NATIONAL OPEN UNIVERSITY OF NIGERIA
University Village, 91 Cadastral Zone, Nnamdi Azikwe Expressway, Jabi, Abuja
FACULTY OF SCIENCES
COMPUTER SCIENCE DEPARTMENT
2021 EXAMINATIONS

CIT392 – Computer Laboratory   II
Credit: 2 units
TIME ALLOWED: 2½ Hours
INSTRUCTION: Answer Question 1 and any other THREE (3) Questions

Questions

1a) Discuss the imperative, functional and object-oriented programming paradigms.**(1.5marks)**

 b) State the features of ADA programming language. **(2.5 marks)**

 c) Construct the syntax for user-defined packages in Java. **(2 marks)**

 d) Construct a 5 by 4 array to contain integers (arbitrary) in C and print out the numbers. **($4\frac{1}{2}$ marks)**

 e) i.) Describe how the rules of operator precedence are applied in C++ (**$1\frac{1}{2}$mark)**

    ii) Write a Java program to find the mean of an array of 20 arbitrary values**. (4 marks)**

 f) i.) Explain the projection, selection and joining capabilities of SELECT statement in SQL.
($1\frac{1}{2}$ marks)

EMPLOYEE_ID	FIRST_NAME	LAST_NAME	SALARY	HIRE_DATE	DEPARTMENT_ID
100	Steven	King	24000	17-JUN-87	90
101	Neena	Kochhar	17000	21-SEP-89	20
102	Lex	De Haan	17000	13-JAN-93	40
103	Alexander	Hunold	9000	03-JAN-90	60
104	Bruce	Ernst	6000	21-MAY-91	60
105	David	Austin	4800	25-JUN-97	50
106	Valli	Pataballa	4800	05-FEB-98	50
107	Diana	Lorentz	4200	07-FEB-99	60
108	Nancy	Greenberg	12000	17-AUG-94	70
109	Daniel	Faviet	9000	16-AUG-94	100
110	John	Chen	8200	28-SEP-97	100
111	Ismael	Sciarra	7700	30-SEP-97	70
112	Jose Manuel	Urman	7800	07-MAR-98	100
113	Luis	Popp	6900	07-DEC-99	100
114	Den	Raphaely	11000	07-DEC-94	30
115	Alexander	Khoo	3100	18-MAY-95	80
116	Shelli	Baida	2900	24-DEC-97	30
117	Sigal	Tobias	2800	24-JUL-97	80
118	Guy	Himuro	2600	15-NOV-98	30
119	Karen	Colmenares	2500	10-AUG-99	30

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ii. Use the EMPLOYEES table above and listing the output:

I. Write a query to retrieve the last name and salary from the EMPLOYEES table for any employee whose salary is between 3000 and 3500. **(2.5 marks)**

II. Write a query that retrieves the employee ID, first name, last name and the department ID of employees in department 70. **(2.5 marks)**

III. Write a query to retrieve the last name and salary from EMPLOYEES table for any employee whose salary is less than or equal to 3000. **(2.5 marks)**

Total: 25

2. a. What is an Operating System? **(1 mark)**

b. Describe the concepts of (i) multitasking **(7 marks)**

(ii) Booting **(3 marks)**

c. Explain the major functions of kernel and shell in Linux**. (4 marks)**

3. a. Describe the different ways SQL queries may be sent to a database to deposit or extract data **(3 marks)**

b. Using the EMPLOYEES table in question1:

(i) A new employee called Harry Higins just joined an organization. Write a query to insert the record of a new employee into the employees table assuming the employee has an id of 120, earns a salary of 15000, was employed on 6th April 2009 and belongs to department 20. **(6 marks)**

(ii) Due to the recent redeployment in an Organization employee 113 has been transferred to department 70. Write a query to effect this. **(6 marks)**

4. a) Briefly explain the role of the following DIVISIONS in COBOL **(4 mark)**

b) Given the balance and the annual percentage interest rate, compute the interest on the next monthly payment using the following formula:

Interest = balance * (annualInterestRate*1200)

Write a COBOL program that reads the balance and the annual percentage interest rate and displays the interest for the next month. **(11 marks)**

5 a) Write a Java program to find the mean of an array of 10 arbitrary values. (8 marks)

b) Write a Java program that allocates a 2 by 3 array and assigns it to employees names. The array is {{"Mr","Mrs","Ms."},{"Alice","Bob","Charles"}}. Show the output for names[0][2] + names[1][0]) and names[0][0] + names[1][1])   (7 marks)