

University of Mumbai
Examinations Summer 2022

Time: 2 hour 30 minutes

Max. Marks: 80

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 different storage allocation techniques, Explain each in details	