

REGISTRATION NO

--	--	--	--	--

ALL KERALA COMMON MODEL EXAMINATION 2024 - 25

COMPUTER SCIENCE(083)

CLASS XII (2023-24)

Time Allowed : 3 hours

Max Marks : 70

General Instructions:

*Please check this question paper contains 37 questions. There are 10 pages
The paper is divided into 5 Sections - A, B, C, D and E.
Section A, consists of 21 questions (1 to 21). Each question carries 1 Mark.
Section B, consists of 7 questions (22 to 28). Each question carries 2 Marks.
Section C, consists of 3 questions (29 to 31). Each question carries 3 Marks.
Section D, consists of 4 questions (32 to 35). Each question carries 4 Marks.
Section E, consists of 2 questions (36 to 37). Each question carries 5 Marks.
All programming questions are to be answered using Python Language only.*

	<u>Section A</u> (1 mark)	
1	Usage of an undefined variable will raise a Value Error Exception. True or False	[1]
2	Identify the output of the following code snippet;- Line = "Sahodaya\$Day1 2024" Line= Line.strip('2S4h').replace('day','%') print(Line) i) aho%a\$Day1 20 ii) Saho%a\$% 1 20 iii) Saho%a\$Day1 20 iii) ho%a\$Day1 2024	[1]
3	Which of the following expression evaluates to True? i) True and None or False and not True ii) not False and None or True and False iii) not True and True and False or None iv) True or None and False or not True	[1]
4	Choose the right option ? Lst = ['Feel', 'Better', 'After', 'Today'] st = '*'.join(Lst) p= st.partition('er*') print(p[:2]) i) ('Feel*Bett', 'Aft') ii) ('Feel*Bett', '*Aft') iii) ('Feel*Bett', 'er*') iv) ('Feel*Bett', 'er*', 'Today')	[1]
5	What is the output of the following code snippet? st ="Sustainable Development" print(st[-4:4:-2])	[1]

6	Choose the command(s) which cannot change the cardinality of a table. i) Delete ii) Insert iii) Alter iv) Select	[1]
7	What will be the output of the following code- <pre> Tuple1= (3,4) Tuple2 = Tuple1 Tuple1+= (3,4) Tuple2*= 2 print(Tuple1 is Tuple2) </pre>	[1]
8	What does the popitem() in a dictionary do? i) It removes the pair as specified as a parameter specified in a dictionary. ii) It removes the last pair in the dictionary and returns the pair as a tuple. iii) It returns the last pair of the dictionary. iv) It removes the last pair in the dictionary and returns the key.	[1]
9	Which of the following statement(s) will not cause an error. i) List1.sort().reverse() ii) sort(List1.reverse()) iii) List1.sort(reverse=True) iii) reverse(List1)	[1]
10	Write the missing statement to complete the following code: <pre> file= open("Notes.txt", 'r') data = file.read(20) _____ # The above statement should display & return the position of the file pointer file.close() </pre>	[1]
11	State True or False Finally block will be executed irrespective of whether exception occurs or not.	[1]
12	State the output of the following code:- <pre> x=15 def demo(d=x): global x x+=5 d*=x print(x,d) x=5 demo() </pre> i) 10 150 ii) 20 300 iii) 10 50 iv) 20 150	[1]
13	Give which among the statements given below will raise an exception. dict1= { ('pen', 'it01'): 200, ('pencil', 'it02'): 140, ('book', 'it03') : 230 } a) dict1.get('pencil', 200) b) dict1.setdefault('Pen', 210) c) print(len(dict1)) d) print(dict1.get_keys())	[1]
14	What will be the output of the query : Update Product set price = price*10/100 where pname like 'S%'; i) Increase the price by 10% of all items where name of the product starts with S.	[1]

