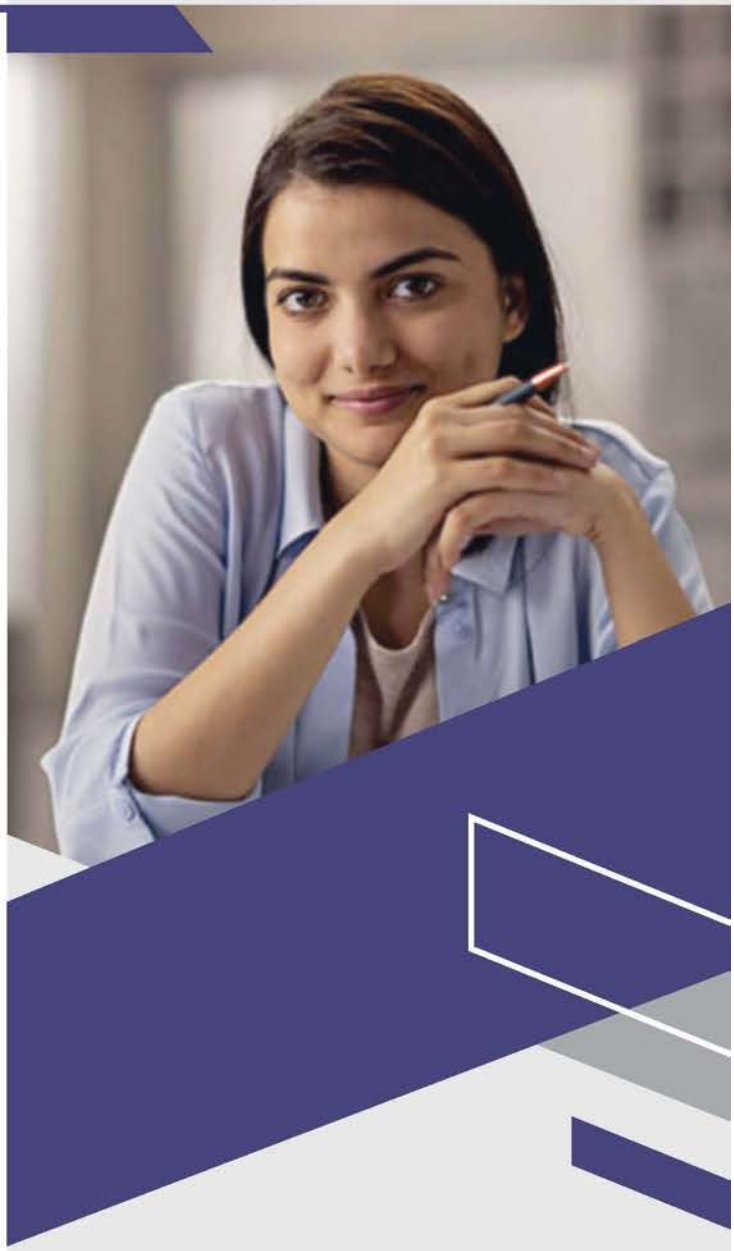
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15 Mock Tests

Computer Science/ Informatics Practices

(Section II Science Domain)

Author
Supriya Patel

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Note : *Free Mock Tests will available only after 1st Nov, 2023*

CUET Preparation Tips 2024

Before preparing for Common Universities Entrance Test (CUET), a strong road map must be prepared, which includes what subject to cover, when, how many hours you should allocate for each subject, etc.

Most of you may not have clarity on your goals while in school, while a few plan it early!

If you have set your goal to get admission to one of the top central universities, you must start preparing early!

1 *Understand the Exam Pattern*

Though the number of questions is the same, the paper pattern differs for each college. Therefore, knowing the paper pattern for the particular college plays a vital role in qualifying for the entrance exam.

