General Instructions:

- Marking scheme is the final document for all references with regard to evaluation and cannot be altered under any circumstances
- The answers given in the marking scheme are SUGGESTIVE, Examiners are requested to award marks for all alternative correct Solutions/Answers conveying the similar meaning
- All programming questions have to be answered with respect to Java Language only
- In Java, ignore case sensitivity for identifiers (Variables / 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.
  - 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.
  - Semicolon should be ignored for terminating the SQL statements.
  - Ignore case sensitivity for commands.
  - Ignore headers in output questions.

1	(a)	A company has 3 departments namely Administrative, Sales, Production. Out of telephone cable, Optical Fiber, Ethernet Cable, which communication medium is best for speed communication between departments?	1					
	Ans	Optical Fiber						
		(1 mark for correct answer)						
	(B)	Name one Open Source Indian Operating System.						
	Ans	BOSS						
		OR						
		Bharat Operating Systems Solutions						
		(1 mark for any correct purpose)						
	(c)	What is the purpose of a Server in a network ?						
	Ans	A server manages network resources in a network.						
		(1 mark for correct answer)						
	(d)	What do the following top level domains signify ?	1					
		(i) .com						
		(ii) .org						
	Ans	(i) .com - Commercial						
		(ii) .org - Organization						
		<b>Note:</b> Non-Profit Organization should also be accepted.						

	( ½ mark for each correct answ	/er)			
(e)	List 2 measures to secure a netw	ork.		2	
Ans	Measures to secure a network are: Use of (i) Login-Password (ii) Firewall (iii) Anti Virus Software (iv) File permissions OR Any other correct measure.				
	(1 mark each for any 2 correct	me	asures)		
(f)	Distinguish between MAC address example of each.	s an	d IP address with the help of	2	
Ans	 	1			
	MAC Address	IP	Address		
	MAC (Media Access Control) address e.g.IP (Internet Protocol) address e.g. 192.168.0.2 is a numerical label that is assigned to a device participating in a computer network using Internet Protocol				
	Can never be changed.	Ca	an be changed.		
	(1 mark for any 1 correct difference) (1 mark for any 1 example of each)				
(g)	Distinguish between Phonetic t entry of typing Indian language t			2	
Ans					
	Phonetic text entry Keymap based entry				
	In Phonetic text entr traditional keyboards wi English keys are used. Wh typing, letters are type phonetically in English Script and then converted to corresponding Indian language .	th ile ed nd	In this method the keyboard keys are mapped to specific characters of Indian language using a keymap.		

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			<u> </u>
		(2 marks for correct difference)	
		OR	
		(2 marks for explaining the difference with the help of	
		example of each)	
2	(a)	Write the value of t after the execution of the following code:	1
	. ,	int t;	
		int s;	
		s=6;	
		t = (8 * s++) % 7 ;	
	Ans	6	
		(1 mark for correct answer)	
		ÒR	
		( $\frac{1}{2}$ mark to be awarded if 0 is given as answer on account of	
		student's knowledge about * and % operators)	
	(b)	Which tag is used to display a horizontal rule on a web page ?	1
	Ans	<hr/>	
		OR	
		HR	
		(1 mark for correct answer)	
	(c)	In a SWITCH statement, what is the purpose of BREAK	1
	(-)	statements?	-
	Ans	A BREAK statement causes control to exit the SWITCH	
		statement.	
		(1 mark for correct answer)	
	(d)	Identify the error in the following HTML code.Rewrite the	1
	. ,	correct code.	
		<ul start="4" type="a"></ul>	
	Ans	<ol start='``4"' type="a"></ol>	
		OR	
		<pre><ul type="circle"></ul></pre>	
		OR	
		<pre><ul type="disc"></ul></pre>	
		OR	
		<pre></pre>	

	( 1 mark for correct answer ) OR	
	(½ mark for only identifying error)	
(e)	Write Java code to assign the value 70 to variable y. Then	2
	decrease the value of y by 5 and store it in variable z.	
Ans	y = 70;	
	z = y - 5;	
	OR	
	y = 70;	
	y = y - 5;	
	z = y;	
	OR	
	y = 70; OR	
	y = 70;	
	y = 5;	
	z = y; (½ mark for assigning 70 to y)	
	(1 mark for decreasing value of y by 5)	
	(1/2) mark for assigning decreased value to z)	
 (f)	Write the output that will be generated by the code given	2
( )	below:	
	int t;	
	int i; $(i - 5)$ $(-10)$ $(i - 5)$	
	for (i = 5; i <=10; i = i+5) {	
	t = i+3;	
	<pre>System.out.println(" "+t);</pre>	
	}	
Ans	8	
	13	
	(1 mark for each correct line of output)	
	OR	
	(Full 2 marks to be given if 8 13 mentioned in the same line.)	
	OR	
	(Full 2 marks to be awarded, if any Question 2 is attempted	
	correctly.)	