	<p>ii) Reset the price of the product to its 10% where the name of the product starts with S.</p> <p>iii) Decrease the price of the product by 10% where the name of the product starts with S.</p> <p>iv) The above query will show an error.</p>	
15	<p>The _____ keyword will categorise the rows according to the values in a column</p> <p>a) order by b) where c) group d) group by</p>	[1]
16.	<p>Which among the following can be used to find the mean of all values present in the quantity column.</p> <p>a) avg(quantity) b) mean(quantity) c) average(quantity) d) sum(quantity)</p>	
17.	<p>Which network device should be installed inside the system to be a part of any network</p> <p>a) NIU card b) Router c) Switch d) Modem</p>	
18.	<p>Which protocol is used to login remotely to a network.</p> <p>a) PPP b) TELNET c) FTP d) HTTP</p>	
19.	<p>Which switching technique will send the message as a complete packet from source to destination?</p>	
20.	<p>Assertion (A): Global variables must be declared outside of all functions but they should be declared as global inside the function</p> <p>Reason (R): All functions need not access the global variables . Therefore it should be declared global inside those which needs to access them</p> <p>a) Both A and R are true and R is the correct explanation of A.</p> <p>b) Both A and R are true but R is not the correct explanation of A.</p> <p>c) A is true but R is false.</p> <p>d) A is false and R is also false</p>	[1]
21.	<p>Assertion (A): Order by clause requires one to group the rows into a particular category.</p> <p>Reason (R): Order by will arrange the rows in ascending or descending order of the column</p> <p>a) Both A and R are true and R is the correct explanation of A.</p> <p>b) Both A and R are true but R is not the correct explanation of A.</p> <p>c) A is true but R is false.</p> <p>d) A is false but R is true.</p>	[1]
	Section B (2 marks)	
22	<p>How is (2,) different from [2]. Give an example of an operation that is possible with [2] and not possible with (2,).</p>	[2]
23	<p>i) Given an example of augmented expression and chained expression in Python.</p> <p>ii) Give the statement to replicate 'Hello' , 5 times.</p>	[2]
24	<p>if L1= ['a', 'b', 'c', 'd']</p>	[2]

	<p>i) (A)Write the statement to create a dictionary with the elements of L1 as the key and values as 100.</p> <p style="text-align: center;">OR</p> <p>i) (B)Write the statement to insert an element ('e','w') into the 2nd position of the List</p> <p>ii)(A) Write the statement to sort the elements of L1 into descending order.</p> <p style="text-align: center;">OR</p> <p>ii) (B)Write the statement to remove the element 'c' from L1.</p>	
25	<p>Identify the correct output(s) of the following code. Also write the minimum and maximum possible values for the variable r1</p> <pre>import random st = ('Mango', 'Pear', 'Plum', 'Apple') r1= random.randint(1,3) for i in range(r1,0,-1): print(st[i], end='\$')</pre> <p>i) Apple\$Plum\$Pear\$ ii) Plum\$Pear\$ iii) Pear\$Plum\$ iv) Pear\$</p>	[2]
26	<p>Give an example of equi join between two tables. State the cardinality and the degree of relation of the equi join.</p>	[2]
27	<p>i) (A)State the constraints that can be set on a table with no duplicate values.</p> <p style="text-align: center;">OR</p> <p>i) (B)State the constraint that should be set on table to enable referential integrity.</p> <p>ii) (A)Write the SQL command to make Roll_No as the primary key of an existing table STUDENT.</p> <p style="text-align: center;">OR</p> <p>ii) (B)Write the SQL command to replace Roll_No (which was set as the Primary Key) of the table STUDENT with Admno as the Primary key.</p>	[2]
28	<p>(A)List one advantage and one disadvantage of Radio Waves transmission.</p> <p style="text-align: center;">OR</p> <p>(B) Expand ARPANET. What is the significance of ARPANET.</p>	[2]
	<p><u>Section C</u> <u>(3 marks)</u></p>	
29	<p>(A)Write a Python function Find() which will read a Python program file "Myfirst.py" and display the number of lines in the file which has a print function in it.</p> <p style="text-align: center;">OR</p> <p>(B)Write a Python function Create() which will read a Text file 'Text.txt' and add on the number of characters in each word alongside the word in the file. Finally read the file and display the contents.</p> <p>e.g. if the file has data :- The night sky has thousand stars</p> <p>Then the file should have the following data after program execution:- The3 night5 sky3 has3 thousand8 stars5</p>	[3]

