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| **HY/CS/1220A 18/11/2020** | | | |
| **HALF YEARLY EXAMINATION (2021-21)** | | | |
| **Subject: COMPUTER SCIENCE**  **Grade: XII** | | Max. Marks: 70Time:3 Hours | |
| **General Instructions:**   * This question paper contains two parts A and B. Each part is compulsory. * Both Part A and Part B have choices. * Part-A has 2 sections: * Section – I is short answer questions, to be answered in one word or one line. * Section – II has two case studies questions. Each case study has 4 case-based sub-parts. An examinee is to attempt any 4 out of the 5 subparts. * Part - B is Descriptive Paper. * Part- B has three sections * Section-I is short answer questions of 2 marks each in which two question have internal options. * Section-II is long answer questions of 3 marks each in which two questions have internal options. * Section-III is very long answer questions of 5 marks each in which one question has internal option. * All programming questions are to be answered using Python Language only * All answers to be written in the answer sheet provided. | | | |
| Q No | **PART A** | | Marks |
|  | **Section – I**  Select the most appropriate option out of the options given for each question. Attempt any 15 questions from question no 1 to 21. | |  |
|  | Find the invalid identifier from the following: | | 1 |
|  | \_Cost, Price\*Qty, Address One, Number12 | |  |
|  | Name the Python module that needs to be imported to invoke the following functions: | | 1 |
|  | sqrt(25) , median | |  |
|  | Given the definition Dict ={ 1: [23, "Ram"], 2: [24,"Samad"], 3: [28, "Yohann"]}, give the output of print(Dict.keys()) | | 1 |
|  | For the following, write the command to create a writer object  with open("Newfile.csv", "a", newline='') as Outfile: | | 1 |
|  | Name one server side scripting language and one client side scripting language. | | 1 |
|  | For the given list, give a command to print Amit | | 1 |
|  | List = [12, "Aman", [100, "Sumit"], [22,"Amit"], 44, "Anil"] | |  |
|  | What will this expression evaluate to | | 1 |
|  | 144/2 + 5\*10 -(2\*\*3) | |  |
|  | What is a Trojan Horse? | | 1 |
|  | Write any two DML commands. | | 1 |
|  | Write the output of the given code: | | 1 |
|  | List = ["Amit", "Anil", "Sunil", "Sumit"]  List[0:2]="Anita","Amita", 2928  print(List[:]) | |  |
|  | Give full form of SQL. | | 1 |
|  | In MYSQL, which clause is used to filter out unwanted data? | | 1 |
|  | Which method is used to delete a value from the list and display it also? | | 1 |
|  | Out of the following, which is the fastest (i) wired and (ii) wireless medium of communication? | | 1 |
|  | Infrared, Coaxial cable, Ethernet Cable, Microwave, Optical Fibre | |  |
|  | Give the output of the given code: | | 1 |
|  | Dict = {'Name': 'Govind', 1: [10, 11, 12, 13]}  print(Dict[1][2:]) | |  |
|  | Name the clause used to restrict/limit the output of a query using an aggregate function(s) only. | | 1 |
|  | What kind of data gets stored in cookies and how is it useful? | | 1 |
|  | What datatype will the answer be in, if the user enters 12 and 27 | | 1 |
|  | num1= float(input("Enter a number"))  num2 = int(input("enter another number"))  print(num1+num2) | |  |
|  | Which protocol helps us to browse through web pages using internet browsers? Name any one internet browser. | | 1 |
|  | Which SQL statement/ keyword is used to return only different values? | | 1 |
|  | Name the method is used to merge two lists. | | 1 |
|  | **SECTION – II**  **Both the Case study based questions are compulsory. Attempt any 4 sub parts from each question. Each question carries 1 mark.** | |  |
|  | A departmental store Al-Manzil is considering to maintain their inventory using SQL to store the data. As a database administer, Asmita has decided that:  • Name of the database - MyStore  • Name of the table - Products  • The attributes of Products are as follows:  PID - numeric  PName – character of size 30  Qty – numeric  Price – Numeric  Company – character of size 20  SupCode – character of size 3 | |  |
