

BINDURA UNIVERSITY OF SCIENCE EDUCATION

FACULTY OF SCIENCE AND ENGINEERING

DEPARTMENT OF COMPUTER SCIENCE

BSc HONS DEGREE IN ELECTRONIC ENGINEERING

EEE3202 SOFTWARE ENGINEERING APPLICATIONS

DURATION 2 HOURS 30 MINS

TOTAL MARKS 100

JUN 2023

Instructions to candidates:

Answer all questions

Question 1

a. Assuming that variable a holds 10 and variable b holds a 20 determine the output of the following SQL expressions:

- (i) $a=b$ [2]
- (ii) $a \neq b$ [2]
- (iii) $a!>b$ [2]
- (iv) $a \leq b$ [2]
- (v) $a <> b$ [2]

b. From data in Figure 1 write SQL statements to:

- i. Fetch ID, NAME AND SALARY fields from employees whose salary is more than 2000. [3]
- ii. Fetch NAME, AGE AND SALARY from employees who are earning 5000 or more and are less than 25 years old. [3]
- iii. Change address of Khilan from Delhi to Harare . [4]

ID	NAME	AGE	ADDRESS	SALARY
1	Ramesh	32	Ahmedabad	2000.00
2	Khilan	25	Delhi	1500.00
3	kaushik	23	Kota	2000.00
4	Chaitali	25	Mumbai	6500.00
5	Hardik	27	Bhopal	8500.00
6	Komal	22	MP	4500.00
7	Muffy	24	Indore	10000.00

Figure 1 Employees Table

Question 2

Write a program that allows the user to enter two numbers into two instance variables **Merator** and **Minator** of a class called **FloatingNumbers**. A method called **divide()** is used to determine the quotient of the two numbers. The program must handle an arithmetic exception and display the quotient. [20]

Question 3

Write a java program to connect to manipulate a database using JDBC allowing the user to add items and delete items from the database. [20]

Question 4

- Compare and contrast JSON and XML . [10]
- Figure 2 is an extract of JSON object schema that stores information related to website visitors. Write the corresponding JSON code. [6]

```

{
  "$schema": "http://json-schema.org/draft-04/schema#",
  "type": "object",
  "properties": {
    "email": {
      "type": "string"
    },
    "firstName": {
      "type": "string"
    },
    "lastName": {
      "type": "string"
    },
    "age": {
      "type": "integer"
    }
  }
}

```

Figure 2 JSON object schema

c. Outline the 4 main rules for JSON syntax rules

[4]

Question 5

Develop an HTML program that includes Javascript script to solve the following problem:

Input: A number n obtained using prompt

Output: A table of numbers from 1 to n and their squares using alert function as demonstrated by figure 3.

[20]

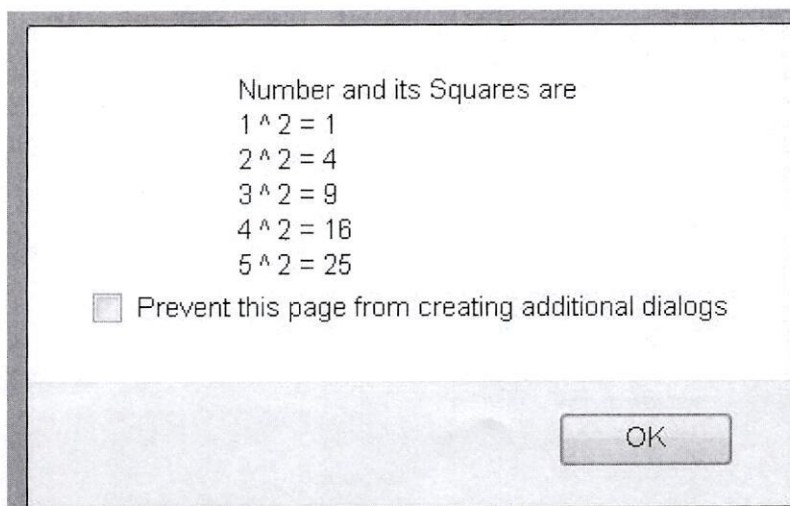


Figure 3: Square calculator

*****END OF EXAM*****