BIRLA INSTITUTE OF TECHNOLOGY, MESRA, RANCHI
(MID SEMESTER EXAMINATION)

CLASS: BE **SEMESTER: III**
BRANCH: IT **SESSION : MO/2018**

SUBJECT : IT3023 JAVA PROGRAMMING

TIME: 1.5 HOURS **FULL MARKS: 25**

INSTRUCTIONS:
1. The total marks of the questions are 30.
2. Candidates may attempt for all 30 marks.
3. In those cases where the marks obtained exceed 25 marks, the excess will be ignored.
4. Before attempting the question paper, be sure that you have got the correct question paper.
5. The missing data, if any, may be assumed suitably.

Q1 (a) In "myclass" there is a method called "mymethod" with four different overloaded forms. All four different forms have different visibility (private, protected, public and default). Is "mymethod" properly overloaded. [2]

(b) Differentiate between JDK, JVM and JRE. [3]

Q2 (a) Can you access a non static variable in the static context? [2]

(b) Can a called method manipulate the caller's object directly? If no, why? If yes, how? What are the basic scope rules? [3]

Q3 (a) What does the compiler do if you do not provide a default constructor? [2]

(b) Create a class Date with constructor. Check the "month" entered by user to be between 1 and 12. Check the day to be between 1 and 31. Check the "day" to be between 1 and 31 only for months January, march, may, july, august, October, December and 30 for the rest of the months. Check day for February to be between 1 and 28 only, except for leap year. In case it's a leap year, check it to be between 1 and 29. Create a class employee that uses Date objects for "date of birth" and "date of hire". [3]

Q4 (a) What is composition? Explain static keyword with an illustrative program. [2]

(b) Create a class Time with overloaded constructors- one with "hour" parameter, one with hour and minute as parameters, one with hour, minute and second as parameter and one with time class object as parameter. Create set hour, setminute and setsecond methods. Create gethour, getminute and getsecond methods. Create a TestTime class to test this class and its methods. [3]

Q5 (a) What are abstract classes and abstract methods? [2]

(b) Is it necessary that a class that contains abstract method must be declared abstract even if it contains concrete methods? [3]

Q6 (a) Are private methods implicitly final? What is static binding? [2]

(b) Can an abstract static method be implemented? If yes, write an illustrative program. [3]

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