

NATIONAL INSTITUTE OF BUSINESS MANAGEMENT

BSc (Hons) Computing | ITB | EHN-19.1-Year 1

Diploma in Computer System Design | Software Engineering -19.1

Object Oriented Programming

NIB-SOC-ITB-1-3-05/NIB-SOC-COM-1-3-06

Time allowed: Two hours

28th August 2018, 9am-11am

INSTRUCTIONS TO CANDIDATES

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| <ul style="list-style-type: none">• This paper contains 4 questions.• The total marks obtainable for this examination is 100.• Marks of each question is indicated• This is a closed book examination.• Answer ALL questions. |
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ADDITIONAL MATERIALS

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| <ul style="list-style-type: none">• None |
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1.

a. Write short answers to illustrate each of following

i. Object Oriented Programming

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.....

ii. Class

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.....

iii. Object

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.....

iv. Protected member of a class

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.....

v. Public member of a class

.....
.....

(5*2 Marks)

b. Underline three errors of the program given below. (Don't underline entire line)

```
class Payment
{   float amount;
    public:
        setAmount(x);
        {
        }
}
```

(03 Marks)

c. Rewrite the program corrected

.....
.....
.....
.....
.....

(04 Marks)

2.

a. What is constructor in object-oriented programming?

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.....
.....

(02 Marks)

b. List three features of a constructor?

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.....
.....

(03 Marks)

c. A Bank offers several credit cards for their customers. Each card has card number, loan amount and interest rate(annual). Write an object-oriented program in C++ to perform following.

- i. Set data for card number, loan amount and interest rate(annual) of two credit cards using constructor.
- ii. Calculate interest amount(annual) of each credit card.
- iii. Use destructor

(20 Marks)

3.

a. Briefly explain following terms.

i. Super class

.....
.....

(02 Marks)

ii. Sub class

.....
.....

(02 Marks)

b. A hotel has been opened for several guests. The Guest has attributes, guest id and guest bill amount. The Foreign Guest has tax rate which is applied for bill amount of them.

Write an object-oriented application to perform following tasks. You are required to identify classes, relationship(s) between classes and use appropriate functions to write the program.

- i. Set data for id, bill amount and tax rate of one foreign guest in the hotel.
- ii. Calculate final bill amount of foreign guest.
- iii. Output final bill amount of the foreign guest.

(25 Marks)

4.

a. Briefly explain following.

i. Function Overloading

.....
.....

(02 Marks)

ii. Operator Overloading

.....
.....

(02 Marks)

b. The class Food has attributes unit price and number of units bought. This class uses a function/constructor to initialize each attribute and pure virtual function getBill() to calculate and display amount of a food bill.

The class Delivery_Food has delivery charge. This class uses a function/constructor to initialize delivery charge and overrides getBill() to calculate and display amount of a delivered food bill.

- i. Set data for unit price, number of units bought and delivery charge of one delivered food.
- ii. Calculate bill amount of the delivered food.
- iii. Output bill amount of the delivered food.

(25 Marks)