INSTITUTE OF AERONAUTICAL ENGINEERING

(Autonomous)

Dundigal, Hyderabad - 500 043

INFORMATION TECHNOLOGY

ASSIGNMENT QUESTIONS

Course Name	:	DESIGN PATTERNS
Course Code	:	A70530
Regulations	:	R15 - JNTUH
Class	:	IV B. Tech I Semester
Branch	:	Information Technology
Year	:	2018– 2019
Course Coordinator	:	Ms. B.REKHA, Assistant Professor, IT
Course Faculty	:	Ms. B.REKHA, Assistant Professor, IT

OBJECTIVES

To meet the challenge of ensuring excellence in engineering education, the issue of quality needs to be addressed, debated and taken forward in a systematic manner. Accreditation is the principal means of quality assurance in higher education. The major emphasis of accreditation process is to measure the outcomes of the program that is being accredited.

In line with this, Faculty of Institute of Aeronautical Engineering, Hyderabad has taken a lead in incorporating philosophy of outcome based education in the process of problem solving and career development. So, all students of the institute should understand the depth and approach of course to be taught through this question bank, which will enhance learner's learning process.

ASSIGNMENT – I

S. No	Question	Blooms Taxonomy Level	Course Outcome
	UNIT - I		
1.	List the advantages of design patterns. Write short notes on use of design patterns.	Remember	2
2.	Discuss the MVC architecture in small talk.	Understand	2
3.	Explain how to describe design patterns.	Understand	1
4.	List the different sections of design patterns. Explain about them.	Remember	1
5.	Name the patterns along with their intents that are included in the catalog of design patterns.	Understand	2
6.	State and explain the classification of design patterns.	Remember	3
7.	List the various ways of organizing the design patterns.	Remember	2
8.	Compare inheritance verses parameterized types.	Understand	3
9.	Explain the Design patterns relationships	Understand	2
10.	Compare run-time and compile-time structure	Understand	4

11.	List the common causes for redesigning of design patterns	Remember	3
12.	Explain the Frameworks in detail	Understand	2
13.	Write about the role of Toolkit in designing pattern	Understand	2
14.	Explain how Delegation is used in design pattern	Remember	2
15.	Explain the Catalogs of design patterns	Understand	2
UNIT - II			
1.	Explain the process of recursive composition in building a document.	Understand	2
2.	Explain in detail about the 'Glyph' abstract class.	Understand	3
3.	Discuss the goals and constraints in choosing an internal representation for a document.	Understand	3
4.	Explain partial Glyph class hierarchy with a neat diagram.	Understand	3
5.	Explain composition and compositor class relationship with a neat diagram.	Understand	5
6.	Define formatting. How can the textual analysis problem of document editor be solved using design patterns?	Remember	4
7.	Discuss the two embellishments that can be added to Lexi's user interface. Signify the role of decorator pattern in embellishment.	Understand	4
8.	Explain about abstracting object creation in detail.	Understand	6
9.	Memorize the useful techniques for implementing the abstract factory pattern.	Remember	2
10.	Give the sample code for abstract factory design pattern.	Understand	2
11.	Explain the implementation of abstract factory.	Understand	5
12.	Discuss about structure, applicability, participants of abstract factory method.	Understand	4
13.	Discuss the implementation issues of builder design pattern.	Understand	4
14.	Explain the structure of builder design pattern with class diagram and describe the collaboration with a sequence diagram.	Understand	7
15.	Describe in detail about how Multiple Window Systems is supported	Remember	7
UNIT – III			
1.	Describe the intent, motivation and applications of composite patterns.	Remember	8
2.	Discuss the importance of implementation in composite structural pattern.	Understand	7
3.	Give the intent, applicability and structure of composite design pattern and explain it.	Understand	9
4.	Explain the structure of composite pattern with a class diagram.	Understand	6
5.	Describe the consequences of composite design pattern.	Remember	9
6.	Explain composite pattern with an example from drawing editor.	Understand	7

7.	Explain the structure of decorator pattern with suitable example.	Understand	9
8.	Explain the motivation for decorator method with relevant patterns.	Understand	7
9.	Sketch the structure of composite pattern.	Remember	9
10.	Define composite and Proxy pattern	Understand	6

<div align="center">**ASSIGNMENT – II**</div>

1.	Explain the structure of decorator design pattern with a class diagram.	Understand	11
2.	Explain the structure of façade design pattern with class diagram and consequences.	Understand	10
3.	Define Intent and Consequences of bridge pattern.	Remember	10
4.	Define Façade pattern.	Understand	12
5.	Define decorator pattern.	Understand	12
6.	Explain the structure of Proxy design pattern with a class diagram.	Remember	11
7.	Explain the structure of Adapter design pattern with class diagram and consequences.	Understand	10
8.	Define Intent and Consequences of bridge pattern	Remember	12
9.	Define Façade pattern.	Understand	11
10.	Define decorator pattern.	Understand	12

<div align="center">**UNIT – IV**</div>

1.	Explain the uses of command design pattern and its structure with class diagram. Also explain the implementation issues.	Understand	12
2.	Explain the implementation and consequences of command pattern.	Remember	14
3.	Explain the implementation issues of command pattern with sample code.	Understand	14
4.	Explain the collaborations and consequences of command method.	Understand	14
5.	Explain the interpreter design pattern and discuss the consequences and implementation issues.	Understand	14
6.	Explain the structure of mediator design pattern with a class diagram and discuss the collaboration with a sequence diagram.	Understand	13
7.	Discuss about intent, motivation, structure, applicability and consequences of a mediator behavioral pattern.	Remember	12
8.	Explain the participants, collaborations, implementation and sample code of the mediator pattern.	Understand	12
9.	Explain the known uses of memento method.	Understand	12
10.	Explain the uses of Chain of Responsibility design pattern and its structure with class diagram. Also explain the implementation issues.	Understand	11
11.	Explain the Observer design pattern and discuss the consequences and implementation issues.	Understand	12
12.	Discuss the consequences and implementation issues of memento design pattern.	Remember	13
13.	Explain the uses of Iterator design pattern and its structure with class diagram	Understand	14

	UNIT – V		
1.	Explain the implementation issues of Strategy design pattern.	Understand	12
2.	Explain the implementation issues of observer design pattern.	Understand	12
3.	Explain how design patterns affect the way object-oriented software is designed.	Understand	13
4.	Discuss the several ways the design pattern affect the way object-oriented software is designed.	Remember	13
5.	Discuss design patterns as a supplement to the existing methods.	Remember	14
6.	Discuss the history of design patterns.	Remember	12
7.	Differentiate Alexander's patterns and Design patterns.	Remember	14
8.	Write about the two ways of grouping the patterns according to Christopher Alexander.	Understand	15
9.	Compare and contrast between Abstract Class vs Concrete Class	Understand	15
10.	Discuss about Alexander's pattern languages	Remember	12
11.	Discuss a briefly history of design patterns	Remember	12
12.	Discuss the consequences and implementation issues of Visitor design pattern.	Understand	14
13.	Discuss about intent, motivation, structure, applicability and consequences of a Template Method behavioral pattern.	Remember	13
14.	Explain the State design pattern and discuss the consequences and implementation issues.	Understand	13
15.	Write the sample code for Template method and Visitor patterns	Understand	15

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