	( )		
	(g)	"With XML you invent your own tags." Explain this statement with the help of example.	2
	Ans	XML tags are created by the user as there are no standard tags.	
		For example :	
		To store name , the tag <name> may be used as : <name> Sumedha </name></name>	
		( 2 marks for explanation with the help of example )	
		OR	
2	(=)	(Full 2 marks should be awarded if only explanation is given)	4
3	(a)	Sharmila wants to make the database named 'COMPANY' active	1
		and display the names of all the tables in it. Write MySQL	
		commands for it.	
	Ans	USE COMPANY;	
		SHOW TABLES;	
	(1-)	( 1/2 mark for each correct part)	
	(b)	Write SQL command to remove column named 'Hobbies' from a table named 'Student' .	1
	Ans	ALTER TABLE Student DROP Hobbies;	
	All	OR	
		ALTER TABLE Student DROP (Hobbies);	
		( 1/2 mark for ALTER TABLE)	
		( 1/2 mark for DROP)	
	(c)	Rewrite the following SQL statement after correcting error(s).	1
		Underline the corrections made.	
		INSERT IN EMP(EMPNO, SALES) VALUE (100, 20078.50);	
	Ans		
	7.115	INSERT <u>INTO</u> EMP (EMPNO, SALES)	
		<u>VALUES</u> (100, 20078.50);	
		( <sup>1</sup> / <sub>2</sub> mark for correcting INTO)	
		( <sup>1</sup> / <sub>2</sub> mark for correcting VALUES)	
		Note:	
		<ul> <li>½ mark for only identifying errors.</li> </ul>	
		• ½ mark to be awarded if the following is mentioned as	
		correct statement:	
		INSERT INTO EMP VALUES (100, 20078.50);	
	4.15		
	(d)	A table STUDENT has 5 rows and 3 columns. Table ACTIVITY has 4	1
		rows and 2 columns. What will be the cardinality and degree of	
		the Cartesian product of them?	

Ans	Cardinality=20	
	Degree=5	
	( ½ mark for Cardinality)	
	( ½ mark for Degree)	
(e)	Name the SQL commands used to:	2
	(i) Physically delete a table from the database.	
Ans	(ii) Display the structure of a table.	
AIIS	(i)	
	DROP TABLE	
	OR	
	DROP TABLE <table name="">;</table>	
	(ii)	
	DESCRIBE	
	OR	
	DESC	
	OR	
	DESCRIBE <table name="">;</table>	
	OR	
	DESC <table name="">;</table>	
	(1 mark each for both parts)	
(f)	Write one similarity and one difference between UNIQUE and PRIMARY KEY constraints.	2
Ans	<b>Similarity</b> : The UNIQUE and PRIMARY KEY constraints both ensure uniqueness of values for a column or set of columns.	
	Difference : Primary key cannot have NULL value, but Unique key may be	
	NULL.	
	( 1 mark for one correct similarity )	
	(1 mark for any one correct difference)	
	OR	
()	(2 marks for only defining Primary Key)	
(g)	What effect does SET AUTOCOMMIT have in transactions?	2
Ans	If AUTOCOMMIT is set to 1, each SQL statement is considered a	
	complete transaction and committed by default when it finishes.	
	If AUTOCOMMIT is set to 0, the subsequent series of statements	
	acts like a transaction and no transaction is committed until an	

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		avalisit COMMIT statement is issued	
		explicit COMMIT statement is issued.	
		( 1 mark for correct effect of AUTOCOMMIT set to 1)	
		( 1 mark for correct effect of AUTOCOMMIT set to 0)	
4	(a)	<pre>The following code has some error(s). Rewrite the correct code underlining all the corrections made. int written, interview; written = Integer.parselnt(jTextFieldl.getText()); interview = Integer.parselnt(jTextField2.getText()); if (written &lt;80) OR (interview &lt;15) {     System.out.println(Not selected); } Else; {     System.out.println("Selected"); }</pre>	2
	Ans	<pre>int written, interview; written = Integer.parseInt(jTextField1.getText()); interview = Integer.parseInt(jTextField2.getText()); if ( (written &lt;80) 11 (interview &lt;15) ) { System.out.println("Not selected"); } else { System.out.println("Selected"); }</pre>	
		<pre>( ½ mark each for correcting any four errors) OR (1 mark for only identifying any four errors - without making any corrections) NOTE : System.out.println may be accepted as error</pre>	