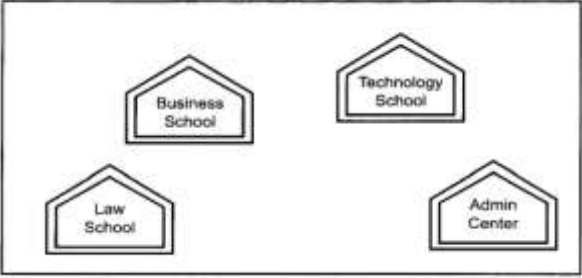
30	<p>(A)Write a Python program to implement stack operation on records of faculty stored into a variable Faculty which is a dictionary :-</p> <pre>{ Fac_id : [Fac_Name, Dept], Fac_id: [Fac_name, Dept],.....}</pre> <p>i) Write a push() function which takes Fac_stack and Faculty as parameters.</p> <p>Push(Fac_Stack, Faculty) function should push the names of Faculty into Fac_Stack from the dept “Mathematics”.</p> <p>ii) Write the pop(Fac_Stack) function which will pop the topmost element from the stack and prints the element. The pop() should return “Underflow” when there are no more elements in the stack</p> <p>iii) Write the peek(Fac_Stack) function to display the top most element in the stack.</p> <p style="text-align: center;">OR</p> <p>(B)Write a Python program to push all the digits present in a number into a stack and pop out the digits one by one and display the number as digits pop out.</p> <p>Write Push() and POP() functions for the stack operation.</p>	[3]																																																
31	<p>Consider the following table named SALESMEN:</p> <table><tr><th>Sno</th><th>Sname</th><th>Salary</th><th>Bonus</th><th>DOJ</th><th>Username</th></tr><tr><td>A01</td><td>Beena Mehat</td><td>30000</td><td>45.23</td><td>2021-10-29</td><td>Beena@Mehat.com</td></tr><tr><td>A02</td><td>K.L.Sahay</td><td>50000</td><td>25.34</td><td>2020-03-13</td><td>KL@Sahay.org</td></tr><tr><td>B03</td><td>Nisha Thakkar</td><td>30000</td><td>35.00</td><td>2019-03-18</td><td>Nisha@Thakkar.org</td></tr><tr><td>B04</td><td>Leela Yadav</td><td>80000</td><td>NULL</td><td>2020-12-31</td><td>Leela@Yadav.com</td></tr><tr><td>C05</td><td>Gautam Goia</td><td>20000</td><td>NULL</td><td>1999-01-23</td><td>Gautam@Goia.com</td></tr><tr><td>C06</td><td>Trapti Garg</td><td>70000</td><td>12.37</td><td>1996-06-15</td><td>Trapti@Garg.org</td></tr><tr><td>D07</td><td>Neena Sharma</td><td>50000</td><td>27.89</td><td>2000-03-18</td><td>Neena@Sharma.com</td></tr></table> <p>Write SQL queries for the following:-</p> <p>(A)</p> <p>i) Display the Names of salespersons whose date of joining is after 2000-01-01 and were not given bonus.</p> <p>ii) Display the Names , username and bonus of the salespersons in descending order of the salary and ascending order of DOJ</p> <p>iii) Increase the salary by 10% of all except Neena Sharma and Leela Yadav</p> <p style="text-align: center;">OR</p> <p>(B)</p> <p>i) Add a column Place of type string to the above table.</p> <p>ii) Display the names, DOJ and Bonus of employees who get bonus.</p> <p>iii) Display the average salary of the employees who joined between 2020-01-01 and 2019-02-20.</p>	Sno	Sname	Salary	Bonus	DOJ	Username	A01	Beena Mehat	30000	45.23	2021-10-29	Beena@Mehat.com	A02	K.L.Sahay	50000	25.34	2020-03-13	KL@Sahay.org	B03	Nisha Thakkar	30000	35.00	2019-03-18	Nisha@Thakkar.org	B04	Leela Yadav	80000	NULL	2020-12-31	Leela@Yadav.com	C05	Gautam Goia	20000	NULL	1999-01-23	Gautam@Goia.com	C06	Trapti Garg	70000	12.37	1996-06-15	Trapti@Garg.org	D07	Neena Sharma	50000	27.89	2000-03-18	Neena@Sharma.com	[3]
Sno	Sname	Salary	Bonus	DOJ	Username																																													
A01	Beena Mehat	30000	45.23	2021-10-29	Beena@Mehat.com																																													
A02	K.L.Sahay	50000	25.34	2020-03-13	KL@Sahay.org																																													
B03	Nisha Thakkar	30000	35.00	2019-03-18	Nisha@Thakkar.org																																													
B04	Leela Yadav	80000	NULL	2020-12-31	Leela@Yadav.com																																													
C05	Gautam Goia	20000	NULL	1999-01-23	Gautam@Goia.com																																													
C06	Trapti Garg	70000	12.37	1996-06-15	Trapti@Garg.org																																													
D07	Neena Sharma	50000	27.89	2000-03-18	Neena@Sharma.com																																													
	<p style="text-align: center;"><u>Section D</u> <u>(4 marks)</u></p>																																																	
32	<p>(A)</p> <p>i) What are run time errors? Give an example.</p> <p>ii) Study the program given below and state the type of error(s) that will be trapped (if any) while executing the following program. Also give the output.</p> <pre>try: x=10 num += x print(x) except: print("Num is not defined")</pre>	[4]																																																

