Strictly Confidential: (For Internal and Restricted use only)
Senior School Certificate Examination - September 2021
Marking Scheme – Informatics Practices (OLD) (SUBJECT CODE: 265)
(SET: 4 | SERIES: 3HKP35/C| CODE NO -490)

General Instructions:

1. You are aware that evaluation is the most important process in the actual and correct assessment of the candidates. A small mistake in evaluation may lead to serious problems which may affect the future of the candidates, education system and the teaching profession. To avoid mistakes, it is requested that before starting evaluation, you must read and understand the spot evaluation guidelines carefully. **Evaluation is a 10 -12 days mission for all of us. Hence, it is necessary that you put in your best efforts in this process.**
2. Evaluation is to be done as per instructions provided in the Marking Scheme. It should not be done according to one's own interpretation or any other consideration. Marking Scheme should be strictly adhered to and religiously followed. **However, while evaluating answers which are based on the latest information or knowledge and/or are innovative, they may be assessed for their correctness otherwise and marks be awarded to them.**
3. The Head-Examiner must go through the first five answer books evaluated by each evaluator on the first day, to ensure that evaluation has been carried out as per the instructions given in the Marking Scheme. The remaining answer books meant for evaluation shall be given only after ensuring that there is no significant variation in the marking of individual evaluators.
4. If a question has parts, please award marks on the right-hand side for each part. Marks awarded for different parts of the question should then be totaled up and written in the left-hand margin and encircled.
5. If a question does not have any parts, marks must be awarded in the left hand margin and encircled.
6. If a student has attempted an extra question, the answer of the question deserving more marks should be retained and the other answer scored out.
7. No marks to be deducted for the cumulative effect of an error. It should be penalized only once.
8. A full scale of marks 70 (example: 1-70) has to be used. Please do not hesitate to award full marks if the answer deserves it.
9. Every examiner has to necessarily do evaluation work for full working hours i.e. 8 hours every day and evaluate 25 answer books per day.
10. Ensure that you do not make the following common types of errors committed by some Examiners in the past:-
    a. Leaving the answer or part thereof unassessed in an answer book.
    b. Giving more marks for an answer than assigned to it.
    c. Wrong transfer of marks from the inside pages of the answer book to the title page.
    d. Wrong question wise totaling on the title page.
    e. Wrong totaling of marks of the two columns on the title page.
    f. Wrong grand total.
    g. Marks in words and figures not tallying.
    h. Wrong transfer of marks from the answer book to online award list.
    i. Answers marked as correct, but marks not awarded. (Ensure that the right tick mark is correctly and clearly indicated. It should merely be a line. Same is with the X for incorrect answers.)
    j. Half or a part of the answer marked correct and the rest was wrong, but no marks were awarded.
11. While evaluating the answer books, if the answer is found to be totally incorrect, it should be marked as (X) and awarded zero (0) Marks.
12. Any unassessed portion, non-carrying over of marks to the title page, or totaling error detected by the candidate shall damage the prestige of all the personnel engaged in the evaluation work as also of the Board. Hence, in order to uphold the prestige of all concerned, it is again reiterated that the instructions be followed meticulously and judiciously.
13. The Examiners should acquaint themselves with the guidelines given in the Guidelines for spot Evaluation before starting the actual evaluation.
14. Every Examiner shall also ensure that all the answers are evaluated, marks carried over to the title page, correctly totaled and written in figures and words.

**These answers are meant to be used by evaluators*

15. The Board permits candidates to obtain a photocopy of the Answer Book on request in an RTI application and also separately as a part of the re-evaluation process on payment of the processing charges.

Specific Instructions:

- All programming questions have to be answered with respect to Java Language only
- In Java, ignore case sensitivity for identifiers (Variable / Functions / Structures / Class Names)
- In SQL related questions – both ways of text/character entries should be acceptable for Example: "AMAR" and 'amar' both are acceptable.
- In SQL related questions – all date entries should be acceptable for Example: 'YYYY-MM-DD', 'YY-MM-DD', 'DD-Mon-YY', "DD/MM/YY", 'DD/MM/YY', "MM/DD/YY", 'MM/DD/YY' and {MM/DD/YY} are correct.
- In SQL related questions – semicolon should be ignored for terminating the SQL statements
- In SQL related questions, ignore case sensitivity.

1.	(a)	A school with 20 stand-alone computers is considering networking them together. Which type of network would you suggest to form out of LAN/MAN/WAN ? Name two hardware resources that can be shared by the computers, when connected in the network.	1
	Ans	LAN is suggested for networking 20 stand-alone computers. Two hardware resources that can be shared by the computers, when connected in the network: (1) Printer (2) Scanner	
		(½ mark for LAN) ***(½ mark for suggesting any one device correctly)***	
	(b)	One of your relatives, lives in a city, which is more than 1000 km away from your home, requests you to set up MySQL on her desktop. Suggest any one popular software name so that you can remotely access her desktop from your home and set up MySQL on her desktop.	1
	Ans	Teamviewer or any valid remote access software	
		(1 mark for any valid remote access software)	
	(c)	Expand the following terms : (i) URL (ii) ODF	1
	Ans	(i) Uniform Resource Locator (ii) Open Document Format	
		(½ mark for each correct expansion)	
	(d)	Identify the open standards out of the following : (i) .HTML (ii) .BMP (iii) .CSS (iv) .DOC	1
	Ans	(i) .HTML (iii) .CSS	
		(½ mark for each correct answer)	
	(e)	Write any two differences to distinguish between ASCII and Unicode.	2
	Ans		

