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NOIDA INSTITUTE OF ENGINEERING AND TECHNOLOGY, GREATER NOIDA

(An Autonomous Institute Affiliated to AKTU, Lucknow)

B.Tech.

SEM: V - THEORY EXAMINATION (2022 - 2023)

Subject: Development in Swift Fundamentals

Time: 3 Hours

Max. Marks: 100

General Instructions:

IMP: Verify that you have received the question paper with the correct course, code, branch etc.

1. This Question paper comprises of three Sections -A, B, & C. It consists of Multiple Choice Questions (MCQ's) & Subjective type questions.
2. Maximum marks for each question are indicated on right -hand side of each question.
3. Illustrate your answers with neat sketches wherever necessary.
4. Assume suitable data if necessary.
5. Preferably, write the answers in sequential order.
6. No sheet should be left blank. Any written material after a blank sheet will not be evaluated/checked.

SECTION A

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1. Attempt all parts:-

- 1-a. Which of the following should be defined to be a constant value while developing Map application? (CO1) 1
- (a) Source
 - (b) Current position
 - (c) Remaining distance
 - (d) Travelled distance
- 1-b. Using type inference, which of the following variables would be assigned a `Double` type? (CO1) 1
- (a) var state = "Rhode Island"
 - (b) let country = "Belgium"
 - (c) let population = 142000
 - (d) let speedLimit = 75.0
- 1-c. What do you call a function that's added to a structure? (CO2) 1
- (a) Function

- (b) Instance function
 - (c) Instance method
 - (d) Type method
- 1-d. When is it appropriate to use the as! operator? (CO2) 1
- (a) When you need to unwrap an optional
 - (b) When you need to convert a value to an Any type
 - (c) When you need to downcast from one type to another, on the condition that the type is valid
 - (d) When you need to downcast from one type to another and you can guarantee the type is valid
- 1-e. After code execution has paused at a breakpoint, which button will resume execution? (CO3) 1
- (a) Continue
 - (b) Step over
 - (c) Step into
 - (d) Step out
- 1-f. Which of the following allows you to execute code for a specific control event? (CO3) 1
- (a) IBAction
 - (b) IBOutlet
 - (c) Both
 - (d) None
- 1-g. A stack view with Spacing set to 10 and Axis set to Vertical will... (CO4) 1
- (a) Align elements from left to right, with 10 pixels surrounding the edges of the stack view.
 - (b) Align elements from left to right, with 10 pixels between elements in the stack view.
 - (c) Align elements from top to bottom, with 10 pixels surrounding the edges of the stack view.
 - (d) Align elements from top to bottom, with 10 pixels between elements in the stack view.
- 1-h. In which method should you place code to execute long-running code? (CO4) 1
- (a) viewDidLoad()
 - (b) viewWillAppear(_:)
 - (c) viewDidAppear(_:)
 - (d) viewWillDisappear(_:)

- 1-i. Which of the following method is used to check whether your optional value contains a value or not? (CO5) 1
- (a) Optional Binding
 - (b) Optional Chaining
 - (c) Forceful Wrapping
 - (d) Type Annotation
- 1-j. A programmer should create an if she wants to add the on click functionality to a button. (CO5) 1
- (a) Outlet
 - (b) Action
 - (c) Assistant
 - (d) None of the above

2. Attempt all parts:-

- 2.a. Write the features of swift that makes it a modern language. (CO1) 2
- 2.b. What is the difference between string concatenation and string interpolation? (CO2) 2
- 2.c. What is Inheritance? Write the Swift code to create a “is a” relationship between Vehicle and Bicycle class. (CO3) 2
- 2.d. Name the types of Constraints in Auto Layout. (CO4) 2
- 2.e. Explain the working of isEmpty property in Swift. What type does it return? (CO5) 2

SECTION B

30

3. Answer any five of the following:-

- 3-a. Implement the program to find vowel and consonant using switch case in swift. (CO1) 6
- 3-b. What is Type Annotation? Describe the 3 cases when you should always use type annotation with proper example. (CO1) 6
- 3-c. Write the name of all the file type available in XCode. What is a Cocoa Touch file in XCode? Explain any 4-file types. (CO2) 6
- 3-d. What is case sensitivity in Swift strings? How can this be avoided while working with strings? (CO2) 6
- 3.e. What do you understand by conditional cast and forceful cast. Give examples in support of your answer. (CO3) 6
- 3.f. Write the steps to create an iOS application such that the initial screen looks red and has a button on this aligned centrally. Button is having the title “Go to Green” and makes the 6

transition from red screen to the green screen when clicked. What concept is being used in the above example for transitioning from one screen to other screen through button? (CO4)

- 3.g. What is the difference between image view and text view. Write the class associated with each. Create an iOS application implementing both objects. (CO5) 6

SECTION C 50

4. Answer any one of the following:-

- 4-a. Explain user defined types and predefined types in Swift. Describe each of them with proper examples. (CO1) 10

- 4-b. Explain all the control flow statements in swift with proper examples. (CO1) 10

5. Answer any one of the following:-

- 5-a. Write the steps to add Tab bar controller on interface builder. Draw the example for the same. Also explain various available tab bar items. (CO2) 10

- 5-b. Given the value pi (3.1415927), create a radius constant with a value of 5.0, then calculate the diameter and circumference of the circle using the following equations, and print the results: diameter = 2 * radius
circumference = 2 * pi * radius. (CO2) 10

6. Answer any one of the following:-

- 6-a. Write a function called pacing that takes four Double parameters called currentDistance, totalDistance, currentTime, and goalTime. Your function should calculate whether or not the user is on pace to hit or beat goalTime. If yes, print "Keep it up!", otherwise print "You've got to push it just a bit harder!" (CO3) 10

- 6-b. Write a function called greeting that takes a String argument called name, and returns a String that greets the name that was passed into the function, i.e. if you pass in "Dan" the return value might be "Hi, Dan! How are you?" Use the function and print the result. (CO3) 10

7. Answer any one of the following:-

- 7-a. Define a Suit enum with four possible cases: clubs, spades, diamonds, and hearts. Imagine you are being shown a card trick and have to draw a card and remember the suit. Create a variable instance of Suit called cardInHand and assign it to the hearts case. Print out the instance. (CO4) 10

- 7-b. Declare a variable whose value begins at 10. Using addition, update the value to 15 using the compound assignment operator. Using multiplication, update the value to 30 using compound assignment. Print out the variable's value after each assignment. (CO4) 10

8. Answer any one of the following:-

- 8-a. Create two constants, `nameInCaps` and `name`. Assign `nameInCaps` your name as a string literal with proper capitalization. Assign `name` your name as a string literal in all lowercase. Write an if-else statement that checks to see if `nameInCaps` and `name` are the same. If they are, print "The two strings are equal", otherwise print "The two strings are not equal." (CO5) 10
- 8-b. Create a while loop that simulates rolling a 6-sided dice repeatedly until a 1 is rolled. After each roll, print the value. (Hint: use `Int.random(in: 1...6)` to generate a random number between 1 and 6). `var roll = 0` (CO5) 10