(b)	How many times will the following loop execute:	2				
(5)	int $z = 7$ , sum = 0;	-				
	$\frac{1}{2} = \frac{1}{2} = \frac{1}{2}$					
	{					
	sum = sum + z;					
	z = z+2;					
	System.out.println(" "+z);					
	}					
	while (z <=12);					
 Ans	3 times					
 7.115						
	( 2 Marks for correct no.of times)					
(c)	Rewrite the following program code using IF ELSE IF instead of	2				
	SWITCH statement.					
	String rem;					
	int code =					
	<pre>Integer.parseInt(jTextFieldl.getText());</pre>					
	Switch(code)					
	{					
	<pre>case 1: rem = "Classes start on 8th April"; break;</pre>					
	<pre>case 2: rem = "Classes start on loth April"; break;</pre>					
	<pre>case 3: rem = "Classes start on 12th April" ;     break;</pre>					
	<pre>default: rem = "Contact Admin Office";</pre>					
	}					
Ans	String rem;					
	int code =					
	<pre>Integer.parseInt(jTextField1.getText());</pre>					
	if (code==1)					
	<pre>rem = "Classes start on 8th April";</pre>					
	else if (code==2)					
	<pre>rem = "Classes start on 10th April";</pre>					
	else if (code==3)					
	<pre>rem = "Classes start on 12th April";</pre>					
	else					
	<pre>rem = " Contact Admin Office";</pre>					

	( $\frac{1}{2}$ mark for correct use of if -else statement)	
	( <sup>1</sup> / <sub>2</sub> mark for each correct condition )	
(d	<pre>code: int sum,t; sum = 27; t = 3;</pre>	2
Ar	sum = sum + 2 * (++t);       s     sum = 35	
	t = 4	
	(1 Mark for correct value of sum) (1 Mark for correct value of t)	
(e	<pre>What will be the contents of jTextField1 and jTextField2 after executing the following code : String s = "Best"; String r = "Luck"; String Z; Z = r.concat(s); jTextField1.setText(z) ; jTextField2.setText(r.toUpperCase());</pre>	2
Ar		
	jTextField2 = LUCK	
	(1 mark for each correct output)	
(f)	Seema is a junior programmer at 'Avon Shoe Factory'. She has	
	created the following GUI in Netbeans.	
	AVON SHOE FACTORY  Enter Quantity Amount Shoe (Code 101) Sandal (Code 102) Silppers (Code 103) Calculate Clear Stop Total Amount	
	3 items namely Shoes, Sandals and Slippers are manufactured	
	by the factory.	
	<ul> <li>A buyer can buy more than one item at a time.</li> <li>Each pair of shoes costs Rs. 1,500.00, each pair of sandals costs Rs. 1,000.00 and each pair of slippers cost Rs. 500.00.</li> </ul>	

		<ul> <li>The item bought will be selected by the user and the Quantity</li> </ul>	
		(number of pairs) bought will be entered by the user.	
		• Amount to be paid for that item will be displayed in front of	
		the item.	
		For example if 'Shoe' is selected and Quantity entered is 20,	
		then Amount should be displayed as 30000.	
		Help Seema write code for the following:	
	(a)	When 'Calculate' button is clicked, the amount should be	3
		displayed in front of each item (in the appropriate textfield)	
		and Total amount (sum total of all the amounts) should be	
		displayed in the appropriate' textfield.	
	Ans	float qty1=0, qty2=0, qty3=0, amt1=0, amt2=0,	
		<pre>amt3=0, total;</pre>	
		<pre>if(jCheckBox1.isSelected())</pre>	
		qty1=Float.parseFloat(jTextField1.getText());	
		<pre>if(jCheckBox2.isSelected())</pre>	
		qty2=	
		<pre>Float.parseFloat(jTextField2.getText());</pre>	
		if(jCheckBox3.isSelected())	
		qty3=	
		<pre>Float.parseFloat(jTextField3.getText());</pre>	
		amt1= qty1*1500;	
		amt2=qty2*1000;	
		amt3=qty3*500;	
		<pre>total=amt1+amt2+amt3;</pre>	
		<pre>jTextField4.setText(``"+amt1);</pre>	
		<pre>jTextField5.setText(``'+amt2);</pre>	
		<pre>jTextField6.setText(``"+amt3);</pre>	
		<pre>jTextField7.setText(""+total);</pre>	
		(½ mark for correct use of getText())	
		(1 mark for checking conditions)	
		(1 mark for Calculation of Amount and Total Amount)	
		( $\frac{1}{2}$ mark for displaying correct values in the text fields)	
	(b)	When Clear button is clicked, all the Textfields and Checkboxes should be cleared.	1
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	Ans						
	AIIS	jTextField1.setText(""					
		jTextField2.setText(""	);				
		<pre>jTextField3.SetText("");</pre>					
		·					
		jCheckBox1.setSelected	(false);				
		Note: NULL in place of " " s	hould also be accepted.				
		( ½ mark for clearing any o	one text field)				
		( $\frac{1}{2}$ mark for clearing any o	one check box)				
	(c)	When Stop button is clicked, 1	the application should close.	1			
	Ans	<pre>System.exit(0);</pre>					
		(1 mark for correct answer)					
5	(a)	Write one similarity and one of VARCHAR data types.	difference between CHAR and	2			
	Ans	Similarity :					
		Both are used for storir	ng non numeric data.				
		Both can store 1 to 255	characters.				
		• Values must be enclose	ed in single quotes or double				
		quotes.					
		Difference :					
		CHAR	VARCHAR				
		Used for fixed-length string	Used for variable-length string				
		Padded to the specified	No padding takes place				
		length when stored					
		L					
		( 1 mark for stating any one					
		(1 mark for stating any one	,				
		Note : Full 2 marks to be awarded if similarity / difference explained with the help of example.					
			<i>λαπμι</i> ε.				
<u> </u>	(b)	Consider the following table r	named "GARMENT". Write command				
		of SQL for (i) to (iv) and output					

