

General Guidelines

for

Assignment + Oral (AO) Mode

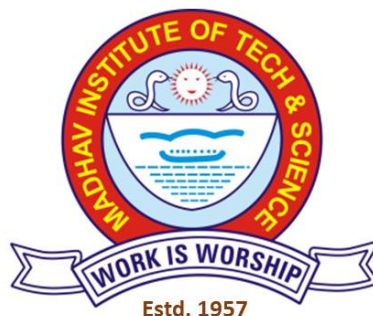
of

End Semester Theory Examination

UNDER



Internal Quality Assurance Cell



MADHAV INSTITUTE OF TECHNOLOGY & SCIENCE, GWALIOR

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General Guidelines for Assignment + Oral (AO) mode of End Semester

Theory Examination

These guidelines are to be followed by the faculty members / panel of faculty members conducting end semester theory examination in Assignment + Oral (A+O) mode for the courses such as Introduction to Computer Programming

1. The exam of the 'Assignment Question Paper' is to be conducted for 02 Hrs. duration
2. The Assignment Question Paper will be distributed by the examination section and the solution will be submitted by the students to the concerning faculty members/ panel of faculty members going to conduct the Oral exam.
3. The Mark distribution will be as per the following

Total Marks	Assignment Weightage	Oral Weightage
60	40	20

4. The Assignment Question Paper will have Four (04) Questions. Out of the four questions, it is required to solve two (02) questions.
5. The assignment part will cover the entire syllabus of the course and it must be framed on the basis of learning-teaching (discussion/exercises/workshop/hands on Lab sessions, etc.) activity conducted for the complete semester.
6. **There will be no theoretical / descriptive type questions in the Assignment Question Paper.**
7. The nature of questions should be - to judge the creative ability and innovativeness. Therefore, open ended problems need to be designed which can have multiple solutions / solution approaches. Moreover, the problems leading to small code segments/functions for newly created scenarios /context can also be given.
8. The assignment paper is to be prepared on the basis of Bloom's cognitive levels/ learning levels, which at least reflects the ability of applying, analyzing and evaluating, as detailed below:

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Apply	
Skill demonstrated	Verbs
<ul style="list-style-type: none"> • Use information • Use Concepts, methods, laws, theories in new situations • Solve problems using required skills or knowledge • Demonstrate correct usage of a method, concept or procedure 	Calculate, Predict, Apply, Solve, illustrate, use, demonstrate, determine, model, experiment, show, examine, modify

Analyze	
Skill demonstrated	Verbs
<ul style="list-style-type: none"> • Break down a complex problem into parts • Identify the relationships and interaction between the different parts of complex problem 	Classify, Outline, Break down, categorize, analyze, infer.

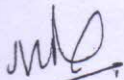
Evaluate	
Skill demonstrated	Verbs
<ul style="list-style-type: none"> • Use of definite criteria for judgment • Verify value of evidence • Assess value of theories, concepts • Make choices based on reasoned argument • Compare and discriminate between ideas • Recognize subjectivity 	Assess, decide, choose, rank, grade, test, measure, defend, recommend, judge, conclude, justify, compare, evaluate

9. The oral part (weightage 20 marks) will be evaluated by a panel of examiners. The oral examination will be based on the submitted answer sheet of the students and hence it will be conducted individually for each student and not in a batch.
10. The viva voce/oral must have the primary focus on assessing the knowledge / skill set used towards the solution approach of the given problem (i.e. to check / judge the ability of the student).

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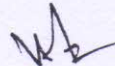
**GUIDELINES FOR OPEN BOOK BASED EXAMINATION TO BE
CONDUCTED IN PEN AND PAPER MODE**

1. The duration of examination will be of 2hrs for B. Tech/B. Arch and 3 hrs for M.Tech/ME/MUP/MBA/MCA.
2. Approx 40 % questions will be from Low Order Thinking Skills (LOTS) and approx 60% will be of High Order Thinking Skills (HOTS) category i.e. 24/28 marks questions will be of LOTS and 36/42 marks questions will be of HOTS category for Maximum marks 60/70.
3. Questions based on remembering/recall of information like facts, definition, technical terms, classification, methodology, principles or procedures and understanding/ comparing the information will be categorized under LOTS (Refer Annexure-I for examples of LOTS).
4. HOTS Questions will be designed in such a way that allows students to refer either class notes, textbooks or other approved material while answering the questions.
5. The level of HOTS questions must be from the higher level of Bloom's taxonomy to assess the skills in application of knowledge, analysis and evaluation rather than recall of facts (Refer Annexure II for examples of HOTS).
6. HOTS Questions can reflect real life situation that require comprehension, information retrieval and synthesizing skills of the students to solve.
7. It is to be ensured that students are able to solve the question paper within the given time frame, as the nature of 60% questions is of higher level of learning or HOTS.