|  | Table: PRODUCTS   |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | | PID | SUPCODE | PNAME | QTY | PRICE | COMPANY | | 101 | S01 | DIGITAL CAMERA 14X | 120 | 12000 | RENIX | | 102 | S02 | DIGITAL PAD 11i | 100 | 22000 | DIGIPOP | | 104 | S01 | PEN DRIVE 16 GB | 500 | 1100 | STOREKING | | 106 | S02 | LED SCREEN 32 | 70 | 28000 | DISPEXPERTS | | 105 | S03 | CAR GPS SYSTEM | 60 | 12000 | MOVEON | | |  |
|  | Table: SUPPLIERS   |  |  |  | | --- | --- | --- | | SUPCODE | SNAME | CITY | | S01 | GET ALL INC | KOLKATA | | S03 | EASY MARKET CORP | DELHI | | S02 | DIGI BUSY GROUP | CHENNAI | | |  |
|  | 1. To create these tables, what should Asmita create first. Give a command to do the same using any name of your choice. | | 1 |
|  | 1. Identify the candidate keys from the table Products. | | 1 |
|  | 1. Asmita wants to add “Date\_purchase’ as a new field to the table. Give the command for the same. | | 1 |
|  | 1. What is the degree and cardinality of table Products? | | 1 |
|  | 1. What is the constraint that Asmita must apply on Supcode of products table to maintain the integrity of data in products table? | | 1 |
|  | Ms. Anita is downloading the meeting attendance of the Doubt Clearing Session class for her grade. She wishes to store the data for future use. The data once downloaded shows Name of the student, Action (Joined/ Left) and Time stamp for each row. Assuming that the file is saved as “Attendance.csv”. | |  |
|  | import csv  import os  def WriteCSV():  Flag = False  if \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_: Statement 1  pass  else:  Flag = True  \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ # statement 2  Wr = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ # statement 3  if Flag == True:  Fields = ["Rollno", "Name", "Marks"]  Wr.writerow(Fields)  ans = 'y'  while ans == 'y':  Name = input("Enter Name")  Status = input("Enter Marks")  Time = input(“Enter Time”)  Wr.writerow(\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_) # Statement 4  ans = input("Wish to Continue") | |  |
|  | 1. Write Statement 1 to check if the file Attendance.csv exists in the current folder or not. | | 1 |
|  | 1. Write the command for Statement 2 to open the file to add records in a mode that does not add an extra line while writing the records. | | 1 |
|  | 1. Give a command for Statement 3 to write a record from the file which is saved with delimiter**:** (colon) | | 1 |
|  | 1. Write command for Statement 4 to write the record into the file. | | 1 |
|  | 1. What is the difference between writerow and writerows(). | | 1 |
|  | **PART B** | |  |
|  | **SECTION – 1** | |  |
|  | Evaluate the following expressions: | | 2 |
|  | p1,q1,r1=20,30,40  r1,q1,p1 = p1+ 40,q1-20,r1+20  print (r1,q1,p1)  print ((r1 + q1)//p1 + (p1\*\*2/5)) | |  |
|  | Differentiate between Hub and Switch giving a minimum of two points of difference.  OR  Write one advantage of Bus Topology of network. Also, illustrate how 4 computers can be connected with each other using star topology of network. | | 2 |
|  | What will be the output of the following python code considering the following set of inputs?  Back in School  Our Last year in school  Grade 12  2021  Also, explain the try and except used in the code. | | 2 |
|  | Counter=0  while True:  try:  Number=int(input("Give a Number"))  break  except ValueError:  Counter=Counter+2  print("Reenter Number")  print(Counter) | |  |
|  | Given the following table “Grade12A” | | 2 |
|  | |  |  |  |  | | --- | --- | --- | --- | | Admno | Rollno | Name | House | | S1234 | 1 | Arpita | Amazon | | S3423 | 2 | Asmita | Nile | | S3222 | 3 | Bineesh | Amazon | | S6632 | 4 | Dania | NULL | | S2499 | 5 | Ehita | Nile | | S5400 | 6 | Fatima | Indus | | |  |
|  | 1. Select distinct House from Grade12A; | |  |
|  | 1. Select count(\*), House from Grade12A group by House; | |  |
|  | Expand the following terms  (i) CDMA (ii) URL (iii) HTTPS (iv) GSM | | 2 |