As per the CUET Exam Pattern, the entrance exam will include four sections:

- Section 1 A:13 Languages
- Section 1 B:20 Languages
- Section 2: Domain-specific test
- Section 3:General test

Knowing the specific exam pattern for the college you have applied to is also important. Visit the official website of the CUET to know the exam pattern for the respective colleges you have applied to. Only then start with your preparations.

2 *Know your Syllabus*

Once you understand your exam pattern, the second step is to list down the syllabus, so you know what to study. Visit the official website of CUET; it has the respective syllabus for the course and the college.

Note that the syllabus may differ for every college. Therefore, it is important to carefully review and double-check your syllabus before you start your preparations.

3 *Schedule a TimeTable*

Scheduling is something that will give fantastic results if you plan it properly. However, preparing a study plan is one of the most challenging tasks for most.

- Your everyday schedule should have time for CUET exam preparation.
- Initially, you can give 1-2 hours for the entrance exam and the rest for the board exams.
- Once the board exams get over, you can utilize the maximum of your time for the NTA CUET exam prep.

4 *Make a List of Colleges You wish to Target*

- Before starting your preparation, you must make a CUET Colleges and course list.
- Then, understand the previous year's cut-off and position of the counselling for the particular college.
- Doing this will help you understand the marks you must score in the CUET exam to get admission to a particular course in your desired college, thus helping you enhance your preparation levels for the upcoming exam.

5 Newspaper Should Be Your New Friend

- Reading the newspaper will help improve your vocabulary, grammar, and reading comprehension skills.
- To improve your English language, you can refer to the Hindu or the Time of India newspapers.
- You can prefer to read the Dainik Bharat newspaper to improve your Hindi language.
- You must spend at least 30 minutes analyzing and reading the newspaper's editorial page.

6

Practice Mock Tests

- Working on the concepts and writing mock tests based on the exam pattern is essential, as it will help you understand your strengths and weak areas, which can be improved.
- Take up at least one CUET Mock Test every week and try to analyze your performance after completing the mock test.
- Also, try to attempt as many MCQs as possible from your board exam topics. Gradually increase the number of mocks you take.

7

Revision

You should not pick a fresh topic to study at the last minute of preparations. The last days are meant for only revision, so you can revise and remember the topics you have already learned.
Revision is extremely important to have a good score. Studying without revision is "working hard, but without a plan"!

CUET Preparation Tips for the CUET Domain-Specific Test?

The domain specific-test of the CUET entrance exam will have 27 subjects, out of which you have to choose six domains that you wish to pursue in your UG course.
The standard of questions in this section is of class 12 level. Therefore, knowing the fundamental concepts of your chosen subject will help you score well in this section.
Also, you must choose the subjects you feel are very interesting and enjoy studying in the morning. Try to attempt easy, moderate, and challenging level MCQ questions from the NCERT textbooks.

CUET Preparation Tips for NTA CUET 2024 along with Board Exams?

You can succeed in both CUET and board exams if you are good at time management. Also, you can score better if you are consistent throughout your preparation.
A proper study plan and preparation strategies will help you Manage boards and CUET preparation together.
When preparing the timetable, focus on keeping separate time for board preparation, CUET domain-specific preparation, and lastly, allot separate time to solve the aptitude section.
Board exams must be your priority, and you should work on enhancing your domain subject knowledge during your board exam preparation. And do this till the board exams are over.
After completing your board exams, you will have roughly 30-40 days to prepare for the Common Universities Entrance Test. So, utilize this entire month to enhance your preparation levels for CUET.

CUET Preparation Tips 2024: Best Books

Opting for the right book is very important to understand the concepts in-depth and score good marks in the upcoming exam. The following are some of the best CUET Preparation Books you can include during your preparation.

- Arihant's English Grammar & Composition by S.C. Gupta
- Arihant's Test of Arithmetic & General Knowledge by Manohar Pandey
- Arihant's CUET (UG) Self Study Guides

Is It Useful To Solve Mock Tests for CUET Exam 2024?