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**NECESSARY GUIDELINES TO BE FOLLOWED FOR FRAMING QUESTIONS UNDER LOTs
CATEGORY**

1. REMEMBERING .

Skill Demonstrated	Question Ques / Verbs for tests
<ul style="list-style-type: none"> • Ability to recall of information like, facts, conventions, definitions, jargon, technical terms, classifications, categories, and criteria • ability to recall methodology and procedures, abstractions, principles, and theories in the field • knowledge of dates, events, places • mastery of subject matter list 	define, describe, state, recite, recall, identify, show, label, tabulate, quote, name, who, when, where

e.g.

1. State Ohm's law
2. List the physical and chemical properties of silicon
3. List the components of A/D converter
4. List the arithmetic operators available in C in increasing order of precedence.
5. Define the purpose of a constructor.
6. Define the terms: Sensible heat, Latent heat and Total heat of evaporation
7. List the assembler directives.
8. Describe the process of galvanisation and tinning
9. Write truth table and symbol of AND, OR, NOT, XNOR gates
10. Define the terms: Stress, Working stress and Factor of safety.
11. What is the difference between declaration and definition of a variable/function?
12. List the different storage class specifiers in C.
13. What is the use of local variables?
14. What is a pointer to a pointer?
15. What are the valid places for the keyword "break" to appear? 16.
16. What is a self-referential structure?

2. UNDERSTANDIG

Skill Demonstrated	Question Ques / Verbs for tests
<ul style="list-style-type: none"> • understanding information • grasp meaning • translate knowledge into new context • interpret facts, compare, contrast • order, group, infer causes • predict consequences 	describe, explain, paraphrase, restate, associate, contrast, summarize, differentiate interpret, discuss

e.g

1. Derive the expression for the transient current in a series 'R-L' circuit when a 'dc' voltage of V volts is applied. Sketch time variation of current in the circuit.
2. Explain the working of a practical transformer with relevant phasor diagram. and define voltage regulation.
3. A two pole 3 phase 50 Hz induction motor is running on load with a slip of 4%. Calculate the actual speed and the synchronous speed of the machine. Sketch the speed/ load characteristic of the machine Explain the working principle of a single phase pulse width modulated voltage source inverter with relevant circuit diagram and draw the output voltage wave form.

NECESSARY GUIDELINES TO BE FOLLOWED FOR FRAMING QUESTIONS UNDER HOTs CATEGORY

1. APPLYING

Skill Demonstrated	Question Ques / Verbs for tests
<ul style="list-style-type: none"> • use information • use methods, concepts, laws, theories in new situations • solve problems using required skills or knowledge • Demonstrating correct usage of a method or procedure 	calculate, predict, apply, solve, illustrate, use, demonstrate, determine, model, experiment, show, examine, modify

e.g.

1. Model and realize the following behaviors using diodes with minimum number of digital inputs. (i) Turning on of a burglar alarm only during night time when the locker door is opened.
(ii) Providing access to an account if either date of birth or registered mobile number or both are correct.
(iii) Updating the parking slot empty light in the basement of a shopping mall.
2. One of the resource persons needs to address a huge crowd (nearly 400 members) in the auditorium. A system is to be designed in such a way that everybody attending the session should be able to hear properly and clearly without any disturbance. Identify the suitable circuit to boost the voice signal and explain its functionality in brief.
3. A ladder 5.0 m long rests on a horizontal ground & leans against a smooth vertical wall at an angle 200 with the vertical. The weight of the ladder is 900 N and acts at its middle. The ladder is at the point of sliding, when a man weighing 750 N stands on a rung 1.5 m from the bottom of the ladder. Calculate the coefficient of friction between the ladder & the floor.
4. An electric train is powered by machine which takes the supply from 220 V DC rail running above the train throughout. Machine draws current of 100 A from the DC rail to account for high torque during starting and runs at 700 r.p.m initially. Calculate the new speed of the train once it picks up the speed Appendix 38 where the torque output required is only 70% of starting torque. Assume the motor has a resistance of 0.1Ω across its terminals.
5. Write an algorithm to implement a stack using queue.

2. ANALYSING

Skill Demonstrated	Question Ques / Verbs for tests
<ul style="list-style-type: none"> • break down a complex problem into parts. • Identify the relationships and interaction between the different parts of complex problem 	classify, outline, break down, categorize, analyse, diagram, illustrate, infer, select

e.g.

