

MADHAY PRADESH BHOJ (OPEN) UNIVERSITY
Bhopal
M.Sc. (Information Technology)
Final Year
Assignment -01 (2010-2011)

Max. Marks: 30

निर्देश-

1. सभी प्रश्न स्वयं की हस्तलिपि में हल करना अनिवार्य है।
2. दोनों सत्रीय प्रश्न पत्र में से किसी एक प्रश्नपत्र को हल करना अनिवार्य है।
3. सत्रीय कार्य उत्तर पुस्तिकाओं के स्थान पर 14 साईज के सादे कागज पर छात्र द्वारा लिखे जायेंगे जिन पर क्षेत्रीय निदेशक के हस्ताक्षरित मुहर अंकित किया होना अनिवार्य है।
4. सत्रीय कार्य जमा करने की अंतिम तिथि 15 अक्टूबर 2011 है।
5. सत्रीय कार्य उत्तर पुस्तिकाओं को जमा करने की रसीद अवश्य प्राप्त कर लें।

MIT- 09 (Discrete Mathematics)

1. Define Harmonic Mean (H.M.) of two given numbers relation between A.M., G.M. &H.M.? [5]
2. How we can represent the set & notation, define types of sets? [5]
3. Explain Fundamental Theorem of Homomorphism? [5]
4. Define the terms: - [5]
 - a. Real Valued Map
 - b. Graph of a Function
5. Define Boolean algebra & its application? With examples? [5]
6. Define vector space? [5]

MIT- 10 (Advanced JAVA)

1. Describe all data types in java? [5]
2. What is overriding & overloading? Give the example of constructor overloading? [5]
3. Why we are using Runnable interface? [5]
4. Write a program in which deadlock condition occurring? [5]
5. Describe all input & output stream used in java? [5]
6. What is JavaBeans? What are the advantages of JavaBeans? [5]

MIT- 11 (Microprocessor & Assembly Language Programming)

1. Explain the Evolution of Microprocessor? [5]
2. Define bus architecture of a basic microprocessor? [5]
3. Write an instruction format of 8086? [5]
4. Explain in detail interrupts? [5]
5. Define instruction set of 8086? [5]
6. Write a short note on DEC? [5]

MIT- 12 (Numerical Methods & Statistical Analysis)

1. From the following table: - [5]

Marks of students	0 – 10	10 – 20	20 – 30	30 – 40	40 – 50
No. of students	17	20	30	18	15

- a. Find mean, median & mode.
 - b. What is the percentage of the students scoring more than 25 marks in test.
2. The mean weight of 100 students is 50 kg and stand deviation is 5 kg. Assuming that weight is normally distributed, find how may student weight lie between 30 and 55 kg? [5]
 3. Show that mean deviation from the mean of the normal distribution is about 4/5 of its standard deviation? [5]
 4. Solve the following differential equation by Runge- Kutta method forth method:-
 - i. $dy / dx = 2xy$
 - ii. $y(0) = 0.5$Solution for $1 \geq x \geq 0$ [5]
 5. Define sampling theory? [5]
 6. Define statistics and scope of statistics? [5]

MIT- 13 (ARTIFICIAL INTELLIGENCE)

1. Define and explain the meaning of the term “Artificial Intelligence”? [5]
2. What do you mean by probabilistic reasoning? Give an example? [5]
3. Convert the following sentences to predicate logic:-
 - i. Marcus was a man
 - ii. Alive means not dead [5]
4. Explain A* algorithm? [5]
5. Write short note on expert systems? [5]
6. Explain common sense reasoning? [5]

MIT- 14 (COMPUTER GRAPHICS)

1. Explain three- dimensional clipping? [5]
2. What is uniform scaling and shearing? Explain with example [5]
3. Give complete implementation in C/C++ of midpoint algorithm to generate a circle $(x-2)^2 + (y-3)^2 = 16$ [5]
4. Write short note on scan conversion algorithm? [5]
5. Briefly explain various devices for graphical input data? [5]
6. Write down the Liang - Barsky algorithm for the line clipping [5]

MIT- 16 (SIMULATION & MODELING)