According to the CUET preparation tips 2024, attempting mock tests is one of the best methods to improve your speed and accuracy in the final exam.

- With the help of mock tests, you can know the difficulty level of the paper and the type of questions asked in the exam.
- You can test your preparation levels for the upcoming exam.
- Most importantly, it can help improve your confidence levels.

Conclusion

"Kya CUET bohot tough hai?", nahi bilkul bhi nahi. If you know and follow the right preparation strategy, there is nothing called as tough. In fact, CUET is in a nurturing phase, so it's not a very tough exam to crack. If you are willing and determined, you can easily crack the CUET 2024 exam. These CUET Preparation Tips are specially curated for CUET 2024 aspirants to help you use the right strategies for the exam.

Syllabus

SECTION A : COMPUTER

Exception and File Handling in Python

Exception Handling: syntax errors, exceptions, need of exception handling, user-defined exceptions, raising exceptions, handling exceptions, catching exceptions, Try - except - else clause, Try - finally clause, recovering and continuing with finally, built-in exception classes.

File Handling: text file and binary file, file types, open and close files, reading and writing text files, reading and writing binary files using pickle module, file access modes.

Database Concepts

Introduction to database concepts, difference between database and file system, relational data model: concept of domain, tuple, relation, keys - candidate key, primary key, alternate key, foreign key;

Relational algebra: selection, projection, union, set difference and cartesian product;

Structured Query Language

Advantages of using Structured Query Language, Data Definition Language, Data Query Language and Data Manipulation Language, Introduction to MySQL, Creating a database using MySQL, Data Types

Data Definition: CREATE TABLE, DROP TABLE, ALTER TABLE,

Data Query: SELECT, FROM, WHERE

Data Manipulation: INSERT, UPDATE, DELETE

Math functions: POWER (), ROUND (), MOD ().

Text functions: UCASE ()/UPPER (), LCASE ()/LOWER (), MID ()/SUBSTRING ()/SUBSTR (), LENGTH (), LEFT (), RIGHT (), INSTR (), LTRIM (), RTRIM (), TRIM ().

Date Functions: NOW (), DATE (), MONTH (), MONTHNAME (), YEAR (), DAY (), DAYNAME ().

Aggregate Functions: MAX (), MIN (), AVG (), SUM (), COUNT (); using COUNT

(*). Querying and manipulating data using Group by, Having, Order by.

Operations on Relations - Union, Intersection, Minus, Cartesian Product, JOIN

Computer Networks

Introduction to computer networks, Evolution of networking,

Network types: LAN, WAN, MAN

Network devices: Modem, Ethernet Card, Repeater, Hub, Switch, Router, Gateway.

Network Topologies: Mesh, Ring, Bus, Star, and Tree topologies

Basic concept of MAC and IP Address Difference between Internet and web

SECTION B1 : COMPUTER SCIENCE

1. **Exception and File Handling in Python**

   Exception Handling: syntax errors, exceptions, need of exception handling, user-defined exceptions, raising exceptions, handling exceptions, catching exceptions, Try - except - else clause, Try - finally clause, recovering and continuing with finally, built-in exception classes.

   File Handling: text file and binary file, file types, open and close files, reading and writing text files, reading and writing binary files using pickle module, file access modes.

2. **Stack**

   Stack (List Implementation): Introduction to stack (LIFO Operations), operations on stack (PUSH and POP) and its implementation in python. Expressions in Prefix, Infix and postfix notations, evaluating arithmetic expressions using stack, conversion of Infix expression to postfix expression

3. **Queue**

   Queue (List Implementation): Introduction to Queue (FIFO), Operations on Queue (INSERT and DELETE) and its implementation in Python. Introduction to DQueue and its implementation in Python.

