Task 1:

```
def GetChoiceFromUser():
  Choice = input('Do you think the next card will be higher than the last card (enter y or n)? ')
  if Choice == "Y" or "Yes" or "yes":
    Choice = "y"
  elif Choice == "N" or "No" or"no":
    Choice = "n"
  return Choice
```

Task 2:

```
def GetMenuChoice():
  Choice = input()
  print()
  Choice = Choice.lower()
  Choice = Choice[:1]
  return Choice
```

Task 3(a):

Answer the following questions:

1. Which function is responsible for getting the name from the user?

   GetPlayerName()

2. How will you ensure that the user is asked for the name repeatedly?

   Use a validation loop that will prevent the program from proceeding without an input.

3. What additional variable will you need and what will its datatype be?

   ```
   proceed = False
   ```

Write the function identified above in pseudo-code with the improvements necessary to prevent the user leaving their name blank. Pseudo-code:

```
GetPlayerName
     proceed <- False
     REPEAT
        INPUT Please enter your name
        Player Name <- INPUT
        IF Player Name NOT EQUAL TO ""
            proceed <- True
        ELSE
         OUTPUT You must enter something for your name.
     END loop
```

Use the pseudo-code created above to help you improve the actual program code. Program code:

```
def GetPlayerName():
  proceed = False
  print()
  while proceed == False:
    PlayerName = input('Please enter your name: ')
    if PlayerName != "":
      proceed = True
    else:
      print("You must enter something for your name!")
    print()
  return PlayerName
```

Task 3(b):

1. Which function is responsible for adding scores to the table?

   ```
   DisplayEndOfGameMessage(Score)
   ```

Program code:

```
def DisplayEndOfGameMessage(Score):
  print()
  print('GAME OVER!')
```

```
  print('Your score was', Score)
  if Score == 51:
    print('WOW! You completed a perfect game.')
  print()
  print('Do you want to add your score to the high score table? (y or n): ', end='')
```

Task 4:

The function for displaying the table is:

```
DisplayRecentScores(RecentScores)
```

Program code:

```
def DisplayRecentScores(RecentScores):
  print()
  print('Recent Scores: ')
  print()
  print("{0:<8} {1:<5}".format("Name","Score"))
  print()
  for Count in range(1, NO_OF_RECENT_SCORES + 1):
    print("{0:<8} {1:<5}".format(RecentScores[Count].Name, RecentScores[Count].Score))
  print()
  print('Press the Enter key to return to the main menu')
  input()
  print()
```

Task 5:

One improvement that we can make is to record the date a high score was achieved. This will involve making changes in four functions of the program and importing an additional module.

Answer the following questions:

1. What additional module will you need to import into the program?

   from datetime import *

2. Identify the four functions that will require changes.

   ```
   ResetRecentScores(RecentScores)
   DisplayRecentScores(RecentScores)
   UpdateRecentScores(RecentScores, Score)
   TRecentScore()
   ```

3. How do you convert a string in the format DD/MM/YY (e.g. 14/08/93) to a date type in Python?

   ```
   datetime.slrftime(string,"%d/%m/%y)
   ```

Program code:

```
def ResetRecentScores(RecentScores):
  for Count in range(1, NO_OF_RECENT_SCORES + 1):
    RecentScores[Count].Name = ''
    RecentScores[Count].Score = None
    RecentScores[Count].Date = None

def DisplayRecentScores(RecentScores):
  print()
  print('Recent Scores: ')
  print()
  print("{0:<8} {1:<8} {2:<6}".format("Name","Score","Date"))
  print()
  for Count in range(1, NO_OF_RECENT_SCORES + 1):
    print("{0:<8} {1:<8} {2:<6}".format(RecentScores[Count].Name, RecentScores[Count].Score,RecentScores[Count].Date))
  print()
  print('Press the Enter key to return to the main menu')
  input()
  print()

def UpdateRecentScores(RecentScores, Score):
  DatePlayed = datetime.now()
  DatePlayedString = datetime.strftime(DatePlayed,"%d/%m/%y")
  PlayerName = GetPlayerName()
  FoundSpace = False
  Count = 1
  while (not FoundSpace) and (Count <= NO_OF_RECENT_SCORES):
    if RecentScores[Count].Name == '':
```

```
      FoundSpace = True
    else:
      Count = Count + 1
  if not FoundSpace:
    for Count in range(1, NO_OF_RECENT_SCORES):
      RecentScores[Count].Name = RecentScores[Count + 1].Name
      RecentScores[Count].Score = RecentScores[Count + 1].Score
    Count = NO_OF_RECENT_SCORES
  RecentScores[Count].Name = PlayerName
  RecentScores[Count].Score = Score
  RecentScores[Count].Date = DatePlayedString

  class TRecentScore():
  def __init__(self):
    self.Name = ''
    self.Score = 0
    self.Date = None
```

Section B of the COMP1 exam focuses on your understanding of the program source code. Often the questions will focus on the role of variables in the program. There are several different roles that a variable can have: they are described on page 66 of the AS textbook.

Questions

Answer the following questions:

1. Describe each variable role in your own words.

Role	Description
Fixed Value	A varible without a calculation and not changed after being assigned
Stepper	A veriable that is used in iteration, e.g. count and index
Most recent holder	A variable that holds a value, whitch is changed when the user inputs a new value
Most wanted holder	A variable that holds the most appropriate value for the situation so far
Gatherer	A variable that holds the sum of individual values eg. the total of a set of values added together
Transformation	A variable that always gets its new value from fixed calculations of values from other variables eg. the convertion of inches to metres
Follower	A variable that stores the value of a varible that will get its value changed
Temporary	A variable holding a value for a short time

1. Give an example of variable from the program code for each variable role.

Role	Variable
Fixed Value	NextCard = TCard()
Stepper	A veriable that is used in iteration, e.g. count and index
Most recent holder	for Count in range(1, 52 - NoOfCardsTurnedOver)
Most wanted holder	PlayerName
Gatherer	RecentScores[Count].Name = RecentScores[Count + 1].Name
Transformation	Count = Count + 1
Follower	RecentScores[Count].Score = Score
Temporary	Count = Count + 1

1. Describe the difference between passing by value and passing by reference in your own words.

   When a parimeter i passed by referance, the variable inside the routine uses a referance to the same memory location as the variable passed by the parimeter. Changes made to the contents of the variable in the routine are accessible to the program code from which the variable call was made.

   When an argument is passed by value, the routine copies the value of the calling code's variable to the routine's parameter. Any changes made to the copy have no effect on the original variable.

2. For each function in the program identify the mechanism using to pass each parameter. Note: this task will take a while but it will improve your understanding of the program and by useful for the exam.

Function	Mechanism
GetRank(RankNo)	call by value
GetSuit(SuitNo)	call by varlue
DisplayMenu()	call by referance
GetMenuChoice()	call by referance

Function	Mechanism
LoadDeck(Deck)	call by varlue
ShuffleDeck(Deck)	call by varlue
DisplayCard(ThisCard)	call by varlue
GetCard(ThisCard, Deck, NoOfCardsTurnedOver)	call by varlue
IsNextCardHigher(LastCard, NextCard)	call by varlue
GetPlayerName()	call by referance
GetChoiceFromUser()	call by referance
DisplayEndOfGameMessage(Score	call by varlue
DisplayCorrectGuessMessage(Score)	call by varlue
ResetRecentScores(RecentScores)	call by varlue
DisplayRecentScores(RecentScores)	call by varlue
UpdateRecentScores(RecentScores, Score)	call by varlue
PlayGame(Deck, RecentScores)	call by varlue