Reg. No. :

Question Paper Code: U9208

B.E./B.Tech. DEGREE EXAMINATION, APRIL 2024

Professional Elective

Computer Science Engineering

21CSV208 - PRINCIPLES OF PROGRAMMING LANGUAGES

(Regulation 2021)

Duration: Three hours   Maximum: 100 Marks

Answer ALL Questions

PART A - (10 x 2 = 20 Marks)

1. What are the three fundamental features of an object-oriented programming language.   CO1-U

2. Identify lexemes and tokens of this statement ---value=3*count+20;   CO2-App

3. What are the advantages and disadvantages of decimal data types?   CO1-U

4. What are the design issues for unions?   CO1-U

5. What is the difference between an activation record and an activation record instance?   CO1-U

6. What are the fundamental design considerations for parameter-passing methods?   CO1-U

7. Compare process and thread.   CO1-U

8. What is a Preprocessor directive?   CO1-U

9. What are the two forms of DEFINE?   CO1-U

10. What does lambda expression specify?   CO1-U

PART – B (5 x 16= 80 Marks)

11. (a) Using the following grammar show a parse tree and leftmost   CO2 -App   (16)
        derivation for the following statement:
        A=A*(B+(C*A))
        <assign>→<id>=<expr>
        <id>→ A|B|C
        expr>→<id>+<expr>
        |<id>*<expr>
        |(<expr>)
        |<id>

Or

(b) Given the following grammar and the right sentential form, draw a parse tree and show the phrases and simple phrases, as well as the handle. S → AbB|bAc A → Ab| aBB B → Ac| cBb|c   CO2 -App   (16)

Acccbbc   b. AbcaBccb   c. baBcBbbc

12. (a) Explain Arithmetic expression? Explain with example Relational and Boolean Expressions.   CO1-U   (16)

Or

(b) What are the different types of binding available, explain with an example?   CO1 -U   (16)

13. (a) Consider the following program written in C syntax: CO2 -App   (16)
void swap(int a, int b)
{ int temp;
 temp = a;
a = b;
b = temp;
}
void main()
{ int value = 2, list[5] = {1, 3, 5, 7, 9};
swap(value, list[0]);
 swap(list[0], list[1]);
swap(value, list[value]);
}
For each of the following parameter-passing methods, what are all of the values of the variables value and list after each of the three calls to swap?
a. Passed by value
b. Passed by reference
c. Passed by value-result

Or

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(b) Show the stack with all activation record instances, including static   CO2 -App   (16)
and dynamic chains, when execution reaches position 1 in the
following skeletal program. Assume Bigsub is at level 1.
Procedure Bigsub is
Procedure A is
 Procedure B is
begin—of B
….1
end;-- of B
procedure Cis
begin — of C
…
B;
…
end; -- of C
begin — of A
…
C;
…
end; -- of A
begin — of Bigsub
…
A;
…
End;--of Bigsub

14. (a) Discuss the design issues of Exception Handling.   CO1- U   (16)

                                Or

(b) Explain the Methods of Providing Synchronization   CO1 - U   (16)

15. (a) Explain about LISP functional programming language   CO1 - U   (16)

                                Or

(b) Discuss about basic elements of PROLOG. Give an example.   CO1 - U   (16)