B.Sc.I (Computer Application)
Concept of Operating System (BCAT 112)
Question Bank

Q.1) Answer the following questions.   [2 marks]

1. What is mean by operating system?

2. Enlist states of processes.

3. Define file system.

4. Define computer system and enlist its types.

5. Define file sharing.

6. Enlist methods for handling deadlocks.

7. What is microcomputer?

8. What is mean by paging?

9. What is mean by thrashing?

10. Define mass storage system.

11. What is mean by process?

12. Write any two components of computer system.

13. What is disk scheduling?

14. What is system calls?

15. What is Deadlock?

16. What is Contiguous memory allocation?

17. What is Swapping?

18. What is Segmentation?

19. Define Access methods?

20. Define Disk Management.

21. Define Inter-Process Communication.

22. What is demand paging?

23. Define file system mounting.

24. What is file protection?

25. Enlist services of kernel I/O subsystem.

Q.2) Answer the following questions. [10 marks]

1. What is mean by access method and explain its types.

2. What is contiguous memory allocation? Explain its types.

3. Explain segmentation with paging with suitable diagram.

4. What is deadlock? Explain conditions and methods for handling deadlocks.

5. Explain the concept of segmentation with suitable diagram.

6. Explain different types of operating system and it's features and drawbacks.

7. Briefly explain file system mounting. Give advantages and disadvantages.

8. Explain any five types of operating system.

9. Explain operating system services.

10. Describe process management in an operating system.

11. Explain process scheduling in details.

Q.3) Answer the following questions. [5 marks]

1. Explain objectives and functions of operating system.

2. Write a brief note on structure of operating system.

3. Explain segmentation with paging with suitable diagram.

4. Define application I/O interface and explain its characteristics.

5. Explain kernel I/O subsystem in operating system.

6. What are the components of file system implementation?

7. Explain different types of operating system.

8. What are the advantages and disadvantages of operating system?

9. Write a short note on free space management in OS.

10. Explain states of process with suitable diagram.

11. Write a short note on Deadlock prevention.

12. Difference between System Call and System Program.

14. Explain the concept of swapping with the help diagram.

15. Explain demand paging in details.

16. What is the Inter-Process communication?

17. Write a short note on Deadlock detection.

18. Write a short note on thrashing.

19. Explain paging in operating system with suitable diagram.

20. Explain the concept of disk management.

21. Explain the File system structure.

22. Write a short note on segmentation with paging.

23. Explain kernel I/O subsystem services in operating system.

24. Explain file system interface.

25. Explain the method of deadlock detection and recovery from deadlock.

B.Sc.I (Computer Application) (Semester-I)
Computer Fundamental and Appliactions (BCAT 111)
Question Bank

Q.1   2 Marks questions

1. Define computer?
2. What is MS Excel and what is its primary use?
3. What is diligence and versatility features of computer.
4. What is primary memory? Give one example.
5. What is compiler?
6. What is Input Unit?
7. What is a cell in MS-Excel?
8. What are the types of computers based on its size?
9. Write any two number systems.
10. Write any two features of MS-Access
11. What is secondary memory?
12. What is assembler?
13. What are the types of computers based on its purpose?
14. What is output device?
15. What is the use of find and replace in Word?
16. Write any two features of MS Word.
17. Write any two features of MS Excel.
18. Write any two features of MS PowerPoint.
19. What is primary memory?
20. What is the function of a motherboard in a computer?
21. Define cache memory.
22. What is the use of the Cut, Copy, and Paste commands in MS Word?
23. What is the use of the Pivot Table in MS Excel?
24. What is the purpose of slide transitions in MS PowerPoint?

25. Define ROM (Read-Only Memory)
26. What is a hard disk drive (HDD)?

Que:2   10 Marks Questions

1) What are the generations of computer.
2) What is a spreadsheet? Discuss the features of MS Excel spreadsheet.
3) What is Mail-Merge? Explain the different steps of mail merge.
4) What is Macro in MS-Word? Explain its features
5) What is computer? What are the characteristics of computer?
6) Write a note on the following
7) High Level Language
8) Machine Language
9) What is memory? What are the types of memory storage?
10) Write steps to create a report in MS-Access and pie chart in Excel.