4. Searching

Searching: Sequential search, Binary search, Analysis of Sequential and Binary Search. Dry run to identify best, worst and average cases. Implementation of searching techniques in Python

5. Sorting

Overview of sorting techniques, Bubble Sort, Selection Sort and Insertion Sort. Dry run to identify best, worst and average cases. Implementation of sorting techniques in Python.

Hashing: Hash Functions, Collision Resolution, Implementing the Map Abstract Data Type.

6. Understanding Data

Data and its purpose, collection and organization; understanding data using statistical methods: mean, median, standard deviation, variance; data interpretation; visualization of data.

7. Database Concepts

Introduction to database concepts, difference between database and file system, relational data model: concept of domain, tuple, relation, keys - candidate key, primary key, alternate key, foreign key;

Relational algebra: selection, projection, union, set difference and cartesian product;

8. Structured Query Language

Advantages of using Structured Query Language, Data Definition Language, Data Query Language and Data Manipulation Language, Introduction to MySQL, Creating a database using MySQL, Data Types

Data Definition: CREATE TABLE, DROP TABLE, ALTER TABLE,

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Aggregate Functions: MAX (), MIN (), AVG (), SUM (), COUNT (); using COUNT

(*). Querying and manipulating data using Group by, Having, Order by.

Operations on Relations - Union, Intersection, Minus, Cartesian Product, JOIN

9. Computer Networks

Introduction to computer networks, Evolution of networking,

Network types: LAN, WAN, MAN

Network devices: Modem, Ethernet Card, Repeater, Hub, Switch, Router, Gateway.

Network Topologies: Mesh, Ring, Bus, Star, and Tree topologies Basic concept of MAC and IP Address Difference between Internet and web

SECTION B2 : INFORMATICS PRACTICES

1. Database Query using SQL

Math functions: POWER (), ROUND (), MOD ().

Text functions: UCASE ()/UPPER (), LCASE ()/LOWER (), MID ()/SUBSTRING ()/SUBSTR (),LENGTH (), LEFT (), RIGHT (), INSTR (), LTRIM (), RTRIM (), TRIM ().

Date Functions: NOW (), DATE (), MONTH (), MONTHNAME (), YEAR (), DAY (), DAYNAME ().

Aggregate Functions: MAX (), MIN (), AVG (), SUM (), COUNT (); using COUNT(*). Querying and manipulating data using Group by, Having, Order by.

Operations on Relations - Union, Intersection, Minus, Cartesian Product, JOIN

2. Data Handling using Pandas – I

Introduction to Python libraries- Pandas, NumPy, Matplotlib. Data structures in Pandas - Series and DataFrames.

Series: Creation of Series from – and array, dictionary, scalar value; mathematical operations; Head and Tail functions; Selection, Indexing, and Slicing.

DataFrames: creation - from the dictionary of Series, list of dictionaries, Text/CSV files; display; iteration; Operations on Rows and columns: add, select, delete, rename; Head and Tail functions; Indexing usingLabels, Boolean Indexing; Styling & Formatting data, Head and Tail functions; Joining, Merging and Concatenations.

Importing/Exporting Data between CSV files and DataFrames.

3. Data Handling using Pandas – II

Descriptive Statistics: max, min, count, sum, mean, median, mode, quartile, Standard deviation, variance.

DataFrame operations: Aggregation, group by, Sorting, Deleting and Renaming Index, Pivoting.

Handling missing values – dropping and filling.

Importing/Exporting Data between MySQL database and Pandas.

4. Plotting Data using Matplotlib

Purpose of plotting; drawing and saving the following types of plots using Matplotlib – line plot, bargraph, histogram, pie chart, frequency polygon, box plot, and scatter plot.

Customizing plots: color, style (dashed, dotted), width; adding label, title, and legend in plots

5. Introduction to Computer Networks

Introduction to Networks, Types of networks: LAN, MAN, WAN.

Network Devices: modem, hub, switch, repeater, router, gateway

Network Topologies: Star, Bus, Tree, Mesh.