|  | What possible outputs(s) are expected to be displayed on screen at the time of execution of the program from the following code? Also specify the maximum values that can be assigned to each of the variables Start and End. | | 2 |
|  | import random  Subjects = ["Physics", "Chemistry", "Mathematics", "Computer Science", "English", "PE"]  End = random.randrange(2) + 3  Start = random.randrange(End) + 1  for i in range(Start, End):  print(Subjects[i], end = ' ' ) | |  |
|  | 1. Chemistry $ Mathematics $ Computer Science | |  |
|  | 1. Physics $ Chemistry $ Mathematics | |  |
|  | 1. Mathematics $ Computer Science | |  |
|  | 1. Computer Science $ English $ PE | |  |
|  | What is the difference between the order by and group by clause when used along with the select statement? Explain with an example. | | 2 |
|  | Give the output of the following code: | | 2 |
|  | Data = ['Stay',' ' ,'S', 'a','f', 'e',' ' , '@2020',' ']  for i in range(len(Data)-1):  if(Data[i].isupper()):  Data[i]= Data[i+1].upper()  elif Data[i].isspace():  Data[i]=Data[i-1]  elif Data[i].isdigit():  Data[i]="#"  else:  Data[i]=Data[i].upper()  print(Data] | |  |
|  | Explain Cartesian product of two relations showing cardinality and degree of the resultant relation by giving an example. | | 2 |
|  | Write two advantages of 4G of over 3G Mobile Telecommunication Technologies in terms of speed and services? | | 2 |
|  | **Section - II** | |  |
|  | Write a program that accepts N values into Arr a list of integers. It should add every previous value of the list Arr to the next value and assign it to the index of the next value. Display the changed values. | | 3 |
|  | For example: if Arr contains: | |  |
|  | |  |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | | **12** | **10** | **5** | **4** | **3** | **8** | **9** | **10** | **1** | **2** | | |  |
|  | Then the function should display the output as | |  |
|  | |  |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | | **12** | **22** | **27** | **31** | **34** | **42** | **51** | **61** | **62** | **64** | | |  |
|  | Write a function Check() to read the csv file “Sport.csv” which contains information for Sport\_Id, Sport, No\_of\_players, Fee and displays those records where number of player is more than 5 and Fee is less than 200.  OR  Write a function Count() that opens the csv file “Hotel.csv” and reads the records containing information about RoomNo, RoomType, Tarrif and Status. The function returns a count of records of vacant rooms of tarrif less than Val, where Val is passed as a parameter to the function. | | 3 |
|  | Write the outputs of the SQL queries (i) to (iii) based on the relations Car\_Rental and Posting given below: | |  |
|  | Table – Car\_Rental | |  |
|  | |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | | Code | Car\_name | Brand | Capacity | Colour | Rent | | C546 | Camry | Toyota | 5 | White | 1000 | | C876 | Pilot | Honda | 8 | Grey | 1450 | | C459 | LX570 | Lexus | 8 | Pearl | 1890 | | C145 | Accord | Honda | 5 | Red | 890 | | C534 | Land Cruiser | Toyota | 8 | Black | 1700 | | C910 | Alto | Maruti | NULL | Green | 500 | | C764 | Yaris | Toyota | 5 | White | 750 | | C897 | Civic | Honda | 5 | Black | 880 | | |  |
|  | TABLE: Customer   |  |  |  | | --- | --- | --- | | Cust\_code | C\_Name | Car\_code | | CU1099 | Mahesh Kumar | C534 | | CU1976 | Mitali Sen | C764 | | CU1198 | Deepak Kakkar | C145 | | CU1875 | Arpit Joshi | C876 | | CU1546 | Shanti Ahuja | C546 | | CU1957 | Fatima Khan | C534 | | |  |
|  | 1. SELECT COUNT(distinct capacity) FROM CAR\_RENTAL; | | 1 |
|  | 1. SELECT CAR\_NAME, CAPACITY FROM CAR\_RENTAL WHERE RENT<1200 AND COLOR = ‘WHITE’ OR COLOR = ‘RED’; | | 1 |
|  | 1. Select Car\_name, rent, brand, C\_name from Car\_Rental C, Customer Cu where C. Code = Cu.Car\_code and brand =”Toyota”; | | 1 |
