

31-12-24

Printing Pages : 1

Paper Code : - BMC-501

(B) (SVSU) : 2024-2025/R

Enrollment No.

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B.TECH (CSE/IT/ ME)
III YEAR, V SEMESTER EXAMINATION
CONSTITUTION OF INDIA

[Time : 03:00 Hours]

[Max. Marks : 70]

NOTE:- ATTEMPT ALL THE QUESTIONS AS PER GIVEN INSTRUCTIONS.

B.Tech
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QUESTION NO.-1: ATTEMPT ANY FOUR PARTS.

(4*3=12)

- Define following terms (i) The Constitution (ii) Types of the Constitution.
- Explain framing structure of COI.
- Explain Preamble of Indian Constitution, with its contents.
- Explain Article -14, 15,16,17,18 of the constitution.
- Define the state of being an Indian citizen.
- What are the Fundamental Rights? Explain in detail.

QUESTION NO.-2: ATTEMPT ANY THREE PARTS.

(3*4=12)

- What are the Fundamental Duties? Explain in detail.
- Define following terms (i) Source of COI (ii) Explain Supreme Court (iii) High Court.
- Elaborate structure of Panchayati Raj System. What are Panchayat members called?
- Differentiate between Preamble & Constitution.

QUESTION NO.-3: ATTEMPT ANY THREE PARTS.

(3*6=18)

- Define following terms (i) Con -federal (ii) Federal (iii) Union.
- Write a brief on the emergency powers of Indian president?
- Explain powers and functions of Prime Minister.
- Explain Power & function of Lok Sabha (Lower House) & Rajya Sabha (Upper House)?

QUESTION NO.-4: ATTEMPT ANY TWO PARTS.

(2*7=14)

- Define the Indian citizenship & citizenship act? amendments. How it will end.
- Discuss the article 20, 21, 21A, 22 in details.
- Compare National Emergency and President's rule.

QUESTION NO.-5: ATTEMPT ANY TWO PARTS.

(2*7=14)

- Elaborate Local Administration at Panchayati raj: Introduction, Block level: introduction. Which state is the first Panchayati Raj?
- Write Election Commission: Role and Functioning.
- Explain the position of Chief Minister & the role of Governor in States

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B.TECH. (CSE)
III YEAR, V SEMESTER EXAMINATION
INTRODUCTION TO CLOUD COMPUTING

[Time : 03:00 Hours]

[Max. Marks : 70]

NOTE:- ATTEMPT ALL THE QUESTIONS AS PER GIVEN INSTRUCTIONS.

Ques. 1. Attempt any FOUR parts of the following: (4*5=20)

- a) Explain benefits of cloud computing?
- b) What is the difference between scalability and elasticity?
- c) Mention what is the difference between elasticity and scalability in cloud computing?
- d) What are the properties of virtualization?
- e) What is the use of service provider?
- f) What are the constraints to choose a cloud platform?

Ques.2. Attempt any FOUR parts of the following: (4*10=40)

- a) What is cloud computing? What are the benefits of cloud computing?
- b) What are the different models for deployment in cloud computing?
- g) What is Virtual Reality? What are types of virtual reality?
Explain advantages and disadvantages of virtual reality.
- c) How the usage of cloud computing is useful in society?
- d) How we can improve the performance of cloud computing?
- e) How does virtualization work in cloud computing.

Ques.3. Attempt any TWO parts of the following: (2*5=10)

- a) Explain security management in terms of Cloud Computing.
- b) Explain components of Virtualizations.
- c) List the platforms that are used for large-scale Cloud Computing.

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B.TECH. (CSE /IT)
III YEAR, V SEMESTER EXAMINATION
HUMANITIES II

[Time : 03:00 Hours]

[Max. Marks : 70]

NOTE:- ATTEMPT ALL THE QUESTIONS AS PER GIVEN INSTRUCTIONS.**QUESTION NO.-1: ATTEMPT THREE PARTS.**

(4*3=12)

- a) Is exchange different from storage? Explain how?
- b) What is the building block for harmony in the society?
- c) How is happiness different from prosperity?
- d) Define the following
 - (i) Affection
 - (ii) Preservation

QUESTION NO.-2: ATTEMPT ANY THREE PARTS.

(3*4=12)

- a) How many type of families are there?
- b) Describe the characteristics of ethical human conduct?
- c) What are the steps in implementation of Human Values Cell?
- d) What are the four orders of life?

QUESTION NO.-3: ATTEMPT ANY THREE PARTS.

(3*6=18)

- a) How does sharing dreams and trusting each other help in a relationship?
- b) What is the outcome of divided society? Is the division necessary?
- c) Distinguish between 'animal consciousnesses and 'human consciousnesses.
- d) Write short notes on:
 1. Work
 2. Self regulation

QUESTION NO.-4: ATTEMPT ANY TWO PARTS.

