University of Mumbai

Examinations Summer 2022

Time: 2 hour 30 minutes Max. Marks: 80

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Q1.	**Choose the correct option for following questions. All the Questions are compulsory and carry equal marks**
1.	Which of the following operation in Prolog defines the size of an object or distance from one point to another?
Option A:	Member
Option B:	Length
Option C:	Reverse
Option D:	append
2.	The period of time between the creation and the destruction of a name to object binding is referred as _____.
Option A:	binding lifetime
Option B:	object lifetime
Option C:	runtime lifetime
Option D:	referencing
3.	A fact in prolog must start with a
Option A:	Predicate
Option B:	Rule
Option C:	Symbol
Option D:	Letter
4.	Rearrange the correct steps for performing exception handling: 1. Hit the exception 2. Handle the exception 3. Throw the exception 4. Catch the exception
Option A:	2,1,4,3
Option B:	1,3,4,2
Option C:	4,3,1,2
Option D:	2,4,1,3
5.	Which of the following programming concepts shown by Object Oriented Programming Languages are examples of use of polymorphism?
Option A:	function overriding, extending an interface, abstract base class
Option B:	function overloading, friend function, creation of package/module
Option C:	creation of package/module, multiple constructors for same class, encapsulating members in Class
Option D:	function overriding, function overloading, encapsulating members in Class
6.	Which method is called internally by Thread start () method?
Option A:	execute()
Option B:	run()
Option C:	launch()
Option D:	main()
7.	Which is the incorrect query in Prolog from the following?
Option A:	?- is(X, 1+2).
Option B:	?- X is 1+2.

Option C:	?- 1+2 is 4-1.
Option D:	?- is(1+2,X).
8.	Which of the following syntax is invalid in case of defining Rule in Prolog
Option A:	grandparent(X, Y):- parent(X, Z), parent(Z, Y).
Option B:	friends(X,Y) :- likes(X,Y),likes(Y,X).
Option C:	likes(X,Y),likes(Y,X) :- friends(X,Y).
Option D:	enemies(X,Y) :- not(likes(X,Y)),not(likes(Y,X)).
9.	_____paradigm tells how to do something rather than what to do.
Option A:	Imperative
Option B:	Declarative
Option C:	Subjective
Option D:	Objective
10.	Which of the following statements is **TRUE** about scripting languages?
Option A:	Scripting languages requires the declaration of types for variables.
Option B:	Most scripting languages perform extensive compile-time checks to make sure that values are never used in inappropriate ways
Option C:	Some scripting languages even store numbers as strings, so calculations may not always be what you expect, although most auto-converting if needed.
Option D:	Scripting languages do not handle the type errors and require the programmer to check for these errors if they require to.

Q2	**Solve any Four out of Six** **5 marks each**
A	Describe the features of constructors used in OOP languages like C++ and Java
B	Write a note on Lambda Calculus.
C	What is recursion? Write a Haskell program to find factorial of a number using recursion
D	Explain prolog database manipulation commands with an example.
E	What is virtual function and how it can be used in polymorphism?
F	What do you mean by interthread communication?

Q3	**Solve any Four out of Six** **5 marks each**
A	Explain with example the difference between declarative and imperative programming paradigm.
B	Explain Type system and Type checking.
C	Explain exception handling mechanism with an example.
D	Describe the use of scripting in web development.
E	Explain the unification and resolution in prolog.
F	Describe various methods to create a thread.

Q4	**Solve any Two of Three** **10 marks each**
A	Differentiate between static and dynamic binding with a suitable programming example using C++ or Java
B	What is type checking? Also explain the difference between type equality, type compatibility and type inference with suitable programming example.
C	What are diffetent storage allocation techniques, Explain each in details