11) Explain the types of computers
12) Explain computer languages in detail.
13) Explain the Home tab in MS WORD.
14) Discuss the features, advantages, and applications of MS Excel in data management.
15) Describe the various generations of computers and their key characteristics.
16) Explain in detail the different types of computer memory with examples.
17) Explain in detail the process and importance of Mail Merge in MS Word with a real-life example.
18) Explain the role of input and output devices in a computer system with detailed examples
19) Explain in detail the architecture of a computer and its components.

20) Describe the process of creating and managing macros in MS Excel with practical applications.

21) What is the difference between RAM and ROM? Explain their functions and types in detail.

Que:3   5 Marks Questions

1) Explain in brief working of CPU.
2) Write a short note on ASCII code.
3) Explain how to create a table in MS Word and describe key features to enhance its appearance.
4) Write a short note on High level language.
5) What is power point presentation? Explain its advantages.
6) What are the steps to create a new slide in Microsoft PowerPoint?
7) What are the components of computer system?
8) Write a short note on assembly language
9) Write a brief note on CPU.
10) Write difference between EBCDIC Code and ASCII Code.
11) What are the various components of slide in MSPowerPoint
12) What are the benefits of Find and Replace feature in document editing
13) What are the applications of computer?
14) Difference between primary and secondary memory.
15) Explain the advantages and disadvantages of high-level languages over low-level languages.
16) Write a short note on cache memory and its importance in computer performance.
17) Explain the differences between input and output devices with examples.

B.Sc. I Semester I Computer Application
Computational Mathematics -I (BCAT 117)
Question Bank

Ques. Choose correct alternative

1) **Which of the following is a Contradiction?**

   A) $P \wedge \sim P$ B) $p \vee \sim p$ C) $\sim p$ D) $p \rightarrow p$

2) **Which logical connective represents the "if and only if" relationship?**

   A) Conjunction   B) Disjunction   C) Double Implication   D) Negation

3) **If P is true and Q is false, what is the value of $P \leftrightarrow Q$?**

   A) True   B) False   C) Undetermined   D) None of the above

4) **What is the result of the logical expression $\sim (p \wedge q)$ using De Morgan's Law?**

   A) $\sim p \wedge \sim q$ B) $\sim p \vee \sim q$ C) $p \wedge \sim q$ D) $p \vee \sim q$

5) **Which logical operator represents "OR" in propositional logic?**

   A) $\vee$ B) $\wedge$ C) $\sim$ D) $\rightarrow$

6) **What is the result of $p \leftrightarrow p$?**

   A) True   B) False   C) Undefined   D) Cannot be determined

7) **What does the expression $\sim (\sim p)$?**

   A) p B) $\sim p$ C) $\sim (\sim \sim p)$ D) Undefined

8) **Which of the following represent the complement law in propositional logic?**

   A) $p \wedge \sim p \equiv T$ B) $p \vee \sim p \equiv T$ C) $p \wedge \sim p \equiv p$ D) $p \wedge \sim p \equiv \sim p$

9) **Which of the following is a logical connective?**

A) Addition   B) Subtraction   C) Disjunction   D) Multiplication

10)   **Which logical statement is always true?**

    A) Tautology   B) Contradiction   C) Contingency   D) Contrapositive

11)   **Which of the following is a tautology?**

A) $P \wedge \sim P$ B) $p \vee \sim p$ C) $\sim p$ D) $p \rightarrow \sim p$

12)   **Which logical connective represents the "if-then" relationship?**

A) Conjunction   B) Disjunction   C) Implication   D) Negation

13)   **If P is true and Q is false, what is the value of P → Q?**

A) True   B) False   C) Undetermined   D) None of the above

14)   **What is the result of the logical expression $\sim (p \vee q)$ using De Morgan's Law?**