Introduction to Internet, URL, WWW, and its applications- Web, email, Chat, VoIP.

Website: Introduction, the difference between a website and webpage, static vs dynamic web page, webserver, and hosting of a website.

Web Browsers: Introduction, commonly used browsers, browser settings, add-ons and plugins,cookies.

6. Societal Impacts

Digital footprint, Etiquettes for Net surfing and for communicating through social media, data protection, Intellectual Property Rights (IPR) and their violation, plagiarism licensing and copyrights, Free and Open Source Software (FOSS), Cybercrime and cyber laws, hacking,phishing, cyberbullying, Overview of Indian IT Act, preventing cybercrime.

E-waste its a hazard and management
Awareness about health concerns related to the usage of technology like effect on eyesight, physiological issues, and ergonomic aspects.

10. Data Communication

Concept of communication, Types of Data Communication, switching techniques
Communication Media: Wired Technologies – Twisted pair cable, Co-axial cable, Ethernet Cable, Optical Fibre; Introduction to mobile telecommunication technologies Wireless Technologies – Bluetooth, WLAN, Infrared, Microwave Network Protocol: Need for Protocol, Categorization and Examples of protocol, HTTP, FTP, IP, PPP; electronic mail protocol
Concept of Channel, Bandwidth (Hz, KHz, MHz) and Data Transfer rate (bps, Kbps, Mbps, Gbps, Tbps)

11. Security Aspects

Threats and prevention: Viruses, Worms, Trojan horse, Spam, Cookies, Adware, Firewall, http vs https
Network Security Concepts: Firewall, Cookies, Hackers and Crackers Antivirus and their workings
Network security threats: Denial of service, Intrusion problems, Snooping, Eavesdropping

CUET (UG) Section II DOMAIN SCIENCE

SOLVED PAPERS

2023-22

SOLVED PAPER 2023*

NTA CUET (UG)

COMPUTER SCIENCE/ INFORMATICS PRACTICES

Instructions

- There will be one Question Paper which will contain Two Sections i.e. Section A and Section B [B1 and B2].
- **Section A** will have 15 questions covering both i.e. Computer Science/Informatics Practices which will be compulsory for all candidates.
- **Section B1** will have 35 questions from Computer Science out of which 25 questions need to be attempted.
- **Section B2** will have 35 questions purely from Informatics Practices out of which 25 questions will be attempted.

Section-A

1. Look at the following code and select the correct description of error shown while executing it.

```
X=int(input("enter a number"))
R=X*X
print "Square =", R
```

(a) ValueError (b) SyntaxError
(c) LogicalError (d) IOError

2. At first, ARPANET was intended to support the _____ on fault-tolerant computer networks.

(a) military research (b) educational research
(c) governmental research (d) scientific research

3. Read the following statements and arrange in correct order.

A. "Division by Zero Error" is printed
B. Exception raised and handled
C. num1= 10, num2=0
D. q=num1/num2
E. Program execution starts

Choose the correct answer from the options given below.

(a) E→C→D→B→A (b) E→D→C→B→A
(c) E→C→D→A→B (d) C→E→D→B→A

4. Which of the following is not constraint in SQL?

(a) Primary key (b) Not Null
(c) Check (d) Union

5. Match the following columns

	Column I		Column II
A.	UNIQUE	(i)	Used to limit column values to specific values.
B.	CHECK	(ii)	Used in conjunction with the SQL keywords PRIMARY KEY and FOREIGN KEY
C.	CREATE	(iii)	Used to apply rule and regulations to tables in database.
D.	CONSTRAINT	(iv)	Used to define a table in SQL

Choose the correct answer from the options given below.