	<pre>else: print("Successful execution") finally: print("Exit") OR (B) i) What are compile time errors. Give an example. ii) Study the program given below and give the output. try: x="Hello Python" num = x+ 3.82 print(num) except NameError: print("Name Error") except ValueError: print("ValueError") except TypeError: print("TypeError") finally: print("Exit")</pre>																																																																														
33.	<p>a) What is the importance of newline while writing data into a csv file?</p> <p>b) A CSV file Item.csv has the following data:</p> <ul style="list-style-type: none">• Item Number• Name of Item• Supplier code• Quantity• Rate• Date of Purchase <p>i) Write a function in Python Copy(SUP_CODE) which will copy the records from Item.csv to another file copy_item.csv all those records where Supplier code is same as SUP_CODE.</p> <p>ii) Write a function in Python DEL_REC(SUP_CODE) which will delete the records from Item.csv all those records where Supplier code is same as SUP_CODE.</p>																																																																														
34	<p>Study the following tables Doctor and Patient and write the SQL commands for the following:-</p> <p>Table Doctor:</p> <table><tr><th>ID</th><th>Name</th><th>DEPT</th><th>Gender</th><th>Experience</th></tr><tr><td>D01</td><td>Dr. Lally</td><td>Gynoecology</td><td>F</td><td>20</td></tr><tr><td>D02</td><td>Dr. Ninan</td><td>Skin</td><td>M</td><td>17</td></tr><tr><td>D03</td><td>Dr. Harish</td><td>Opthamology</td><td>M</td><td>18</td></tr><tr><td>D04</td><td>Dr. Bimal</td><td>Cardiology</td><td>M</td><td>14</td></tr><tr><td>D05</td><td>Dr. Sophia</td><td>Cardiology</td><td>F</td><td>21</td></tr><tr><td>D06</td><td>Dr. Neena</td><td>Paediatric</td><td>F</td><td>19</td></tr></table> <p>Table : Patient</p> <table><tr><th>P_ID</th><th>P_Name</th><th>ID</th><th>Ward</th><th>Amount</th><th>DOA</th></tr><tr><td>P10</td><td>Issac</td><td>D02</td><td>101</td><td>2500</td><td>2024-10-11</td></tr><tr><td>P11</td><td>Jeremy</td><td>D03</td><td>101</td><td>10000</td><td>2024-10-02</td></tr><tr><td>P12</td><td>Anjeline</td><td>D01</td><td>102</td><td>7500</td><td>2024-09-15</td></tr><tr><td>P13</td><td>Nima</td><td>D04</td><td>103</td><td>14500</td><td>2024-07-23</td></tr><tr><td>P14</td><td>Jake</td><td>D06</td><td>102</td><td>5000</td><td>2024-09-16</td></tr><tr><td>P15</td><td>Kiran</td><td>D05</td><td>104</td><td>20000</td><td>2024-10-02</td></tr></table>	ID	Name	DEPT	Gender	Experience	D01	Dr. Lally	Gynoecology	F	20	D02	Dr. Ninan	Skin	M	17	D03	Dr. Harish	Opthamology	M	18	D04	Dr. Bimal	Cardiology	M	14	D05	Dr. Sophia	Cardiology	F	21	D06	Dr. Neena	Paediatric	F	19	P_ID	P_Name	ID	Ward	Amount	DOA	P10	Issac	D02	101	2500	2024-10-11	P11	Jeremy	D03	101	10000	2024-10-02	P12	Anjeline	D01	102	7500	2024-09-15	P13	Nima	D04	103	14500	2024-07-23	P14	Jake	D06	102	5000	2024-09-16	P15	Kiran	D05	104	20000	2024-10-02	[4]
ID	Name	DEPT	Gender	Experience																																																																											
D01	Dr. Lally	Gynoecology	F	20																																																																											
D02	Dr. Ninan	Skin	M	17																																																																											
D03	Dr. Harish	Opthamology	M	18																																																																											
D04	Dr. Bimal	Cardiology	M	14																																																																											
D05	Dr. Sophia	Cardiology	F	21																																																																											
D06	Dr. Neena	Paediatric	F	19																																																																											
P_ID	P_Name	ID	Ward	Amount	DOA																																																																										
P10	Issac	D02	101	2500	2024-10-11																																																																										
P11	Jeremy	D03	101	10000	2024-10-02																																																																										
P12	Anjeline	D01	102	7500	2024-09-15																																																																										
P13	Nima	D04	103	14500	2024-07-23																																																																										
P14	Jake	D06	102	5000	2024-09-16																																																																										
P15	Kiran	D05	104	20000	2024-10-02																																																																										

