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**Presidency University**

**Bengaluru**

 **SCHOOL OF COMPUTER SCIENCE & ENGINEERING**

**MAKE UP EXAMINATION JULY-2024**

**Date**: 5 July 2024

**Time**: 9:30am to 12:30pm

**Max Marks**: 100

**Weightage:** 50%

**Make-up Exam**: VII

**Course Code**: CSE2033

**Course Name**: GO PROGRAMMING

**Program** : B.TECH

**Part A [Memory Recall Questions]**

**Answer any 15 Questions. Each question carries 2 marks. (15Qx 2M=30M)**

1. Recall 3 types of variable declaration with all primitive data types.

 (C.O.No.1) [Remember]

1. Which data type uses key-value pairs to store data in Go? Is duplication of values

 allowed? (C.O.No.2) [Remember]

1. List functions of the fmt package with example code. (C.O.No.1) [Remember]
2. Name any 4 keywords which are necessary to write a simple go program.

 (C.O.No.1) [Remember]

1. Show an integer variable with and without using the var keyword.

 (C.O.No.1) [Remember]

1. Define rune with an example (C.O.No.2) [Remember]
2. How do slices syntactically differ from arrays? (C.O.No.2) [Remember]
3. Identify 4 ways of writing “for loop”, with examples. (C.O.No.1) [Remember]
4. Find the type of variables a and b

 var a, b = 6, 7.0 (C.O.No.1) [Remember]

1. Select a slice of length 4 from the given array.

 var x=[7] int{21,16,23,11,212,80,60}

Add elements 25,55 and 75 to it. What may be the length and capacity of the slice?

 (C.O.No.1) [Remember]

1. Relate the code to print “CSE” with proper syntax and formatting

package main

import "fmt"

func main()

{

...................("CSE") } (CO.No.1) [Remember]

1. What may be missing line

package main

import  "fmt"

func main() {

............................

fmt.Print("Enter name: ")

fmt.Scanln(&N)

fmt.Printf("%s", N)  } (CO.No.1) [Remember]

1. Find the output

package main

import "fmt"

func main() {

var p bool

fmt. Println(p)

 } (CO.No.1) [Remember]

1. Why pointers are important? (C.O.No.3) [Remember]
2. ......................is used to “dereference” pointer variables. How?. (C.O.No.3) [Remember]
3. Show the necessary code to read a complete sentence in GO. (C.O.No.3) [Remember]
4. Define an example variadic function with an array parameter. (C.O.No.2) [Remember]
5. Define what an interface is and its purpose in Go programming. (C.O.No.3) [Remember]

**Part B [Thought Provoking Questions]**

**Answer any 4 Questions. Each question carries 10 marks. (4Qx10M=40M)**

1. Ask the user to input a sentence which contains at least three words. Capitalize the first

 letter of each word and display the complete sentence. (C.O.No.2) [Apply]

1. Read a list of integers from the user, until the user enters 0. Then Create 2 new lists

 Namely.

 1). Square, where each element is a square of the corresponding element in the input list.

 2). Positive, with only positive numbers from the input list. (C.O.No.2) [Apply]

1. Given a map of the average age of patients visiting a hospital.

 Temp = {"sun":22, "mon":30, "tue":49, "wed":25, "thur":35, "Fri":27, "sat":28 }

Write a GO code to find which day recorded the maximum temperature and also write code to find the maximum temperature of the week. (C.O.No.2) [Apply]

1. Write a function with one variadic parameter that accepts an array of numbers and then it

 finds the smallest number. (C.O.No.3) [Apply]

1. Write code to create and manage goroutines in Go. (C.O.No.4) [Apply]

**Part C [Problem Solving Questions]**

**Answer any 2 Questions. Each question carries 15 marks. (2Qx15M=30M)**

1. Given student admission details from a university with admission ID and age.

 Data= {1001:23, 1002:18, 1003:19, 1004:19, 1005:17, 1006:27, 1007:23........}

 From the map given make 2 lists, one contains the ID of graduate admission less than 19

 years old and the second one consists of the ID of postgraduate admissions aged above 21. (C.O.No.2) [Apply]

1. Read a string of complete sentences and count the number of occurrences of each word,

 store the same in a map and print the output. (C.O.No.3) [Apply]

1. Write a Go program to implement Go routines and channels. To do this print a Fibonacci

 series by communicating with the main routine through channels. Also, implement a palindrome task to demonstrate concurrent execution with the Fibonacci task by showing the time consumption of both routines. [Assume if any other information is required].

 (C.O.No.4) [Apply]