(a) A-i, B-ii, C-iii, D-iv (b) A-iii, B-i, C-iv, D-ii
(c) A-ii, B-i, C-iv, D-iii (d) A-iii, B-iv, C-i, D-ii

6. Arrange the following SQL commands in correct order:

A. `DESCRIBE bank_details;`
B. `USE bank;`
C. `CREATE TABLE bank_details(Product CHAR(10) , quantity INT,price Real, purchase_cost Decimal(6,2),estimated_sale_price Float);`
D. `CREATE DATABASE bank;`
E. `ALTER TABLE bank_details ADD geo_location VARCHAR(20);`

* Memory Based

Choose the correct answer from the options given below.

(a) A→B→C→D→E (b) A→C→D→B→E
(c) C→D→A→E→B (d) D→B→C→A→E

7. _____ function is used to count the number of values in the specified columns ignoring null values.

(a) COUNT(*) (b) COUNT(column)
(c) COUNT(column *) (d) SUM(column)

8. _____ command is used to change the definition of a table in SQL.

(a) CREATE (b) UPDATE
(c) ALTER (d) SELECT

9. Cable TV network is an example of

(a) PAN (b) LAN
(c) MAN (d) WAN

10. _____ function returns an integer that specifies the current position of the file object in the file.

(a) tell() (b) seek()
(c) find() (d) read()

11. What is returned by

SELECT INSTR ('PROGRAMMING', 'M')?

(a) 6 (b) 7
(c) PROG (d) MING

12. The participating computers in a network are referred to as

(a) clients (b) servers
(c) nodes (d) CPUs

13. In SQL, select the correct query to increase the salary by 10% for all employees from Employee table.

(a) `ALTER TABLE Employee ADD salary-10/100*salary;`
(b) `UPDATE salary SET salary =salary*10/100;`
(c) `UPDATE salary SET salary=salary+10/100*salary;`
(d) `UPDATE Employee SET salary=salary+10/100*salary;`

14. Match the following

	Column I		Column II
A.	Twisted pair cables	(i)	It is an application layer protocol for transmitting hypermedia documents, such as HTML.
B.	Coaxial cable	(ii)	It is a wireless communication technology that can be used for close-range data transmission from digital device to another.
C.	Bluetooth	(iii)	It consists of a single copper wire covered by a plastic layer and aluminium foil.
D.	HTTP	(iv)	The cables are twisted to minimize interference between each other.

Choose the correct answer from the options given below.

(a) A- ii, B-iv, C-i, D-ii (b) A- iv, B-iii, C-i, D-ii
(c) A-iv, B-iii, C-ii, D-i (d) A-iv, B-ii, C-iii, D-i

15. Given the following math functions sqrt(),mod(),floor(),mid(), find the odd one out.

(a) sqrt() (b) mid()
(c) floor() (d) mod()

Section-B1

16. Given below are two statements.

Statement I Data visualization refers to the graphical representation of information and data using visual elements like charts, graphs and maps etc.

Statement II To install matplotlib library we can use the command

```
pip install matplotlib
```

In the light of above statements, choose the correct answer from the given options.

(a) Both Statement I and Statement II are true.
(b) Both Statement I and Statement II are false.
(c) Statement I is true but Statement II is false.
(d) Statement I is false but Statement II is true.

17. Identify the state when we try to remove an element from an empty stack.

(a) True state (b) Under state
(c) Underflow (d) Overflow

18. Deque is an arrangement in which insertion and removal of elements can happen

A. Only one end

B. Any end

C. Random order

Choose the correct option from the options given below.