1. Differentiate between Discrete & Continuous probability function? [5]
2. What are the characteristics of a queuing system? Derive the poison's formula? [5]
3. What do you understand by the term priority? [5]
4. What do you mean by System Dynamics? [5]
5. Discuss the simulation of system dynamics model with the help of a suitable example? [5]
6. Write a short note on expression based languages in detail? [5]

MIT- 16 (SOFTWARE ENGINEERING)

1. What is prototype model? Under what circumstances it is beneficial to construct a prototype model? [5]
2. Explain what do you mean by Business Area Analysis? [5]
3. Discuss various design concepts? [5]
4. Differentiate between structural and functional testing? [5]
5. What are the different categories of software according to the COCOMO estimation model? [5]
6. Write short note on the following: - [5]
 - a. Computer Aided Software Engineering Tools
 - b. Object –oriented analysis

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M.Sc. (Information Technology)

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Assignment -02 (2010-2011)

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Min. Marks: 15

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MIT- 09 (Discrete Mathematics)

1. Define Arithmetic Progression? [5]
2. What is DE- Morgan's Law? With example? [5]
3. Explain the theorem of subgroups? [5]
4. Define the terms: - [5]
 - a. Vector space
 - b. Boolean algebra
 - c. Ring
5. Define Linear Transformation & its application? [5]
6. Design the circuit for following:- [5]
 - a. $(xy+z)(t+x'y)$
 - b. $x+y(z+st)+uv$

MIT- 10 (Advanced JAVA)

1. Differentiate between java and JavaScript? [5]
2. What is constructor chaining? Describe with example? [5]
3. How we can handle Exception in java? What is user define exception? [5]
4. Why we are using clone and cloneable interface? With example? [5]
5. Briefly describe to Applet life cycle? [5]

- How we can establish connection with the database in java. Describe the steps which are followed for establish a connection with the database? [5]

MIT- 11 (Microprocessor & Assembly Language Programming)

- Explain the Intel Pro-Pentium? [5]
- Define RISC & CISC? [5]
- Define Cache memory and cache controllers? [5]
- Explain in detail interfaces? [5]
- Explain pin diagram of 8086? [5]
- Write a short note on Assembler Directives and Operators? [5]

MIT- 12 (Numerical Methods & Statistical Analysis)

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 Solution for $1 > x >= 0$ [5]
 - Define sampling theory? [5]
 - Define statistics and scope of statistics? [5]

MIT- 13 (ARTIFICIAL INTELLIGENCE)

- What are the characteristics of a “A I” program or programs? [5]
- Write short note on AO* algorithm? [5]
- Construct partitioned semantics net representation for the following:-
 - Every batter hit a ball
 - Amit gave the book to aruna
 [5]
- What do you understand by the representation of knowledge? [5]
- What are the characteristics of expert systems? [5]

6. What is natural language processing? Explain various steps required? [5]

MIT- 14 (COMPUTER GRAPHICS)

1. What do you understand by computer graphics? Explain the basic components of a computer graphics display? [5]
2. What do you mean by scan-conversion? Mention some of the side effects of scan – conversion? [5]
3. Explain the raster-scan displays. What is interlacing? [5]
4. Explain the following input devices:- [5]
 - a. spaceball
 - b. data glove
5. List some of the important properties to be kept in mind while designing curves? [5]
6. What do you understand by transformation? [5]

MIT- 16 (SIMULATION & MODELING)

1. Explain verification & validation of simulation models? [5]
2. What are pros and cons of simulation techniques? [5]
3. List and explain the various concepts that describe a system? [5]
4. What do you mean by block structured simulation language? [5]
5. What are the guidelines for testing validity of simulation system? [5]
6. Explain the features of simulation language STELLA? [5]

MIT- 16 (SOFTWARE ENGINEERING)

1. What do you mean Requirement Analysis? What are the desirable characteristics of a good software requirement specification document? [5]
2. Explain Black box testing. Differentiate it with white box testing? [5]
3. Why is highly coupled module difficult to unit test? [5]
4. Differentiate between cohesion & coupling. How are the concepts of coupling and slow probability related? [5]
5. Distinguish between software verification and software validation? [5]
6. Write short note on the following: - [5]
 - a. Real time design
 - b. Software tools
 - c. Software configuration Management