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Sr.	ASCII	UNICODE
1.	A character encoding standard for electronic communication	A computing industry standard for consistent encoding, representation, and handling of text expressed in most of the word's writing systems
2.	ASCII supports a larger range of characters. It uses a 7-bit range to encode, just 128 distinct characters. Takes Lesser space than UNICODE	Unicode supports a larger range of characters. It encodes 154 scripts Takes lot more space than ASCII

		(1 mark for each correct difference)	
	(f)	How can an IT security expert ensure that the data in her organization is secure and is available only to the intended and authorized persons ? Suggest any two methods.	2
	Ans	(1) Install a Firewall (2) Strong Password Policy (3) Two-Factor or Multi factor Authentication	
		(1 Mark each for any two correct methods)	
	(g)	Briefly explain any two advantages of using open source software.	2
	Ans	(1) They are cost effective since the maintenance cost is shared (lesser hardware costs) (2) High quality software (3) No vendor lock - in (4) Abundant support	
		(1 mark each for any two advantages)	
2	(a)	In context of Java programming, briefly define the following terms and give two suitable examples of each : (I) Data type (II) Arithmetic operator OR In context of Java programming, briefly define the following terms and give two suitable examples of each : (I) Comparison operator (II) Logical operator	4
	Ans	**(I)** Data type - Data type is a set of values and a set of operations defined on those values e.g. Numeric Datatype - byte, short, int long Floating type - float, double **(II)** Arithmetic operator - are used to perform arithmetic operations on variables or data. e.g. a + b and 10 * 20 OR (I) Comparison operator - is used to compare values or test for some kind of relation between two entities e.g. ==, >=, >, < (II) Logical operator - denotes a logical operation. They are used to form a complex condition. e.g. && , ll, !	
		(1 mark for each of the two definitions) ***(1 mark for each of the two examples)***	

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	(b)	Write any two differences to distinguish between HTML and XML OR Mention any two main features of XML for which it is used extensively.	2
	Ans		

Sr.	HTML	XML
1.	HTML is used to display data and to focus on formatting of data.	XML is used to describe data and focus on what the data is.
2.	HTML tags are predefined.	XML tags are not predefined. They are created by the programmer only.
3.	HTML tags are not case sensitive	XML tags are case sensitive

Features of XML for which it is used extensively

1. XML can be used to store data
2. XML is free. It can be written with a simple text editor or any one of the many freely available XML authoring tools.

		(1 mark for each of any two correct differences) ***(1 mark for each of any two correct features)***	

	(c)	Noor Begum, working with a reputed school as a website developer, has written the following code :
		`<school>`
		`  <teacher tid=1>`
		`  <name>David Abraham</name>`
		`  <sub sid="cs">Computer Science</sub>`
		`  </teacher>`
		`  <teacher tid=2>`
		`  <name>Rupam Sinha</name>`
		`  <sub sid ="ip">Informatics Practices</sub>`
		`  </teacher>`
		`</school>`
		
		Observe the code and answer the following questions :
		(I) Are these tags part of HTML code or XML code ?
		(II) Identify the root element.
		(III) Mention any two child elements.
		(IV) Mention any two attributes.
		
		OR
		
		Solve both the subparts :
		(I) Give examples of two sets of initial values for the variables int a and int b such that the following two codes give
		(1) same outputs
		(2) different outputs
		
		First Code :
		`while(a<=b)`
		`{`
		`  jTextField1.setText(""+a);`
		`  a=a+1;`
			4
			
			2+2

		} Second Code : **do** **{** **jTextField1.setText(""+a);** **a=a+1;** **}while(a<=b);** (II) Write the output of the following code : **int n=10,p=1,i;** **for(i=1;i<=n;i++)** **{** **p=p*i;** **}** **jTextField1.setText(""+p);**	
	Ans	(I) XML Code **(II)** Root element is <school> **(III)** Two child elements- 1) <teacher> 2) <Name> (IV) Two attributes - **<Name>, <sub>**	
		(1 mark for correct answer) ***(1 mark for correct identification of Root element)*** ***(½ mark for each of the two child elements)*** ***(½ mark for each of the two attributes)***	
		OR	
	Ans (I)	(1) Same outputs will be generated if a = 0 and b = 1 (2) Different outputs will be generated if a=1 and b = 0	
		(1 mark for mentioning each of the correct value of a and b for which same output is generated) ***(1 mark for mentioning each of the correct value of a and b for which different output is generated)***	
	II	3628800	
		(1 Mark for the correct output)	
3	(a)	Write the values of C and D after execution of the following code : **int A = 10; int B = 20;** **int C; int D;** **C = ++A;** **D = B++;** **C++;** **OR** How is jLabel different from jTextField control at run time ?	1
	Ans	**C = 12** **D = 20** OR **jLabel** - is not editable. It provides text information. It displays single line of text, an image or both text and image **jTextField** - allows editing/ displaying of a single line of text. It is an input area	