A) $\sim p \wedge \sim q$ B) $\sim p \vee \sim q$ C) $p \wedge \sim q$ D) $p \vee \sim q$

15) **Which logical operator represents "and" in propositional logic?**

A) $\vee$ B) $\wedge$ C) $\sim$ D) $\rightarrow$

16) **What is the result of $p \leftrightarrow \sim p$?**

A) True   B) False   C) Undefined   D) Cannot be determined

17)   **What does the expression $\sim (\sim p)$?**

A) p B) $\sim p$ C) $\sim (\sim \sim p)$ D) Undefined

18) **Which of the following represent the complement law in propositional logic?**

A) $p \wedge \sim p \equiv F$ B) $p \vee \sim p \equiv F$ C) $p \wedge \sim p \equiv p$ D) $p \wedge \sim p \equiv \sim p$

19) **Which of the following is a logical connective?**

A) Addition   B) Subtraction   C) Conjunction   D) Multiplication

20) **Which logical statement is always false?**

A) Tautology   B) Contradiction   C) Contingency
D) Contrapositive

21) Which of the following is a subset of {1, 2, 3}?

A) {1, 4}   B) {1, 2}   C) {4, 5}   D) {2, 3, 4}

22) Which of the following is an example of the tabular form of a set?

A) {x | x is a natural number}   B) {1, 2, 3, 4}

C) {x: x < 5}   D) None of the above

23) Which of the following is an infinite set?

A) {1, 2, 3}   B) {x | x is a positive integer}   C) {a, b, c}

D) {0}

24) Which of the following sets is equal to {a, b, c}?

A) {a, b, c, d}   B) {a, a, b, c}   C) {b, c, a}

D) {c, b}

25) What is the union of sets A and B?

A) A ∩ B   B) A – B   C) A ∪ B

D) A + B

26) Which of the following is an example of an empty set?

A) {1, 2}   B) {0}   C) {x | x < 0 and x > 0}

D) { }

27) According to De Morgan's laws, (A ∪ B)' is equal to:

A) A' ∪ B'   B) A' ∩ B'   C) A ∩ B

D) A ∪ B

28) Which of the following is the Commutative Law?

A) A ∪ B = B ∪ A   B) A ∩ B = A ∪ B   C) A - B = B – A   D) A ∩ B = B ∩ A

29) If A = {1, 2} and B = {2, 3}, then A ∩ B is:

A) {1, 2, 3}   B) {2}   C) {1}

D) {3}

30) Which operation produces a set of elements that are in A but not in B?

A) Union   B) Intersection   C) Difference   D) Cartesian product

31) The number of elements in the set {1, 2, 3, 4, 5} is:

A) 4   B) 5   C) 6

D) 0

32) If A = {1, 2, 3} and B = {2, 3, 4}, what is A ∪ B?

A) {1, 2, 3, 4}   B) {2, 3}   C) {1, 4}

D) {2, 3, 4, 1}

33) If A = {x | x is an even integer}, which of the following is true?

A) A is finite   B) A is an empty set   C) A is an infinite set   D) A contains no numbers

34) The Associative Law for union states that:

A) $(A \cup B) \cup C = A \cup (B \cup C)$ B) $(A \cap B) \cap C = A \cap (B \cap C)$

C) $A \cup (B \cap C) = (A \cup B) \cap (A \cup C)$ D) $A \cap B = B \cap A$

35) According to De Morgan's laws, (A ∪ B)' is equal to:

A) $A' \cup B'$ B) $A' \cap B'$ C) $A \cap B$ D) $A \cup B$

36) The intersection of sets A and B is:

A) $A \cap B$ B) $A + B$ C) $A \cup B$ D) A - B

37) Which of the following is an example of an empty set?

