

**BIRLA INSTITUTE OF TECHNOLOGY, MESRA, RANCHI
(END SEMESTER EXAMINATION MO/SP20**)**

CLASS: BTECH/BARCH
BRANCH: BT/CP&P/CHEMICAL/CE/EEE/ECE/ME/PIE/ARCH

SEMESTER : V
SESSION : MO22

SUBJECT: CS204 OBJECT ORIENTED PROGRAMMING AND DESIGN PATTERNS
TIME: 03 Hours **FULL MARKS:** 50

INSTRUCTIONS:

1. The question paper contains 5 questions each of 10 marks and total 50 marks.
 2. Attempt all questions.
 3. The missing data, if any, may be assumed suitably.
 4. Tables/Data handbook/Graph paper etc., if applicable, will be supplied to the candidates
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- Q.1(a) Explain the meaning of bytecodes[CO1][PO2,3][BT2] [2]
Q.1(b) Explain the features of java.[CO1][PO2,3][BT2] [3]
Q.1(c) Create a class that has a method that calculates the number of vowels in a word input by user.[CO2][PO2,3][BT5] [5]
- Q.2(a) How do you pass arrays to methods?[CO2][PO2,3,4,5][BT3] [2]
Q.2(b) State the three types of loops in java.[CO2][PO2,3,4,5][BT1] [3]
Q.2(c) Create a class student. Create a static method that finds a count of all salaries above average in a static arraylist of salaries. It should also give a count of number of times the method is called.[CO2][PO2,3,4,5][BT5] [5]
- Q.3(a) Discuss final variables.[CO2][PO2,3][BT2] [2]
Q.3(b) Discuss enum in java. Create a java program that has an enum called days of week consisting of constants Monday, Tuesday, Wednesday, Thursday, Friday, Saturday and Sunday. Display Tuesday and Saturday.[CO2][PO2,3][BT2] [3]
Q.3(c) In which part of memory of a program, objects are stored in java?[CO2][PO2,3][BT1] [5]
- Q.4(a) Discuss checked and unchecked exceptions.[CO2][PO3,4][BT2] [2]
Q.4(b) Discuss the Layout managers[CO3][PO3,4][BT2] [3]
Q.4(c) Write an exception handling program that catches Arithmetic Exception, NullPointerException and NumberFormatException.[CO2][PO3,4][BT5] [5]
- Q.5(a) List the two ways to create a thread. [CO5][PO3,4,5][BT1] [2]
Q.5(b) Write a program to write a sentence to a file and then read it from the file and display on the screen.[CO4][PO3,4,5][BT5] [3]
Q.5(c) Discuss the methods sleep() and join() in multithreading.[CO5][PO3,4,5][BT2] [5]

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