(a) A only (b) B only
(c) C only (d) All of these

19. What is the output of the following code?

```
f1.open("student.txt","w+")
f1.write("All the Best")
f1.seek(0)
print(f1.read())
```

(a) All the Best (b) Error-File Not Found
(c) No output (d) []

20. Write the Python statement to open a text file "notes.txt" in both read and write modes.

(a) `f=open("notes.txt", "r")`
(b) `f=open("notes.txt", "r+")`
(c) `f=open("notes", "r")`
(d) `f=open("notes.txt")`

21. The postfix expression corresponding to the following expression is:

(a-b)*(d/e)

(a) *-ab/de (b) ab-de/*
(c) ab-/de* (d) ab-de*/

22. To open a file c:\scores.txt for reading, we use _____

(a) `infile = open("c:\scores.txt", "r")`
(b) `infile = open("c:\\scores.txt", "r")`
(c) `infile = open(file = "c:\scores.txt", "r")`
(d) `infile = open(file = "c:\\scores.txt", "r")`

23. What will be the output of the following code?

```
try:
   a=10
   b=0
   c=a/b
   print("a/b=",c)
except zeroDivisionError:
   print("Division by zero error")
else:
   print("No error")
```

(a) 0
(b) No error
(c) Value error
(d) Division by zero error

24. _____ is a network adaptor used to setup a wired network.

(a) NIC card (b) NAS card
(c) NUS card (d) TCP/IP card

25. Identify the correct statements.

A. Attribute: The rows of a relation.
B. Tuple: Each row of data in a relation.
C. Degree: The number of attributes in a relation.
D. Cardinality: The number of columns in a relation.
E. Domain: Set of values for each attributes.

Choose the correct answer from the options given below.

(a) A only (b) A and C only
(c) B, C and E only (d) B, C and D only

26. Which of the following SQL statements are used for data manipulation?

A. SELECT B. UPDATE
C. DELETE D. INSERT
E. CREATE

Choose the correct answer from the options given below

(a) A, B and C only
(b) A, D and E only
(c) B, C and D only
(d) B and C only

Directions (Q. Nos. 27 to 31) Consider the tables COMPANY and CUSTOMER given below and answer the questions that follow

Table : COMPANY

CID	NAME	CITY	PRODUCTNAME
111	SONY	DELHI	TV
222	NOKIA	MUMBAI	MOBILE
333	ONIDA	DELHI	TV
444	SONY	MUMBAI	MOBILE
555	BLACKBERRY	MADRAS	MOBILE
666	DELL	DELHI	LAPTOP

Table : CUSTOMER

CUSTID	NAME	PRICE	QTY	CID
101	ROHAN SHARMA	70,000	20	222
102	DEEPAK KUMAR	50,000	10	666
103	MOHAN KUMAR	30,000	5	111
104	SAHIL BANSAL	35,000	3	333
105	NEHA SONI	25,000	7	444
106	SONAL AGGARWAL	20,000	5	333
107	ARUN SINGH	50,000	15	666

27. Choose the correct query to display those company name which are having product with price less than 30000.

(a)
```
SELECT NAME FROM COMPANY WHERE
COMPANY.CID=CUSTOMER. CID AND
PRICE < 30000;
```
(b)
```
SELECT NAME FROM COMPANY WHERE
COMPANY.CID=CUSTOMER. CID AND
PRICE <= 30000;
```
(c)
```
SELECT NAME FROM COMPANY WHERE
COMPANY.CID=CUSTOMER. CID ,
PRICE < 30000;
```
(d)
```
SELECT NAME FROM COMPANY WHERE
PRICE < 30000;
```

28. Choose the correct query to display the name of the companies in reverse alphabetical order.

(a) `SELECT NAME FROM COMPANY ORDER BY NAME ASC;`
(b) `SELECT NAME FROM COMPANY ORDER BY NAME ;`
(c) `SELECT NAME FROM COMPANY ORDER BY NAME DESC;`
(d)
```
SELECT NAME FROM COMPANY WHERE ORDER BY NAME
DESC;
```

29. Choose the correct query to increase the price by 1000 for those customer whose name starts with S.

(a)
```
UPDATE CUSTOMER
SET PRICE = PRICE + 1000
WHERE NAME LIKE 'S%';
```
(b)
```
UPDATE CUSTOMER
SET PRICE = 1000
WHERE NAME LIKE 'S%';
```