A) {1, 2}   B) { }   C) {0}   D) {x | x < 0 and x > 0}

38) In set builder form, the set of all x such that x > 5 is represented as:

A) {x | x > 5}   B) {x < 5}   C) {x | x ≤ 5}   D) {5, 6, 7, 8}

39) Which of the following is not a subset of {1, 2, 3} ?

A) {1,2}   B) {2}   C) {4}   D) {1,3}

40) The subtraction of sets A and B is:

A) $A \cap B$ B) $A + B$ C) $A \cup B$ D) A - B

Que. Solve all the questions. (2 marks)

1) What is the truth table for Conjunction?

2) What is a tautology?

3) Find the intersection of set A= {1,2,3,4,5,6} &B= {2,4,6,8}

4) If $f(x) = x + 2$ and $g(x) = 3x$ then find $(f \circ g)(x)$.

5) To find GCD of (48,18).

6) Find the Cardinality of A= {1,2,3,4,5,6,7,8,9,10}

7) What is the truth table for Disjunction.

8) What is a Contradiction?

9) Find the Union of set A= {1,2,3,4,5,6} &B= {Red, Black, White}

10)   If $f(x) = x^2$ and $g(x) = x + 1$,then find $(f + g)(x)$.

11)   What is a divisibility test for 3?

12)   Define a prime number.

13)   What is the Cartesian product of $A = \{1,2,3\}$ & $B = \{,4,5,6,7\}$

14)   Use a mapping diagram to determine if the relation R= {(0,1), (0,2

    a function.

15)   What are commutative laws?

16)

Que. Solve all the questions. (4 marks)

1) Find the GCD of 48 and 18.

2) U = {a, b, c, d, e, f, g}, A = {a, b, d, e, f, g}, B = {b, d, e} prove that De
   law of union.

3) Show that the function of $f: x \rightarrow y$, such that f(x)=5x+7 for all   x, y $\in$ N

4) Construct truth table for $(p \wedge q) \rightarrow r \equiv p \rightarrow (q \rightarrow r)$

5) If U = {a, b, c, d, e}, B = {b, d, e} and A = {a, b, d} prove De- morgan's intersection (A∩B)' =A'UB'.

6) Find GCD of 48 and 180 by using tree diagram method.

7) If A = {5,6}, B= {4,5,6}, c= {5,6,7} then show that A×A=(B×B)∩ (C ×

8) Find the LCM of 36 and 18.

9) Construct truth table for $(p \leftrightarrow q) \equiv (p \wedge q) \vee (\sim p \wedge \sim q)$.

10)   Construct truth table for $[(q \rightarrow \sim p) \rightarrow (p \rightarrow \sim q)] \rightarrow (p \rightarrow q)$.

11)   Find the LCM of 48 and 18.

12)   Let A = {1, 5, 8, 9) and B {2, 4} And f={(1, 2), (5, 4), (8, 2), (9, 4) prove f is a onto function.

13)   Find the GCD of 60 and 75 by using tree diagram method.

14)   Let A= {1,2,3,4,}, B= {5,7,9,1}, U= {1,2,3,4,5,6,7,8,9} then find (B-A),(A' − B'),(A∩B) − B'.

15)   Let A={a,b,c,d,e},B={a,e,i,o,u},U={a,b,c,d,e,f.g,h,i,j,k,l,o,u}Find (A ∩ B),A',(A − B).

Que. Solve all the questions. (10 marks)

1) Show that the following implication without using truth table.
$$\sim (p \wedge q) \rightarrow ((\sim p) \vee (\sim p \vee q)) \equiv ((\sim p) \vee q)$$

2) State and prove De Morgan's First Law.

3) Using laws of logic statement, the given statement proves that tautology truth table and without truth table.
$$p \wedge (p \rightarrow q)] \rightarrow q$$

4) Using truth table prove that distributive law

   I. $p \vee (q \wedge r) \equiv (p \vee q) \wedge (p \vee q)$

   II. $p \wedge (q \vee r) \equiv (p \wedge q) \vee (p \wedge q)$

5) Show that the function $f(x) = 3x - 5$ is a bijective function from R to F

6) U= {7,8,9,10,11,12,13} and A= {11,12,13} and B= {7,8} prove that types Morgan's First & second Law.