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		where the user can type in characters	
		(½ mark each for correct value of C and D) ***OR*** ***(1 mark for mentioning any one correct difference)***	

	(b)	Rewrite the following code after correcting errors. Underline each of the corrections made.
		`int N, Sum;`
		`10 = N;`
		`0 = Sum;`
		`do while(0<N)`
		`{`
		`  Sum = N + Sum;`
		`  N = = N 1;`
		`}`
		`jTextField1.setText(Sum);`
		
		OR
		Suggest any two basic methods commonly available with all the four controls mentioned below :
		
		`jButton, jLabel, jTextField, jCheckbox`
			2

	Ans	`int N, Sum;`
		`N = 10;`
		`Sum = 0;`
		`do`
		`{`
		`  Sum = N + Sum;`
		`  N = N - 1;`
		`}`
		`while(0<N);`
		`jTextField1.setText(Sum);`
		
		OR
		
		Commonly available basic methods for
		
		`jButton, jLabel, jTextField, jCheckbox` are `getText and setText()`,	

		(½ mark for correcting each of the four errors) ***Note: 1 mark to be given if errors are underlined/identified but not corrected)*** **OR** ***(1 mark for each of the any two common methods)***	

	(c)	**How many times will the following loop execute ?**
		`int N = 10;`
		`int I = 1;`
		`do`
		`{`
		`  I = I + 1;`
		`  N = N - 1;`
		`}`
		`while(I <= N);`
		
		OR
			2

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		Using `if-else` statements; rewrite an equivalent code of the following program segment :
		
		`switch (GP)`
		`{`
		`case 1 : jTextField1.setText("Grade D"); break;`
		`case 2 : jTextField1.setText("Grade C"); break;`
		`case 3 : jTextField1.setText("Grade B"); break;`
		`case 4 : jTextField1.setText("Grade A"); break;`
		`default : jTextField1.setText("PASS");`
		`}`	

	Ans	`5 Times`
		
		OR
		
		`if (GP==1)`
		`jTextField1.setText("Grade D");`
		`else if (GP ==2)`
		`jTextField1.setText("Grade C");`
		`else if (GP ==3)`
		`jTextField1.setText("Grade B");`
		`else if (GP ==4)`
		`jTextField1.setText("Grade A");`
		`else`
		`jTextField1.setText("Pass");`	

		(2 Marks for correct answer) ***OR*** ***(½ mark each for every condition put correctly)***	

	(d)	Write the output in jTextField1 when the following code is executed :
		`int c, n, sum=0;`
		`for(c = 1; c < 5; c++)`
		`{`
		`n = c + 2 * 3;`
		`sum = sum + n;`
		`}`
		`jTextField1.setText(""+sum);`
		
		OR
		Write the output in jTextField1 when the following code is executed :
		`int c, n=0, sum=0;`
		`c = 2;`
		`while ( c < 10 )`
		`{ n = c + 4;`
		`sum = sum + n;`
		`c = c + 2;`
		`}`
		`jTextField1.setText(""+sum);`
			2

