- 2. Write a class to represent a vector (a series of float values). Include member functions to perform the following tasks:
 - a) To create the vector
 - b) To modify the value of a given element
 - c) To multiply by a scalar value
 - d) To display the vector in the form (10, 20, 30,...) Write a program to test your class.
- 3. What is a constructor and destructor? What is the use of default & copy constructors? Is a constructor mandatory for a Class.? Explain by giving examples in each case.
- 4. What are the various bit wise operators? Explain with example.
- 5. What do you understand by inheritance? Give its various types and access mechanisms.
- 6. Explain how base class member functions can be invoked in a derived class if the derived class also has a member function with the same name.
- 7. Write a program in C++ to overload the +, -, ×, % operator to find the addition, subtraction, multiplication and division of Complex numbers.
- 8. Write a program to copy the content of a data file to another file. Make use of the exception handling conditions also.

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MCA (2015 to 2018) (Sem.-1)
INFORMATION MANAGEMENT

Subject Code: MCA-101 M.Code: 72707

Time: 3 Hrs.

Max. Marks: 60

INSTRUCTIONS TO CANDIDATES :

- SECTIONS-A, B, C & D contains TWO questions each carrying TEN marks and students have to attempt any ONE question from each SECTION.
- SECTION-E is COMPULSORY consisting of TEN questions carrying TWENTY marks in all.

SECTION-A

- Q1. What are various types of data file formats? Explain with the help of suitable examples.
 (10)
- Q2. a) Explain the working principle of flash drives. How data is read from and written into a flash drive? (06)
 - b) What are different types of software? How are they useful? (04)

SECTION

- Q3. What is the difference between information and knowledge? Explain various techniques to derive information. (10)
- Q4. What are various data models? Discuss with the help of suitable example(s). (10)

SECTION-C

- Q5. What is meant by decision making? How is it used in Management Information System (MIS)?
- Q6. How a Knowledge Management System is designed? Explain various components of a Knowledge Management System. (10)

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SECTION-D

- Q7. Explain the Architecture of Content Management system with the help of a block diagram.
- Q8. How to create a Pivot Table in spreadsheet? Explain with the help of suitable example(s). (10)

SECTION-E

Answer in brief:

 $(2 \times 10 = 10)$

- Q9. Optical disk
- Q10. 3rd Generation vs. 4th Generation computers
- Q11. Broadband
- Q12. Telecommunication infrastructure
- Q13. Business process
- Q14. Operations security
- Q15. Mail merge in Word processing
- Q16. Use of macros in spreadsheet
- Q17. Animation in presentation
- Q18. Business intelligence



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