7) Using truth table prove that Associative law

I. $p \lor (q \lor r) \equiv (p \lor q) \lor r$

II. $p \land (q \land r) \equiv (p \land q) \land r$

8) Consider 3 sets given as:

U = {x/x is multiple of 4 and x < 50}

A = {y/y is multiple of 2 and y < 20}

B = {z/z is multiple of 3 and z < 30} prove De Morgan's law.

9) Determine the domain and range of the relation R defined by

R = {x + 2, x + 3}: x ∈ {0, 1, 2, 3, 4, 5}

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B.Sc. I Semester I Computer Application
Introduction to Computational Digital Electronics (BCAT 115)
Question Bank

Q.1   Answer in one sentence   2 marks

    a. Define hexadecimal number system.

    b. Convert 122_8 into binary number.

    c. Define code converter.

    d. What is half adder?

    e. What is an arithmetic circuit?

    f. What is multiplexer?

    g. What is the definition of encoder and decoder?

    h. Convert $(100010001)_2$ into hexadecimal number system.

    i. What is parity code? State its type.

    j. Explain the associative law for Boolean algebra.

    k. Define binary number system.

    l. Convert 101010_2 in decimal number.

    m. Explain the commutative law for Boolean algebra.

    n. What is demultiplexer?

    o. Define octal number system.

Q.2   Long answer question   10 marks

    1) What is octal number system? explain the procedure to convert a decimal number into octal number with suitable example.

    2) Explain in brief 1:4 Demultiplexer.

    3) State the different types of logic families. Explain the TTL logic family.

    4) Explain in a brief full adder circuit.

    5) Define the logic gates and explain the role of each basic and universal gates in digital circuits.

6) What is decimal number system? explain the procedure to convert a octal number into decimal number with example.

7) What is hexadecimal number system? explain the procedure to convert a binary into hexadecimal number system with example.

8) Explain in brief 4:1 Multiplexer.

9) Explain universal gates. Using only NAND gate design a circuit of an AND, OR and NOT gate.

Q.3 Short answer question   5 marks

Write a short note on ASCII code.

Explain why Gray code is used in digital system. Convert the Gray code 1001 to binary.

Write a short note on Full adder.

Write a short note on 1 bit comparator.

Explain in detail OR gate.

State and prove De Morgan's second theorem.

Write a short note on Parity code.

What is universal gate? Explain why NAND and NOR gates are called as universal gates.

Write the difference between ASCII and EBCDIC code.

How to convert Gray code to binary. Explain with one example.

Write a short note on 2-bit comparator.

Explain in detail NOT gate.

What do you mean by number system? State its different types.

Explain in detail AND gate.

Write a short note on Half adder.

State and prove De Morgan's first theorem.

How to convert binary to gray code. Explain with one example.

What is mean by multiplier and dividers?

B.Sc. I Semester II Computer Application
Learning Techniques (BCATOE 127)
Question Bank

Que. Solve all the questions. (2 Marks)

1) Who is the founder of Constructive learning, and what is the year of its establishme

2) Define Constructive learning?

3) Define ABL?

4) Define Co-operative learning?

5) Write Down two examples of PBL?

6) How does ABL support different learning styles?

7) What role does inquiry play in PBL?

8) Give two examples of a Cooperative Learning activity.

9) What is Project-Based Learning?

10)   What role does collaboration play in Activity-Based Learning?

11)   What is Activity based learning?

12)   How does collaboration feature in PBL?

13)   Write two examples of Activity-Based Learning.

14)   How does PBL differ from traditional learning methods?

15)   Write Down two examples of Constructivist Learning?

Que. Solve all the questions. (4 Marks)

1) Take advantage of Constructivism Learning.

