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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

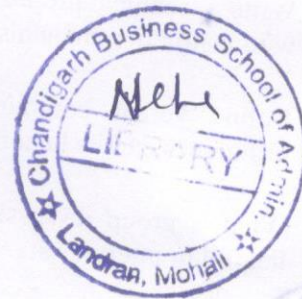
INSTRUCTIONS TO CANDIDATES :

1. 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?



SECTION-B

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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SECTION-B

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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Dec-2020

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

OPERATING SYSTEM

Subject Code : PGCA1903

M.Code : 76973

Time : 3 Hrs.

Max. Marks : 70

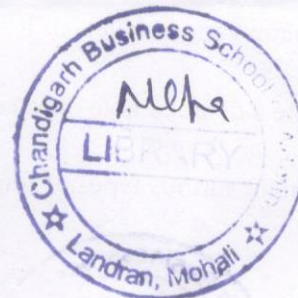
INSTRUCTIONS TO CANDIDATES :

1. 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



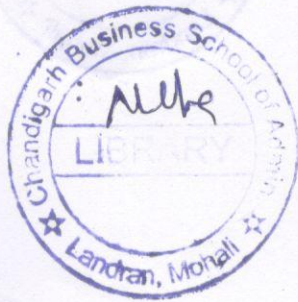
SECTION-B

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 $\frac{\sqrt[3]{729} - \sqrt[3]{27}}{\sqrt[3]{144} + \sqrt[3]{64}}$.
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 $p \vee \sim(p \wedge q)$ is tautology.
b) State and prove De-Morgan's law with help of Logics.
6. a) Show that $(p \wedge q) \rightarrow r$ and $(p \rightarrow r) \wedge (q \rightarrow r)$ are not equivalent.
b) Determine whether $(\sim q \wedge (p \rightarrow q)) \equiv \sim p$.
7. a) If $A = \begin{bmatrix} 1 & 5 \\ 7 & 12 \end{bmatrix}$ and $B = \begin{bmatrix} 9 & 1 \\ 7 & 8 \end{bmatrix}$, Find matrix C such that $A - 5B + C = I$, where I is identity matrix.
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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SECTION-B

- Q11. What are the attributes of a class? How they are accessed 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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SECTION-D

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

SECTION-E

(2×10=10)

Answer in brief :

- 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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