

Sem. III / CBSGS / Comp / IT / Object Oriented Prog.
Methodology / 07.06.18

QP CODE : 40342

(3 Hours)

Marks : 80

N.B 1) Question no. 1 is compulsory.

2) Attempt **any three from remaining** questions.

- Q. 1 a** What is the need for constructor in a class ? [10]
Develop a class circle with instance variable radius that is initialized using constructor. Create 2 methods in the class to calculate area and perimeter of circle.
- b** Explain static data members and methods in a class [5]
- c** Compare method overloading and overriding with an example each. [5]
- Q. 2 a** Explain different types of relationships among entities. [10]
Define the relationships among the objects of given sentences:
1) Customer has Account.
2) CurrentAccount, SavingsAccount is a kind of Account.
3) Customer makes payment
- b** What is a thread? Which are the two ways to create a thread? [10]
Write a program to show interleaving of actions from 2 thread: t1 and t2 synchronizing on a shared object.
t1 print message "ping" and t2 print message "pong".
- Q. 3 a** An online shopping application requires a customer to have an account. Each customer has unique id and is linked to exactly one account. Account owns shopping cart and orders. Customer has to register as a web user and can make only online purchases. Every user has a login name which is unique. User could have multiple states, new, active, temporary blocked or banned and is linked to shopping cart. Shopping cart belongs to account. Customer add products to shopping cart and then create order. Each order has order status. Both order and shopping cart have line items linked to a specific product. There is payment associated with every order. [10]
Draw class diagram for the given scenario. Show the class attributes and methods and class relationships.
- b** Explain different types of coupling and cohesion [10]

- Q. 4 a** How does do-while construction differ from that of while loop? [10]
Write a program that has 2 methods. The first method reads a list of numbers terminated by -999 into an ArrayList. The second method displays the second largest value in the list.
- b** What is checked and unchecked exception in Java? Explain the use of following in exception handling. [5]
Try-Catch, Finally, Throw, Throws
- c** Write an applet program to display [5]



- Q. 5 a** Explain creation of user defined package with an example. [10]
- b** Implement a class AnotherRectangle that extends Rectangle class and overrides the equals(...) method inherited from Object. Implement equals(...) so that 2 objects belonging to AnotherRectangle are equal if they agree in both length and width. [10]
Set length and width of rectangle using constructor.
- Q. 6 a** Differentiate between interface and abstract class. [10]
- b** Write short note on access specifiers. [5]
- c** Explain "write once and run anywhere" nature of Java. [5]
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