	Ans	`34`
		
		OR
		
		`36`	

		(2 marks for correct answer) ***OR*** ***(2 marks for correct answer)***	

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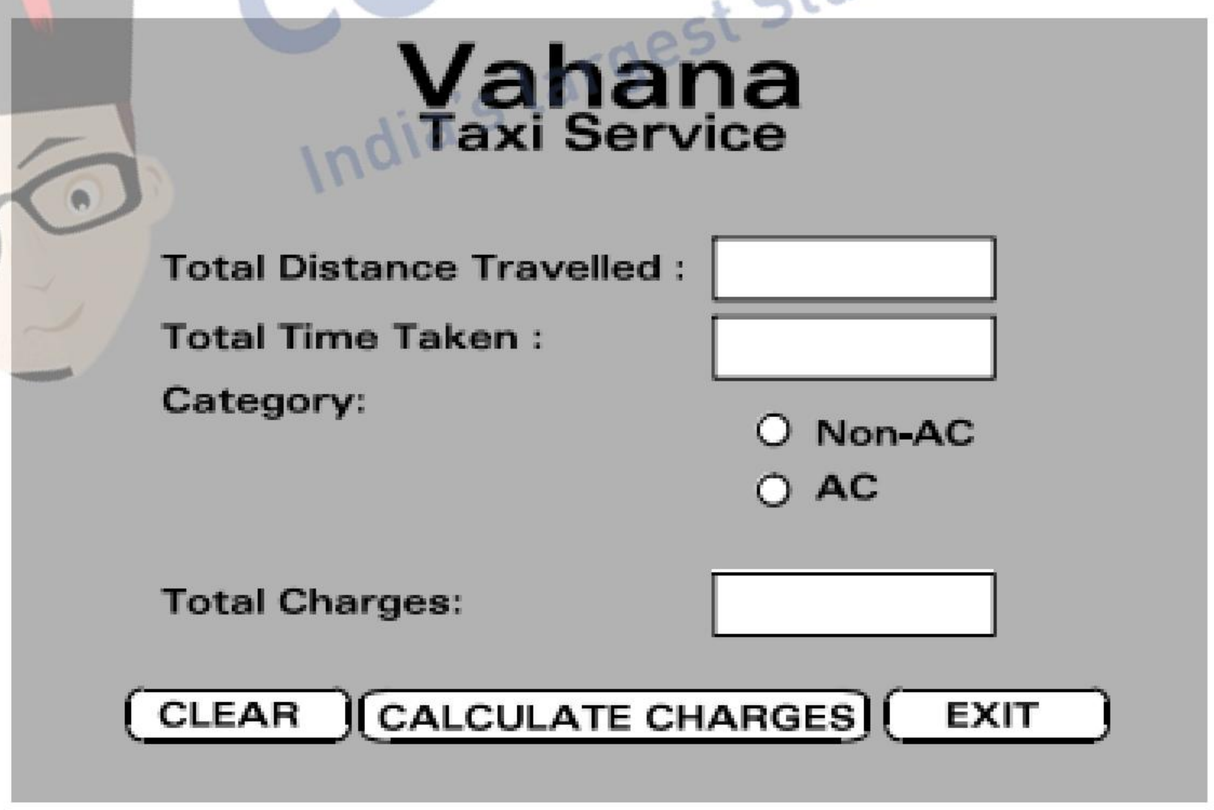
	(e)	Write the values that will be assigned to S1, S2, S3 and L after executing the following Java code :
		`string Str1, Str2, Str3, S1, S2, S3;  int L;`
		`Str1 = "Hello World";`
		`Str2 = "I Love India";`
		`Str3 = " AISSE 2021 ";  S1 = Str1.substring(0, 5);`
		`S2 = Str2.substring(6, 12);S2 = S1.concat(S2);`
		`S3 = Str3.trim();`
		`L = S3.length();`
		
		OR
		Briefly explain the uses of pow() method with the help of suitable Java code.
			2

	Ans	`Hello`
		`Hello India`
		`AISSE 2021`
		`10`
		
		OR
		`Math.pow(5, 2)` – is used to return the result of raised to the power of a number	

		(½ mark for each correct value) ***OR*** ***(1 mark for correct use of pow() and 1 mark for code using pow())***	
	(f)	Ms. Anandita works as a programmer in a Taxi Service Company ,"Vahana" where she has designed a basic software to compute charges to be paid by the traveller. User interface of her software looks as follows :  • Total Distance Travelled is entered by the user. • Total Time Taken on the trip is entered by the user. • Category (AC or Non-AC) is selected by the user. Based on the Data entered and Category selected, Total Charges is computed according to the following criterion : **Service** | **Charges** **Basic Service** | **₹ 600 for 4 hours and 40 km** **For additional km** | **₹ 10/km beyond 40 km** **For additional hour** | **₹ 50/hour beyond 4 hours** **Non-AC Category** | **No additional cost for Non-AC vehicle**	

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		AC Category | **Additional 30% is charged on subtotal for AC vehicle** Example 1 : For a Non-AC trip covering 34 km completed within 6 hours : **SubTotal = 600 + (0)*10 + (6-4)*50 = 600 + 0 + 100 = 700** **Total Charges = ₹700** Example 2 : For an AC trip covering 54 km completed within 5 hours : **SubTotal = 600 + (54-40)*10 + (5 4)*50 = 600 + 140 + 50 = 790** **Total Charges = 790 + 0.30*790 = 790 + 237 = ₹ 1027** Help Ms. Anandita in writing the code to do the following :	4+ 1+ 1=6
	(I)	When **CALCULATE CHARGES** button is clicked, **Total Charges** should be calculated and displayed in the text field.	

	Ans	`double distance, charges, basic;`
		`int time;`
		`distance =Double.parseDouble(jTextfieldDistance.getText());`
		`time = Integer.parseInt(jTextfieldTime.getText());`
		`Basic = 600;`
		`charges = 0;`
		`if(distance >=40)`
		`  charges =(distance-40)*10+Basic;`
		`else`
		`  charges = Basic;`
		
		`if(time>4)`
		`  charges = charges + (time-4)*50;`
		
		`if (jRadioButtonAC.isSelected())`
		`{`
		`  charges = charges+.3*charges;`
		`}`
		`jTextfieldCharges.setText(""+charges);`	

		(1 mark for getting the values out of the textboxes) ***(1 mark for correctly calculation of charges for AC facility)*** ***(1 mark for correct calculation of charges for Non-AC facility)*** ***(1 mark for displaying the correct charges in textbox)***	
	(II)	When **CLEAR** button is clicked, all the text fields and radio buttons should be cleared.	