(2*7=14)

- a) What are the four levels of living? How can we ensure undivided society?
- b) Explain in detail the Human Tradition in Universal Human Order.
- c) What do you mean by justice in a relationship? How can it affect the society?

QUESTION NO.-5: ATTEMPT ANY TWO PARTS.

(2*7=14)

- a) How can you mutually evaluate a relationship?
- b) Explain Love, Respect, Glory and Reverence in detail. Mention the names of other feelings.
- c) List out five pillars of the human order. Describe each in detail.

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B.TECH. (CSE)

III YEAR, V SEMESTER EXAMINATION

Object Oriented Programming

[Time : 03:00 Hours]

[Max. Marks : 70]

NOTE:- ATTEMPT ALL THE QUESTIONS AS PER GIVEN INSTRUCTIONS.

QUESTION NO.-1: ATTEMPT ANY FOUR PARTS.

(4*3=12)

- What is object oriented programming? How it is different from procedure-oriented programming? Explain its advantages?
- Define inheritance. Explain with an example how public and private inheritance differ.
- What do understand by Data hiding in OOP?
- What do you understand by Abstract class?
- Define polymorphism. Explain it with any example.
- Differentiate between function overloading and function overriding with appropriate example.

QUESTION NO.-2: ATTEMPT ANY THREE PARTS.

(3*4=12)

- Discuss the role of static member functions or static variables in C++. Provide examples to illustrate their use.
- What is a friend function? Why is it required? Explain with an example.
- What are function templates? Write a program to demonstrate a function template for finding the maximum of two numbers.
- Discuss how exception handling works in C++ with the help of a program demonstrating multiple catch blocks.

QUESTION NO.-3: ATTEMPT ANY THREE PARTS.

(3*6=18)

- What is the difference between static binding and dynamic binding? Explain dynamic binding with the help of C++ program.
- Define Pure Virtual functions and abstract classes in OOP and explain with help of C++ program.
Or
Create a class BankAccount with properties like AccountNumber, AccountHolderName, Balance, and methods to deposit, withdraw, and check balance. Write a program to implement these features.
- What do you mean by constructors? How a constructor of base class is executed with help derived class constructors? Explain it with the help of C++ program.
- What is Virtual base class? When do we make class virtual? Explain it with help of figure and C++ program.

QUESTION NO.-4: ATTEMPT ANY TWO PARTS.

(2*7=14)

- Write a program to create a class Time having data members HH, MM, SS.
i) constructor to initialize the data members
ii) Display () to display time in appropriate format
iii) Overload + as binary operator to add time objects as $t3 = t1 + t2$, where $t1$, $t2$, and $t3$ are the objects of time class.
- Demonstrate with C++ program for
i) Passing objects to functions ii) Returning objects
- When do we use the protected visibility specifier to a class member? Explain it with help of C++ program.

QUESTION NO.-5: ATTEMPT ANY TWO PARTS.

(2*7=14)

- What are the benefits of a copy constructor? Why is it necessary to define a custom copy constructor?
- What is hierarchical inheritance? Demonstrate it by designing the following classes: Father Class: Properties include F_Name, City, and Father_income. Son Class: Properties include S_name, age, and S_income. Daughter Class: Properties include D_name, D_age, and D_income. Write a C++ program.

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B.TECH. (IT)
III YEAR, V SEMESTER EXAMINATION
WEB TECHNOLOGY

[Time : 03:00 Hours]

[Max. Marks : 70]

NOTE:- ATTEMPT ALL THE QUESTIONS AS PER GIVEN INSTRUCTIONS.

QUESTION NO.-1: ATTEMPT ANY FOUR PARTS. (4*3=12)

- a) Discuss various types of control statement in JavaScript?
- b) Describe in brief, the growth of the web technology. Explain the protocols governing the web
- c) Define List Tag with an example.
- d) Difference between web browser and web server

QUESTION NO.-2: ATTEMPT ANY THREE PARTS. (3*4=12)

- a). What is Document Type Definition (DTD)?
- b) Explain any six differences between HTML and XHTML?
- c) Justify "JavaScript" is an event-driven programming".
- d) Explain how tables can be inserted into HTML document with example.

QUESTION NO.-3: ATTEMPT ANY THREE PARTS. (3*6=18)

- a) Explain the web Development Strategies? With the help of diagram?
- b) Design a table in HTML to display the marks of 5 students for 3 subjects. Student name should be the row headings and subject name should be the column headings. Marks can be of your choice
- c) What do you understand by web technologies? What is the difference between web server and web browser?
- d) Apply CSS to a web page with the following requirements
 - Paint the background gray
 - Paint the sidebar yellow
 - Set the artist h1 to be only uppercase
 - Set the title h2 to be uppercase-first letter
 - Set a line spacing between the lines
 - Set letter spacing between the letters in each span of type instruction

QUESTION NO.-4: ATTEMPT ANY TWO PARTS. (2*7=14)

a)	What is the syntax of JavaScript and Why JavaScript is enclosed in HTML comments?
b)	What is the difference between : COM/DCOM JAVA/JAVASCRIPT
c)	Define Function in JavaScript? Write a program using functions with arguments?

