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IT'S HARD TO BEAT A PERSON WHO NEVER GIVES UP.

Babe Ruth, American professional baseball player
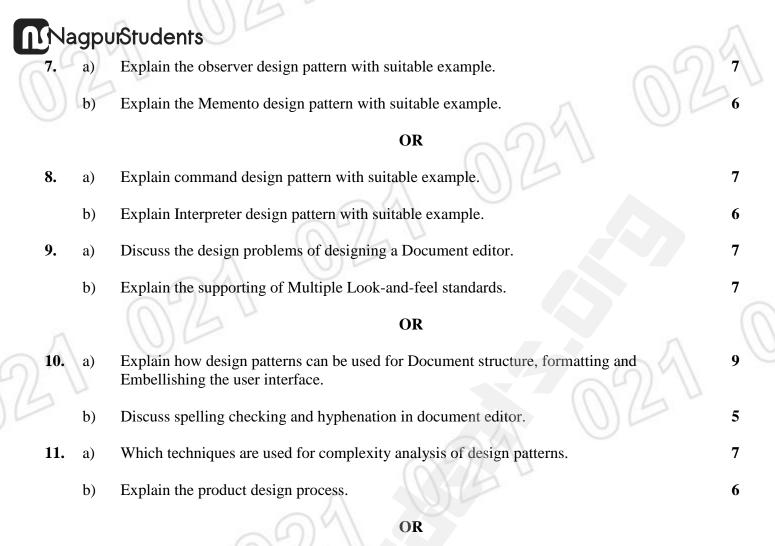
B.E. (Computer Science Engineering) Sixth Semester (C.B.S.)

Design Patterns

P. Pages : 2

NRJ/KW/17/4546

Time : Three Hours

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0129

Max. Marks : 80

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Notes :
1. All questions carry marks as indicated.
2. Solve Question 1 OR Questions No. 2.
3. Solve Question 3 OR Questions No. 4.
4. Solve Question 5 OR Questions No. 6.
5. Solve Question 7 OR Questions No. 8.
6. Solve Question 9 OR Questions No. 10.
7. Solve Question 11 OR Questions No. 12.
8. Due credit will be given to neatness and adequate dimensions.
9. Assume suitable data whenever necessary.
10. Illustrate your answers whenever necessary with the help of neat sketches.

1. a) What do you mean by Design Patterns? Explain with suitable example. **7**

   b) Explain the concept of software reusability used in design patters. **6**

OR

2. a) What are the different types of Design Patterns? **6**

   b) Explain the applications of design patterns. **7**

3. a) Consider a business case of fast-food restaurant where a typical meal could be a burger and cold drink. Burger could be either a veg burger or chicken burger and will be packed by a wrapper. Cold drink could be either a coke or Pepsi and will be packed in a bottle. Draw a class diagram to implement this business case using a Builder Design Pattern. **10**

   b) What are the characteristics of creational design patterns? **4**

OR

4. a) Explain singleton design pattern with suitable example. **7**

   b) Explain abstract factory pattern with suitable example. **7**

5. a) Explain the significance of Bridge design pattern in object oriented programming. **7**

   b) Explain the flyweight design pattern with suitable example. **6**

OR

6. Consider an example in which an audio player device can play mp3 files only and wants to use an advanced audio player capable of playing VLC and mp4 files. Create an interface 'Media Player' and concrete class 'Audio Player' implementing the Media Player interface 'Audio Player' can play mp3 format audio files by default. Use adaptor design pattern to implement this design pattern. **13**

| 7. | a) | Explain the observer design pattern with suitable example. | 7 |
| | b) | Explain the Memento design pattern with suitable example. | 6 |

OR

8.	a)	Explain command design pattern with suitable example.	7
	b)	Explain Interpreter design pattern with suitable example.	6
9.	a)	Discuss the design problems of designing a Document editor.	7
	b)	Explain the supporting of Multiple Look-and-feel standards.	7

OR

10.	a)	Explain how design patterns can be used for Document structure, formatting and Embellishing the user interface.	9
	b)	Discuss spelling checking and hyphenation in document editor.	5
11.	a)	Which techniques are used for complexity analysis of design patterns.	7
	b)	Explain the product design process.	6

OR

| 12. | a) | Discuss complexity analysis of design patterns. | 7 |
| | b) | Explain applications of design pattern in game design. | 6 |

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The best time to plant a tree was 20 years ago. The second best time is now.

~ Chinese Proverb