	Ans	`jTextfieldDistance.setText("");`
		`jTextfieldTime.setText("");`
		`jTextfieldCharge.setText("");`
		`jRadio1.setSelected(false);`
		`jRadio2.setSelected(false);`	

		(1 mark if any one of the controls is cleared)	
	(III)	When EXIT button is clicked, the application should close.	
	Ans	`System.exit(0);`	
		(1 mark for correct statement) ***OR*** ***(½ mark if exit() function is mentioned)***	
		OR	

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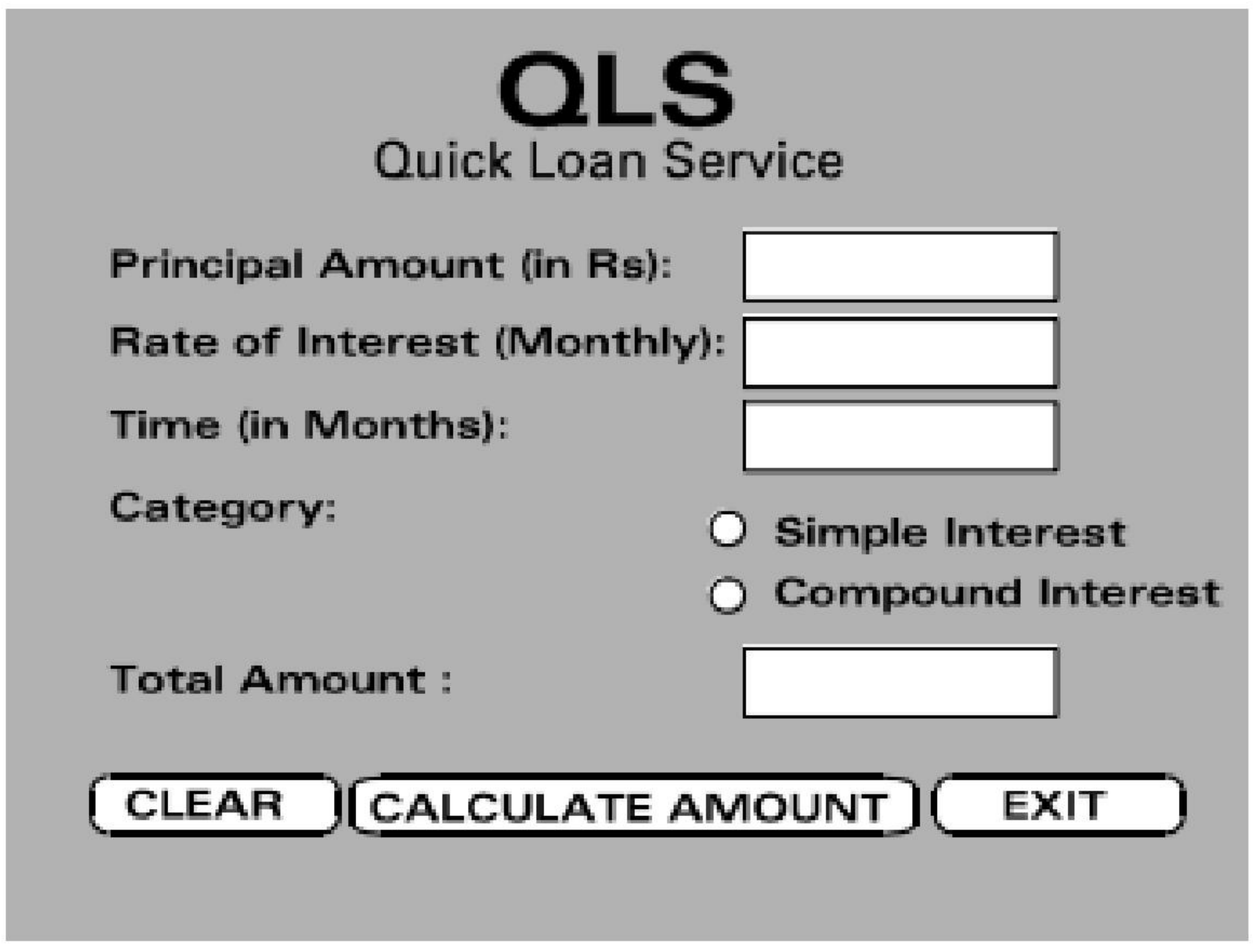
(f) Ms. Amaira has designed a basic software to compute interest to be paid by the borrower. User interface of her software looks as follows :



- Principal Amount (in ₹) is entered by the user.
- Rate of Interest (Monthly) is entered by the user.
- Time (in Months) is entered by the user.
- Category (Simple Interest or Compound Interest) is selected by the user.

4+ 1+ 1=6

Based on the Data entered and Category selected, Total Amount (Principal + Interest) is computed according to the following formulae :

Category	Total Amount
Simple Interest	= Principal + $\frac{Principal*Rate*Time}{100}$
Compound Interest	= Principal * $\left(1 + \frac{Rate}{100}\right)^{Time}$

Help Ms. Amaira in writing the code to do the following :

(I) When **CALCULATE AMOUNT** button is clicked, Total Amount should be calculated and displayed in the text field.