QUESTION NO.-5: ATTEMPT ANY TWO PARTS. (2*7=14)

- a) Define Frameset, Frame Tag. Divide the web page into four equal parts each individual part

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B.TECH. (CSE)
III YEAR, V SEMESTER EXAMINATION
FORMAL LANGUAGES AND AUTOMATA THEORY

[Time : 03:00 Hours]

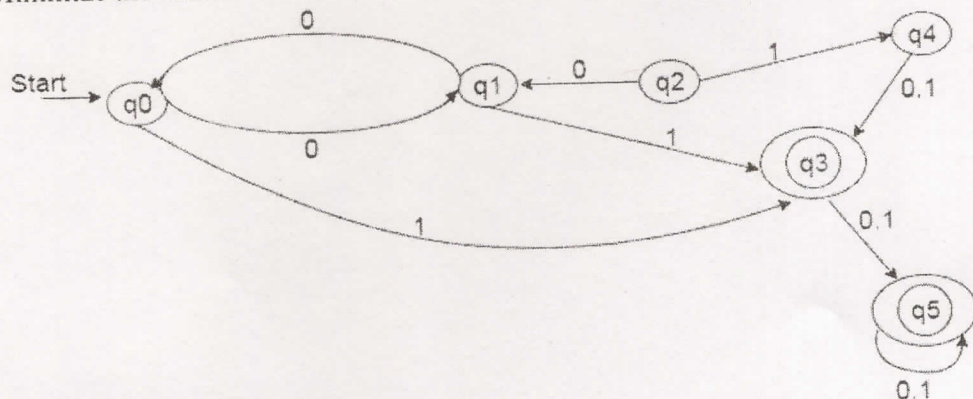
[Max. Marks : 70]

NOTE:- ATTEMPT ALL THE QUESTIONS AS PER GIVEN INSTRUCTIONS.

I Answer Any Three. All Question carry equal marks.

[10×3=30]

- Define Push Down Automata? Design a PDA for the following Language
 $L = \{a^m b^m c^m; m \geq 1\}$.
- Minimize the DFA.



- Design a NFA with four states for the Language
 $L = \{a^n; n \geq 0\} \cup \{b^n a; n \geq 1\}$
- Construct a DFA that accepts the strings which end with 00 over alphabets $\Sigma = \{0, 1\}$.

II Answer Any Four. All Question carry equal marks.

[6×4=24]

- Construct a DFA that accepts the strings which end with abb over alphabets $\Sigma = \{0, 1\}$?
- Write the regular expression for the Language: -
 $\{L = \{a^n b^m / n \geq 3, m \leq 2\}\}$
- Eliminate unit productions in the grammar. $S \rightarrow A/bb, A \rightarrow B/b, B \rightarrow S/a$.
- What is Ambiguity? Show that $S \rightarrow aS/Sa/a$ is an ambiguous grammar.
- Construct a given grammar into CNF?

 $S \rightarrow a/aA/B/C$ $A \rightarrow aB$ $B \rightarrow Aa$ $C \rightarrow cCD$ $D \rightarrow dd,$

Also eliminate useless Symbol and useless production.

III Answer Any Four. All Question carry equal marks.

[4×4=16]

- Construct an NFA that accepts the "abac" over input a,b,c.

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B. TECH. (IT)

III YEAR, V SEMESTER EXAMINATION
SOFTWARE ENGINEERING

[Time : 3:00 Hours]

[Max. Marks : 70]

NOTE:- ATTEMPT ALL THE QUESTIONS AS PER GIVEN INSTRUCTIONS.

QUESTION NO.-1: ATTEMPT ANY FOUR PARTS.

(4*3=12)

- What are the key concepts in designing the software?
- What do you understand by Software Engineering?
- Explain software quality attributes.
- What do you mean by SRS? Explain various characteristics of SRS?
- Describe Class Diagram with examples.
- What is Software Architecture?

QUESTION NO.-2: ATTEMPT ANY THREE PARTS.

(3*4=12)

- What is software reliability? Explain it.
- What do you understand by software Re-engineering?
- What do you mean by Requirement Engineering Process? Explain it with of a neat diagram.
- What is meant by software prototyping?

QUESTION NO.-3: ATTEMPT ANY THREE PARTS.

(3*6=18)

- What do understand by software design? Also discuss the Conceptual level and Technical level design.
- Describe the difference between Programming and Debugging.
- What are the software metrics and measurements? Explain.
- What are the approaches of integration testing?