|  | Write functions in Python Push(List, Stack) and Pop(Stack) for performing push and pop function operations on a list of integers implemented as a stack. The Push function takes two lists as parameters and pushes all those integers which are two digit numbers from list into Stack. The function pop returns the deleted value or None depending on if the stack contains values or is empty.  OR  Write functions InsertQ(List, Queue) and Delete(Queue) for performing insert and delete operations on a list implemented as a queue. The Insert functions take two lists as parameters and adds all those names from List which begin with an “A” or “S” to the Queue. The Delete function returns the value being deleted and None if no value is present in the queue for deletion. | | 3 |
|  | **Section - III** | |  |
|  | Christ College in Bangalore is setting up the network between its different wings. There are 4 wings named as Science (S), Journalism (J), ARTS (A) and Home Science(H). | |  |
|  | Distance between various wings are given below   |  |  | | --- | --- | | Wing A to Wing S | 100 m | | Wing A to Wing J | 200 m | | Wing A to Wing H | 400 m | | Wing S to Wing J | 300 m | | Wing S to Wing H | 100 m | | Wing J to Wing H | 450 m |   Number of Computers   |  |  | | --- | --- | | Wing A | 150 | | Wirig S | 10 | | Wing J | 5 | | Wing H | 50 | | |  |
|  | 1. Suggest a suitable Topology for networking the computer of all wings. | | 1 |
|  | 1. Name the wing where the Server to be installed. Justify your answer. | | 1 |
|  | 1. Suggest the placement of Hub/Switch in the network. | | 1 |
|  | 1. Mention an economic technology to provide internet accessibility to all wings. | |  |
|  | 1. The company is planning to link its head office with the offices in hilly areas. Suggest a way to connect it. | |  |
|  | Consider the following relations Teacher and Subject | |  |
|  | TABLE: Teacher | |  |
|  | |  |  |  |  |  | | --- | --- | --- | --- | --- | | T\_ID | Name | Sub\_code | Grade | Salary | | T089 | Jack | S041 | PGT | 19000 | | T028 | Jimmy | S042 | PGT | 23000 | | T123 | Firoz | S083 | TGT | 14000 | | T234 | Ginny | S065 | TGT | 18980 | | T124 | Marina | S083 | PGT | 34000 | | T045 | Roger | S042 | PRT | 11000 | | T198 | Alan | S036 | PRT | 18700 | | T062 | Roman | S036 | TGT | 23000 | | |  |
|  | TABLE: Subject | |  |
|  | |  |  |  | | --- | --- | --- | | Sub\_code | Subject | No\_periods | | S083 | Computer Science | 27 | | S036 | Biology | 24 | | S040 | Mathematics | 27 | | S041 | Physics | 36 | | S042 | Chemistry | 36 | | S065 | Informatics Practices | 27 | | |  |
|  | Write SQL commands for the following statements: | |  |
|  | 1. To display T\_ID, name, grade and salary of all teachers having PGT grade. | | 1 |
|  | 1. To display the content of teachers table in descending order of salary based on their grade. | | 1 |
|  | 1. To increase the salary of PGT teachers by 10%. | | 1 |
|  | 1. To display the name, grade, subject and number of periods for all PRT teachers. | | 1 |
|  | 1. To display the maximum and average salary for each grade arranged in order of the grade. | | 1 |
|  | A binary file Stock.dat stores information about the items in stock. It stores the information in a list for following attributes:  Itemno, itemname, category, Qty and price | |  |
|  | 1. Write a function to read the file and display those records which are in the category “Electronics” and cost more than 3000. | | 2 |
|  | 1. Write a function to delete the record of items whose Qty is less than 40. Display a message if there are no records to delete. | | 3 |
|  | OR | |  |
|  | A binary file “Student.dat” stores information about students in a DPS, Sharjah. The file stores Rollno, name, section, marks, City, BusFee. | |  |
|  | 1. Write a function in Python to read and display the counts of students from Dubai and Sharjah from Section ‘H’ and ‘I’. Display separate counts for each city. | | 2 |
|  | 1. Write a function to update the record of students living in Ajman by reducing their BusFee by 5%. Display a message if there are no matching records to update. | | 3 |

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