Ans

```
Double Amount;
int principal = Integer.parseInt(jTextfieldPrincipal.getText());
int rate = Integer.parseInt(jTextfieldRate.getText());
int time = Integer.parseInt(jTextfieldText.getText());
if(jRadioButton.isSelected())
{
  Amount = principal + (principal*rate*time)/100;
}
else
{
  Amount = principal * (1+(rate/100))**time;
}
jTextfieldAmount.setText(""+Amount);
```

(1 mark for getting the values out of the textboxes)
(1 mark for correctly calculation of Amount in case of Simple Interest)
(1 mark for correct calculation of Amount in case of Compound Interest)
(1 mark for displaying the correct Amount in textbox)

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	(II)	When **CLEAR** button is clicked, all the text fields and radio buttons should be cleared.	

	Ans	`jTextfieldPrincipal.setText("");`
		`jTextfieldInterest.setText("");`
		`jTextfieldTime.setText("");`
		`jTextfieldTotal.setText("");`
		`jRadioSI.setSelected(false);`
		`jRadioCI.setSelected(false);`	

		(1 mark if any one of the controls is cleared)	
	(III)	When **EXIT** button is clicked, the application should close.	
	Ans	`System.exit(0);`	
		(1 mark for correct statement) or ***(½ mark if exit() function is mentioned)***	
4	(a)	What is RDBMS ? Write any two advantages of RDBMS.	2
	Ans	The software which is used to store, manage, query, and retrieve data stored in a relational database is called a **relational database management system** (RDBMS). The RDBMS provides an interface between users and the database. It provides administrative functions for managing data storage, access, and performance. Advantages of RDBMS: • It limits data redundancy and data replication. • It offers better data integrity.	
		(1 marks for correct definition of RDBMS) ***(½ mark each for any two correct advantages of RDBMS)***	
	(b)	Consider the following table STUDENT : **STUDENT** **SID** | **NAME** | **DOB** | **AadhaarNo** S2016312 | Ajay Mishra | 2011-06-20 | 234598764567 S2017102 | Rekha Mahkija | 2012-03-21 | 567854342123 S2017178 | Shamim Khan | 2012-04-26 | 765434569876	4
	(i)	Suggest the most suitable data type and appropriate size for NAME column, used to store the full name of each student.	
	Ans	`NAME VARCHAR(20)`	
		(½ Mark each for correct data type /size)	
	(ii)	Suggest the most suitable data type for DOB column, used to store the date of birth of each student.	
	Ans	`DATE`	
		(1 mark for correct data type)	
	(iii)	Suggest the constraints required for SID column,to store the student's ID, if we wish to use SID to identify each student uniquely in the table STUDENT.	
	Ans	`UNIQUE, Primary key`	
		(1 mark for correct constraints)	
	(iv)	Suggest the constraints required for AadhaarNo column, to store the in the table STUDENT.	
	Ans	`UNIQUE`	
		(1 mark for correct constraints)	

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	(c)	Write the complete SQL command to create the empty table STUDENT as described above. You can use any suitable data types for the columns (attributes) and constraints.	2
	Ans	`CREATE TABLE STUDENT(SID VARCHAR(10)PRIMARY KEY,NAME VARCHAR(20),DOB DATE,AadhaarNo INT(12));`	
		(2 marks for correct answer)	
	(d)	Write SQL command to add a new row (a tuple) into the table STUDENT having the following values : **SID** | **NAME** | **DOB** | **AadhaarNo** S2018012 | John Roger | 2013-12-25 | 123459876456	2
	Ans	`INSERT INTO STUDENT VALUES('S2018012','John Roger', '2013-12-25', 123459876456);`	
		(2 marks for correct answer)	
5.		Mr. Rajnish, working as a database administrator in an IT organization team members involved in an upcoming project. **Project2021** **EID** | **EName** | **Designation** | **Gender** | **MSalary** | **EmailID** E104 | Manisha | Team Leader | Female | 120000 | mk@gmail.com E107 | Karim | Sr. Programmer | Male | 80000 | kk@wl.com E113 | Saira | Sr. Programmer | Female | 80000 | sj@gmail.com E118 | Malala | Programmer | Female | 50000 | mk@wk.com E124 | Rajesh | Programmer | Male | 62000 | rk@wk.com	
	(a)	Which attribute (or key) of the table"Project2021" can be used as a primary key? Justify your answer.	1
	Ans	**EID** can be used as primary key because this is unique key.	
		(1 mark for correct Primary key)	
	(b)	Help him in writing SQL commands for the following queries :	4
	(i)	To change the EmailID of EID="E104" from mk@gmail.com to mk@w1.com.	
	Ans	`UPDATE Project2021 SET EmailID='mk@w1.com' WHERE EID="E104";`	
		(1 mark for correct statement)	
	(ii)	To display details of all members who are having EmailID with 'gmail.com'.	
	Ans	`SELECT * FROM Project2021 WHERE EmailID='gmail.com';`	
		(1 mark for correct statement)	
	(iii)	To display the average MSalary of all the Male team members.	
	Ans	`SELECT AVG(MSalary) FROM Project2021 WHERE Gender='Male';`	
		(1 mark for correct statement)	
	(iv)	To display the Designation-wise number of members in the team.	
	Ans	`SELECT COUNT(*),Designation FROM Project2021 GROUP BY Designation;`	