QUESTION NO.-4: ATTEMPT ANY TWO PARTS.

(2*7=14)

- What are the various types of system testing? Distinguish between alpha and beta testing.
- Explain Water fall Model. What are the problems that are sometimes encountered when the waterfall model is applied?
- Define the mechanism of cost estimation for a Software project. Describe the COCOMO model.

QUESTION NO.-5: ATTEMPT ANY TWO PARTS.

(2*7=14)

- What is the difference between Coupling and Cohesion? Explain various types of coupling.
- What is the difference between a flow chart and structure chart? Explain it with help of example.
- What are the various objectives of testing? Define White Box Testing and Black Box Testing.

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B.TECH. (CSE /IT)
III YEAR, V SEMESTER EXAMINATION
DATABASE MANAGEMENT SYSTEM

[Time : 03:00 Hours]

[Max. Marks : 70]

NOTE:- ATTEMPT ALL THE QUESTIONS AS PER GIVEN INSTRUCTIONS.**QUESTION NO.-1: ATTEMPT ANY FOUR PARTS.**

(4*3=12)

- a) What are the major advantages of a database system?
- b) What is data model? List the types of data model used.
- c) Define the term ACID properties.
- d) Explain data dictionary.
- e) Define the role of database administrator.

QUESTION NO.-2: ATTEMPT ANY THREE PARTS.

(3*4=12)

- (a) What is redundancy? What are the problems associated with redundancy?
- (b) Discuss the terms Functional dependency and Multivalued dependency.
- (c) Explain five basic relation algebra operators.
- (d) Distinguish the terms: super key, candidate key, primary key, Unique Key and foreign key with example.

QUESTION NO.-3: ATTEMPT ANY THREE PARTS.

(3*6=18)

- a) Differentiate between Conflict serializable and View serializable schedules.
- b) Explain two phase locking protocol.
- (c) What is the purpose of Normalization? Explain 1NF, 2NF, 3NF and BCNF with suitable example.
- (e) Discuss Armstrong's axioms in detail. What is the role of these rules in database development process.

QUESTION NO.-4: ATTEMPT ANY TWO PARTS.

(2*7=14)

- (a) Draw the overall structure of DBMS. Explain its various components.
- (b) Discuss the differences between exclusive lock and shared lock. Explain with example?
- (c) Describe Database recovery techniques.

QUESTION NO.-5: ATTEMPT ANY TWO PARTS.

(2*7=14)

- (a) Explain Entity integrity constraints, Domain constraints and Referential integrity constraints with proper examples.
- (b) Discuss multi version scheme of concurrency control.
- (c) Write a note on Data warehousing and data mining.

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B.TECH (CSE/IT)
III YEAR, V SEMESTER EXAMINATION
SIGNAL & SYSTEM

[Time : 03:00 Hours]

[Max. Marks : 70]

NOTE:- ATTEMPT ALL THE QUESTIONS AS PER GIVEN INSTRUCTIONS.

QUESTION NO.-1: ATTEMPT ANY FOUR PARTS.

(4*3=12)

- Check whether the signal $s(t) = 10\cos^2(10\pi t)$ is a periodic signal or not, if it is aperiodic then determine its fundamental period
- A discrete time signal is given as $x(n) = a^{|n|}$ for $-1 < a < 1$. Find the discrete-time Fourier transform (DTFT).
- Define the following elementary signals with example.
 - Unit step signal
 - Unit Ramp signal
 - Unit Impulse signal
- Define Energy & Power Signal with example.
- Determine the Laplace Transform with ROC of following signal
 $x(t) = 3e^{-2t}u(t) - 2e^{-t}u(t)$.
- Determine & sketch the even and odd parts of continuous time signal.
 $S(t) = e^{-t}u(t)$

QUESTION NO.-2: ATTEMPT ANY THREE PARTS.

(3*4=12)

- Find $x(n)$ for the given $X(Z)$

$$X(Z) = \frac{10Z}{(Z-1)(Z-2)}$$
 using Residue Method
- Prove and state Parseval's theorem of CTFT.
- Determine the Fourier Transform
 $x(t) = \sin\omega_0 t \cos\omega_0 t$
- State and Prove Convolution & differentiation property to Z- transform

QUESTION NO.-3: ATTEMPT ANY THREE PARTS.

(3*6=18)

- A system characterized by the transfer function

$$\frac{Y(s)}{U(s)} = \frac{2}{s^3 + 6s^2 + 11s + 6}$$

Find the state and output equation in matrix form and test the controllability and Observability

- Define ROC of Laplace- Transform & explain its properties.
- Define and Classify Signal.
- Determine the Z-transform of following sequence

i) $x_1(n) = \{1, 2, 3, 4, 5, 0, 7\}$



ii) $x_2(n) = \{1, 2, 3, 4, 5, 0, 7\}$