	<p>i) Display the names of doctors and their respective patients in the ascending order of names of patients.</p> <p>ii) Display the number of male and female doctors in each department .</p> <p>iii) Display the number of patients treated by doctors having more than 15 yrs of experience.</p> <p>iv)</p> <p>(A) Display The highest amount paid by the patient in the month of October of 2024.</p> <p style="text-align: center;">OR</p> <p>(B) Display the details of male doctor who has the highest experience.</p>	
35	<p>The Sports ACADEMY has stored the details of the students in the database “SPORTS” in a table called Students.</p> <p>The data in the students table contains data such as:</p> <p>i) Name_Student String</p> <p>ii) StudentId Integer</p> <p>iii) Game String</p> <p>iv) Category String</p> <p>v) Age Integer</p> <p>Note the following to establish connectivity between Python and MySQL:</p> <p>Username - root Password - tiger Host - localhost</p> <p>Write a user defined function ADD_DATA() which accepts the values from the user and stores the data into the table student.</p> <p>Write a user defined function Connect(Name_sport) in Python to read the content of the above file and display the Names of students, Category and Age who have the sports Name_sport .</p>	[4]
	<u>Section E</u> <u>(5 marks)</u>	
36.	<p>Sister Mathilda runs an orphanage called ANGELS which houses female children right from few days old to 12 yrs of age. Many people comes to her orphanage to adopt these children. She wants to maintain the details of these children in a file with following details.</p> <p>Child_ID Integer</p> <p>Name_Child String</p> <p>Gender String</p> <p>Date_entry Date</p> <p>Adopted_Parent String (value as NONE if no adoption)</p> <p>As a programmer, you have been assigned to do the following tasks:</p> <p>i) State the type of file (text, csv or binary) that you would use to store the above data . Give your reason to support your answer.</p> <p>ii) Write a function entry() to enter data into the above file as suggested by you in (i)</p> <p>iii) Write a function Adopted() to display the Name of the child along with Adopted Parent who were adopted.</p>	[5]]

37

National Law School is setting up its offices at Jaipur and planning to set up a network. The university has 3 academic schools and one administration centre as shown in the diagram below:



The diagram shows four buildings represented by house-like shapes. The Law School is at the bottom left, the Business School is at the top left, the Technology School is at the top right, and the Admin Center is at the bottom right.

The National Law school also would like to set up a connection with their head office at Delhi which is 600 kms from there.

Center to center distances between various buildings is as follows:

Law School to Business School	60 m
Law School to Technology School	90 m
Law School to Admin Center	115 m
Business School to Technology School	40 m
Business School to Admin Center	45 m
Technology School to Admin Center	25 m

Number of Computers in each of the Schools/Center is as follows:

Law School	25
Technology School	50
Admin Center	125
Business School	35

1. Suggest the most suitable place (i.e., Schools/Center) to install the server of this school with a suitable reason.

2. Suggest the most efficient connecting cable medium for connecting the machines within each centre in Jaipur.

3. Draw the cable layout for connecting the buildings in Jaipur. Also specify the hardware device that needs to be placed inside each building to connect the machines.

4. Should you place a repeater in your network in Jaipur. If yes or no, justify your answer

5. (A)How would you enable a visual communication between Delhi and Jaipur branches. What option would you opt for :-

i) Email ii) Video Conferencing iii) Telephony iv) SMS

or

(B) Which type of network is formed between the office of Jaipur and Delhi .