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		(1 mark for correct statement)	
	c)	Observe the above table named "project2021" carefully and write the output of the following queries:	4
	(i)	`SELECT COUNT(*)FROM Project2021` `WHERE MSalary>75000;`	
	Ans	**count(*)** 3	
		(1 mark for correct output)	
	(ii)	`SELECT EName FROM Project2021` `ORDER BY MSalary DESC;`	
	Ans	**EName** **Maisha** **Karim** **Saira** **Malala** **Rajesh**	
		(1 mark for correct output)	
	(iii)	`SELECT MAX(MSalary) - MIN(MSalary) FROM Project2021;`	
	Ans	**MAX (MSalary) - MIN(MSalary)** 70000	
		(1 mark for correct output)	
	(iv)	`SELECT EName FROM Project2021` `WHERE Designation LIKE "%Programmer";`	
	Ans	**EName** **Karim** **Saira** **Malala** **Rajesh**	
		(1 mark for correct output)	
	(d)	What is the degree and cardinality of the above given table named "**Project2021**"	1
	Ans	**Degree=6** **Cardinality=5**	
		(½ mark for each correct answer)	
6	(a)	Give a suitable example to explain the term 'Foreign Key' in context of SQL.	2
	Ans	A Foreign Key is a field (or collection of fields) in one table, that refers to the PRIMARY KEY in another table. Consider the following two tables: Table1	

ID1	Name1	Email1
101	Anita	anita@gmail.com
102	Rehman	rehman2310@gmail.com

Table2

BranchCode	BranchCity2	ID1
B123	Delhi	101

*These answers are meant to be used by evaluators

		B456 | **Kolkata** | **102** Here ID1, which is the primary key for the table Table1 is the Foreign key for the Table2.	
		(2 marks for correct explanation with suitable example)	
		OR	
	(a)	Give a suitable example to explain the term 'Equi-Join' in context of SQL.	

	Ans	SQL EQUI JOIN is a type of join that combines two tables based on matching values in specified columns/attributes.
		
		Consider the following two tables:
		Table1
		ID1 | **Name1** | **Email1**
		101 | **Anita** | **anita@gmail.com**
		102 | **Rehman** | **rehman2310@gmail.com**
		
		Table2
		BranchCode | **BranchCity2** | **ID1**
		B123 | **Delhi** | **101**
		B456 | **Kolkata** | **102**
		
		Example of SQL query on Equi Join:
		`SELECT NAME1, BranchCity2 FROM Table1, Table2`
		`WHERE Table1.ID1=Table2.ID1;`	

		(2 marks for correct explanation with suitable example)	
	(b)	In a database BANK, there are two tables, CUSTOMER and TRANSACTION as shown below :	

Database : BANK

Table : CUSTOMER

AccNO	CName	AadhaarNo	RPhoneNO	Balance
1001379	Ajay	123456098765	9810010234	60000
1001465	David	567890765432	9810020432	75000
1002113	Saira	345678098765	9910002341	75000
1002241	Ameena	234567987654	7634512365	65000

Table : TRANSACTION

TranID	Date	AccNO	TranType	Amount
D012	2021-03-02	1001379	Credit	5000
W324	2021-03-07	1002113	Debit	7000
W453	2021-03-13	1002241	Debit	10000
D675	2021-03-16	1001379	Credit	8000
W798	2021-03-21	1002113	Debit	12000

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		Consider these tables while attempting the questions given below:	
	(i)	Identify the valid candidate key(s) of the CUSTOMER table.	1
	Ans	**AccNO, AadhaarNO, RPhoneNO** are the valid Candidate Keys	
		(½ mark each for suggesting any 2 valid Candidate keys)	
		OR	
	(i)	Give a valid example of an Alternate key from the CUSTOMER table, where AccNo is used as the Primary Key.	
	Ans	**AadhaarNO, RPhoneNO** are the valid Alternate Key	
		(1 mark for suggesting any 1 valid Alternate key)	
	(ii)	Which attribute (column) can be considered as Foreign Key in TRANSACTION table?	
	Ans	**AccNO** - Foreign Key	
		(1 mark identifying the valid Foreign key)	
		OR	
	(ii)	Identify the Primary Key attribute (column) of TRANSACTION table.	
	Ans	**TranID** - Primary Key	
		(1 mark identifying the valid Primary key)	
	(c)	With reference to the above given tables, answer the following questions:	2
	(i)	Write an SQL query to display customer's name (CName) who has withdrawn money (TransType='Debit').	2
	Ans	`SELECT CName FROM CUSTOMER C , TRANSACTION T` `WHERE C.AccNo=T.AccNO AND TranType='Debit';`	
		(½ mark for the part **SELECT CName** ***)*** ***(½ mark for the part*** **FROM CUSTOMER C , TRANSACTION T*)*** ***(½ mark for the part*** **WHERE C.AccNo=T.AccNO** ***)*** ***(½ mark for the part*** **AND TranType='Debit'*)*** ***Note:*** ***Give full marks to all correct alternative SQL commands to solve this query.***	
		OR	
	(i)	Write an SQL query to display CName, TranType, Amount from the tables CUSTOMER and TRANSACTION.	2