2) Describe Activity based learning.

3) Why is engagement important in Activity-Based Learning?

4) Discuss the key benefits of Project-Based Learning (PBL).

5) Write down advantages and disadvantages of PBL?

6) Write down advantages and disadvantages of Activity-Based Learning?

7) Explain Features of Constructivist Learning.

8) What are the Implementation Steps in Constructivist Learning?

9) Write the Features of Cooperative Learning.

10) Write Importance of Activity-Based Learning.

11) Describe Co-operative Learning.

12) Write down Benefits of PBL?

13) Explain Benefit and example of PBL?

14) Describe Co-operative learning?

15) Write down Benefit of Constructivism learning?

16) Explain Importance and features in PBL?

17) Write down Benefit of Cooperative Learning?

18) Explain Key Principles of Constructivism learning?

Que. Solve all the questions. (10 Marks)

1) List and explain benefits of using PBL in education.

2) Describe Importance of Constructivism Learning.

3) What is Cooperative Learning & Explain the Benefits of Cooperative Learning.

4) Explain Constructivism With examples.

5) Describe ABL with its significance?

6) Describe in brief PBL with Characteristics?

7) Describe key features of PBL.

8) Explain the Importance of Cooperative Learning.

9) Describe Features of Activity-Based Learning.

Que. Solve all the questions. (2 Marks)

1) Why do we celebrate Science Day, and on which day is it observed?

2) What is Full Form of DRDO and TIRF?

3) In which year did Dr. Homi Bhabha receive his doctorate, and from which university?

4) Provide the full name, birth date, and birthplace of Dr. Homi Bhabha

5) Provide the full name, birth date, and birthplace of APJ?

6) What was Dr. Bhabha's educational background?

7) Which organization did Dr. Bhabha lead after founding TIFR?

8) What is the significance of thorium in Dr. Bhabha's nuclear program?

9) What phenomenon does the Raman Effect refer to?

10) What is one application of Raman spectroscopy in medicine?

11) What was Dr. Bhabha's vision for India's future in his publication "India 2020"?

12) What is celebrated as Bhabha Day in India?

13) What is celebrated on February 28 in India?

14) What does the Raman Effect refer to?

15) What is Full Form of DRDO and BARC?

Que. Solve all the questions. (4 Marks)

1) Discuss about social contribution of Dr. Jayant naralikar?

2) Explain professional achievements of Dr C.V. Raman.?

3) Explain application of Raman effect?

4) Explain the Atomic Energy Commission of India.

5) Explain awards and honors of Raman effect?

6) In what ways did Dr. Homi Bhabha contribute to the field of science?

7) Discuss about social contribution of eminent scientist?

8) Explain professional achievements of Dr. Jayant naralikar?

9) Write Scientific contribution of Dr. Homi Bhabha?

10)   Write honors and awards of Dr. C.V. Raman?

11)   Explain Raman effect?

12)   Write Down life history of Dr. Homi Bhabha?

13)   Explain professional achievements of Dr. Jayant naralikar?

14)   Write short on Bhabha Atomic Research Centre (BARC).

15)   Write Scientific contribution of Dr. APJ in ISRO and India's Space Program?

16)   Explain application of Raman effect?

17)   Write Down detailed biography of Dr. Homi Bhabha?

Que. Solve all the questions. (10 Marks)

1) Write brief life history and   Scientific contribution Dr. Jayant Naralikar?

2) What is the Raman Effect, and why is it significant in the field of physics?

3) Describe Scientific contribution of APJ and Explain brief history of APJ?

4) Write brief life history and   Scientific contribution Dr. Jayant Naralikar?

5) Explain in brief honors and awards of APJ?

6) What was Dr. Bhabha's vision for India's future in his publication "India 2020"? Explain in brief.

7) What is the significant of Raman Effect?

8) Explain in brief honors and awards of APJ?

9) What awards and honors did A.P.J. Abdul Kalam receive during his lifetime?