(c)
```
UPDATE CUSTOMER
SET PRICE = PRICE + 1000
WHERE NAME IS 'S%';
```
(d)
```
UPDATE CUSTOMER
SET PRICE = PRICE + 1000
WHERE NAME ='S%';
```

30. Choose the correct query to add one more column totalprice with DECIMAL(10,2) to the table CUSTOMER.

(a)
```
ALTER TABLE CUSTOMER
MODIFY TOTALPRICE DECIMAL(10,2);
```
(b)
```
ALTER TABLE CUSTOMER
CHANGE TOTALPRICE DECIMAL(10,2);
```
(c)
```
UPDATE TABLE CUSTOMER
ADD TOTALPRICE DECIMAL(10,2);
```
(d)
```
ALTER TABLE CUSTOMER
ADD TOTALPRICE DECIMAL(10,2);
```

31. Choose the correct query(ies) to display the product name, city and price of all customers who bought mobiles.

A.
```
SELECT PRODUCTNAME,CITY,PRICE
FROM COMPANY, CUSTOMER WHERE
PRODUCTNAME="MOBILE";
```
B.
```
SELECT PRODUCTNAME,CITY,PRICE
FROM COMPANY, CUSTOMER WHERE
COMPANY =CUSTOMER AND
PRODUCTNAME="MOBILE";
```
C.
```
SELECT PRODUCTNAME,CITY,PRICE
FROM COMPANY C, CUSTOMER C1 WHERE
C.CID=C1.CID AND
PRODUCTNAME="MOBILE";
```
D.
```
SELECT PRODUCTNAME,CITY,PRICE
FROM COMPANY, CUSTOMER WHERE
COMPANY. CID=CUSTOMER.CID AND
PRODUCTNAME="MOBILE";
```

(a) A and B only (b) C and D only
(c) A, B and C only (d) A only

32. In Python programming, to open a file in both read and write mode, which of the following file mode is used ?

(a) "r+" (b) "r" (c) "a" (d) "w"

33. _____ is a unique address that can be used to uniquely identify each node in a network.

(a) MAC address (b) IP address
(c) TCP (d) NIC

34. Given below are two statements : one is labelled as Assertion (A) and other is labelled as Reason (R).

Assertion(A) The internet is a collection of interconnected computer networks, linked by transmission media such as copper wire, fibre-optic cables, wireless connections etc.

Reason (R) World Wide Web is a collection of interconnected documents.

In the light of the above statements, choose the most appropriate answer from the options given below.

(a) Both A and R are true and R is the correct explanation of A.
(b) Both A and R are true but R is not the correct explanation of A.
(c) A is true but R is false.
(d) A is false but R is true.

35. Which topology requires a multipoint connection?

(a) Ring (b) Bus (c) Star (d) Mesh

36. In wireless distribution system, _____

(a) multiple access point are inter-connected with each other
(b) there is no access point
(c) only one access point exists
(d) access points are not required

37. Fiber optics posses following property(ies) _____

A. Immune electromagnetic interference
B. Very less signal attenuation
C. Very hard to tap

Choose the correct answer from the options given below

(a) Only A (b) Only B
(c) A and B (d) A, B and C

38. To sort a list having n element, the number of passes, selection sort makes through the list is _____.

(a) n passes (b) (n-1) passes
(c) one pass (d) (n-2) passes

39. Consider the following function for insertionSort.

```
def insertionSort (_________): #statement 1
   if (n := len(arr)) <= 1:
      return
   for i in ________:              # statement 2
      key = arr[i]
      j = i - 1
      while j >= 0 and ________:  # statement 3
         arr[j + 1] = arr[j]
         j -= 1
      arr[j + 1] = _________      # statement 4
```

Given the following options for the statements.

A. key < arr[j] B. arr
C. key D. range(1, n)

Choose the correct answer from the options given below.

(a) C → D → A → B (b) D → C → B → A
(c) C → D → B → A (d) B → D → A → C