		`SELECT CName, TranType, Amount`
		`FROM CUSTOMER C , TRANSACTION T`
		`WHERE C.AccNo=T.AccNO;`	

		(½ mark for the part **SELECT CName, TranType, Amount** ***)*** ***(½ mark for the part*** **FROM CUSTOMER C , TRANSACTION T*)*** ***(½ mark for the part*** **WHERE C.AccNo=T.AccNO** ***)*** ***Note:*** ***Give full marks to all correct alternative SQL commands to solve this query.***	
	(ii)	Write an SQL query to display customer's name (CNAME) who has more than one transaction in the TRANSACTION table.	2

	Ans	`SELECT CName`
		`FROM CUSTOMER C , TRANSACTION T`
		`WHERE C.AccNO=T.AccNO`
		`GROUP BY CName`
		`HAVING COUNT(*)>1;`	

		(½ mark for the part **SELECT CName FROM CUSTOMER C , TRANSACTION T*)*** ***(½ mark for the part*** **WHERE C.AccNo=T.AccNO** ***)***	

**These answers are meant to be used by evaluators*

		(½ mark for the part* GROUP BY CName*) ***(½ mark for the part* HAVING COUNT(*)>1*)*** ***Note:*** ***Give full marks to all correct alternative SQL commands to solve this query.***	
		OR	
	(ii)	How many rows and columns will be there in the Cartesian product of the above tables	2
	Ans	Number of rows will be = 20 Number of columns will be = 10	
		(1 mark for correctly writing the number of rows = 20) ***(1 mark for correctly writing the number of columns = 10)***	
	(iii)	Write an SQL query to display AccNO from the table CUSTOMER who has not made any transaction in the table TRANSACTION.	2

	Ans	`SELECT AccNO`
		`FROM CUSTOMER C , TRANSACTION T`
		`GROUP BY AccNO`
		`HAVING COUNT(*) = 0;`	

		(½ mark for the part* SELECT AccNO*) ***(½ mark for the part* FROM CUSTOMER C , TRANSACTION T*)*** ***(½ mark for the part* GROUP BY AccNO ***(½ mark for the part* HAVING COUNT(*)=0*)*** ***Note:*** ***Give full marks to all correct alternative SQL commands to solve this query.***	
		OR	

	(iii)	Write the output of the following SQL query :
		`SELECT CName, Amount FROM CUSTOMER C, TRANSACTION T`
		`WHERE C.AccNO=T.AccNO;`
			2

	Ans	`CName  Amount`
		`Ajay  5000`
		`Ajay  8000`
		`Saira  7000`
		`Saira  12000`
		`Ameena  10000`	

		(½ mark each for any 4 correct lines of output)	
7	(a)	In the era of e-Commerce, your friend Richa is confused and cannot decide whether to buy something online or not. Briefly explain to her any two advantages of online shopping. Also suggest her two precautions that she must follow while doing online shopping.	2
	Ans	**Advantages of Online shopping:** (i) Shopping can be done any time (ii) Shopping can be done from anywhere (iii)In case of defective item, most online vendor provide return facility (iv)Can access and compare more options (Any two of the above or similar)	

**These answers are meant to be used by evaluators*

		Precautions: (i) Select reputed online stores (ii) While making payment, prefer secured websites and payment methods (iii)Carefully examine the ratings and buyer's review about the product/seller (iv)Avoid using public computers while doing online shopping (any two of the above or similar)	
		(½ mark each for mentioning any 2 advantages of online shopping) ***(½ mark each for mentioning any 2 precautions while shopping online)***	
	(b)	How does e-Governance empower citizens ? Write any two advantages.	1
	Ans	e-Governance ensure the following to the citizens to empower them: (i) IBetter transparency to improve delivery and efficiency of government services. (ii) Citizen empowerment through access to all information all time & everywhere. (iii)Clean (or less corrupt) administration. (Any two of the above or similar)	
		(½ mark each for mentioning any 2 advantages of e-Governance)	
	(c)	Mr. Imran is creating a form for admission in Global Vidyapeeth. Help him to choose the most appropriate controls from ListBox, ComboBox, TextField, TextArea, RadioButton, CheckBox, Label and Command Button for the following entries : Sr. No. | Function 1. | To let the user enter NAME of the applicant. 2. | To let the user enter PHONE NUMBER of any one parent. 3. | To let the user choose one GENDER out of Female/Male/Others. 4. | To let the user choose SPECIAL CATEGORY out of Alumni/Single Child/EWS. More than one category may be chosen.	2
	Ans	Appropriate controls for the forms entries are: **Entries** | **Suggestions for controls** **NAME** | **TextField** **PHONE NUMBER** | **TextField** **GENDER** | **Radiobutton/ Combobox** **SPECIAL CATEGORY** | **ListBox/CheckBox**	
		(½ mark each for mentioning the 4 feasible controls)	

**These answers are meant to be used by evaluators*