1. A class of 10 students consists of 5 males and 5 females. We intend to train a model based on their past scores to predict the future score. The average score of females is 60 whereas that of male is 80. The overall average of the class is 70. Give two ways of predicting the score and analyse them for fitting model.
2. Suppose that we want to select between two prediction models, M1 and M2. We have performed 10 rounds of 10-fold cross-validation on each model, whereas the same data partitioning in round one is used for both M1 and M2. The error rates obtained for M1 are 30.5, 32.2, 20.7, 20.6, 31.0, 41.0, 27.7, 26.0, 21.5, 26.0. The error rates for M2 are 22.4, 14.5, 22.4, 19.6, 20.7, 20.4, 22.1, 19.4, 16.2, 35.0. Comment on whether one model is significantly better than the other considering a significance level of 1%.
3. Return statement can only be used to return a single value. Can multiple values be returned from a function? Justify your answer.
4. Bob wrote a program using functions to find sum of two numbers whereas Alex wrote the statements to find the sum of two numbers in the main() function only. Which of the two methods is efficient in execution and why?

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5. Carly wants to store the details of students studying in 1st year and later on wishes to retrieve the Examination Reform Policy 39 information about the students who score the highest marks in each subject. Specify the scenario where the data can be organized as a single 2-D array or as multiple 1-D arrays.

3.EVALUATING

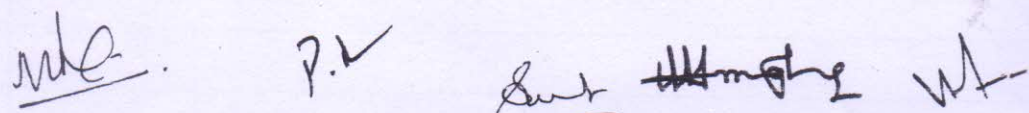
Skill Demonstrated	Question Ques / Verbs for tests
<ul style="list-style-type: none"> • compare and discriminate between ideas • assess value of theories, presentations • make choices based on reasoned argument • verify value of evidence • recognize subjectivity • use of definite criteria for judgments 	assess, decide, choose, rank, grade, test, measure, defend, recommend, convince, select, judge, support, conclude, argue, justify, compare, summarize, evaluate

4.CREATING

Skill Demonstrated	Question Ques / Verbs for tests
<ul style="list-style-type: none"> • use old ideas to create new ones • Combine parts to make (new) whole, • generalize from given facts • relate knowledge from several areas • predict, draw conclusions 	design, formulate, build, invent, create, compose, generate, derive, modify, develop, integrate

Both higher order cognitive skills 'Evaluate' and 'Create' need to be assessed in variety of student works like open ended problem solving exercises etc. Typical examples of problem statements or need statements which need higher order abilities to solve are given below:

1. Automatic tethering of milking machine to the udder of a cow. A milk diary wants to automate the milking process. The milking process involves attaching the milking cups to the teats. Design a system for the same.
2. An electric vehicle uses LiON batteries. The batteries have to be charged and get discharged during use. Appendix 40 The batteries require continuous monitoring during charging and discharging so that they remain healthy and yield a long life. Design a system to monitor and manage the health of the batteries.
3. A Biotech industry needs automation for filling its product into 20 ltr bottles. Design a system to meter the flow into the bottles so that each bottle has 20 ltr of the liquid. There will be more than one filling station and the system has to monitor all the filling stations as well as keep count of the total production on a daily basis.
4. Microwave Doppler radar with a range of 9m are available for motion detection. Design a surround view monitoring system for a 3 wheeler to detect human obstacles while the vehicle is in motion.
5. Design a system to assist the driver by using cameras to detect lane markers and pedestrians while the vehicle is in motion.
6. Develop a small size USB 2.0 / 3.0 CMOS camera system which can be used for industrial inspection, medical applications, microscopy, etc. The system should be able to capture the image quickly and be able to process the captured image and then store it also


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..YEAR B.Tech. /B.Arch /ME/M.Tech /MCA /MBA /MUP EXAMINATION.....20....

SUBJECT CODE & NAME:

Time : 2 /3 Hours

Maximum Marks : 60/70

Minimum Pass Marks : 19/28

Note :

1. Answer all five questions. All questions carry equal marks.
2. In each question part a, b, c are compulsory and part d has internal choice. All Parts of each question are to be attempted at one place.
3. Assume suitable value for missing data, if any.

Question No.		Marks	CO	Bloom's level
1.	(a)	01/02		
	(b)	02		
	(c)	03		
	(d)	06/07		
	OR			
	(e)	06/07		
2.	(a)	01/02		
	(b)	02		
	(c)	03		
	(d)	06/07		
	OR			
	(e)	06/07		
3.	(a)	01/02		
	(b)	02		
	(c)	03		
	(d)	06/07		
	OR			
	(e)	06/07		
4.	(a)	01/02		
	(b)	02		
	(c)	03		
	(d)	06/07		
	OR			
	(e)	06/07		
5.	(a)	01/02		
	(b)	02		
	(c)	03		
	(d)	06/07		
	OR			
	(e)	06/07		

Please write Bloom's Taxonomy Levels as follows:

(1- Remembering, 2- Understanding, 3 – Applying, 4 – Analysing, 5 – Evaluating, 6 - Creating)

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