	Tabe : GARMENT							
	GCODE	GNAME	SIZE	COLOUR	PRICE			
	111	TShirt	XL	Red	1400.00			
	112	Jeans	L	Blue	1600.00			
	113	Skirt	м	Black	1100.00			
	114	Ladies Jacket	XL	Blue	4000.00			
	115	Trousers	L	Brown	1500.00			
	116	Ladies Top	L	Pink	1200.00			
(i)	To display size.	/ names of tho	se garments	that are ava	ailable in 'XL'	1		
Ans		NAME FROM GA	ARMENT					
	,	for SELECT) for WHERE)						
(ii)		To display codes and names of those garments that have their names starting with 'Ladies'.						
Ans	SELECT GCODE,GNAME FROM GARMENT WHERE NAME LIKE `Ladies%';							
	( <sup>1</sup> / <sub>2</sub> mark for SELECT) ( <sup>1</sup> / <sub>2</sub> mark for LIKE)							
(iii)	To display garment names, codes and prices of those garments that have price in the range 1000.00 to 1500.00 (both 1000.00 and 1500.00 included).							
Ans	SELECT GCODE, GNAME, PRICE FROM GARMENT WHERE PRICE BETWEEN 1000 AND 1500; OR							
	SELECT G	CODE, GNAME, RICE>=1000 AN						
	•	for SELECT) for BETWEEN (	DR >= and <	<=)				
(iv)	To change	the color of ga	rments with	code as 116	to "Orange".	1		

	Ans	UPDATE GARMENT SET COLOUR = 'Orange' WHERE GCODE = 116; OR UPDATE GARMENT SET COLOUR = 'Orange' WHERE GCODE = '116'; ( ½ mark for correct use of UPDATE SET) ( ½ mark for WHERE)	
	(v)	SELECT COUNT (DISTINCT (SIZE)) FROM GARMENT;	1
	Ans	3	
		(1 mark for correct output)	
	(vi)	SELECT AVG (PRICE) FROM GARMENT;	1
	Ans	1800	
		(1 mark for correct output)	
	(vii)	SELECT GNAME FROM GARMENT WHERE SIZE IN ('M','L') AND PRICE>15.0;	1
	Ans	Jeans	
		(1 mark for correct output)	
	(c)	What is the degree and cardinality of 'Garment' table?	1
	Ans	Degree = 5 , Cardinality = 6	
		( <sup>1</sup> / <sub>2</sub> mark each for correct Degree and Cardinality)	
6	(a)	Write MySql command to create the table DEPARTMENT with given constraints Table : DEPARTMENT	2
		COLUM_NAMEDATATYPE (SIZE)CONSTRAINTDepartment IDint(4)Primary keyDepNamevarchar (50)Not NullManager IDchar (4)Locationvarchar (30)	

Ans	CREATE TABL	E DEPARTMENT				
	(					
	DEPARTMENTID INT(4) PRIMARY KEY,					
	DEPNAME VARCHAR (50) NOT NULL,					
		RID CHAR(4),				
	LOCATIO	ON VARCHAR(30)				
	);					
	( <sup>1</sup> /2 mark for (	CREATE TABLE)				
	( <sup>1</sup> / <sub>2</sub> mark for C	Column Names with Dat	а Ту	(pes)		
	$(\frac{1}{2} mark for F$	RIMARY KEY Constrai	int)			
	, ,	OT NULL Constraint)	,			
(b)	In a Database.	there are two tables g	iven	below:		
Ň	Table : EMPLOYEE					
	EMPLOYEEID	NAME	SAL	FS	JOBID	
	E1	SAMIT SINHA	-	0000	102	
	E2	VIJAY SINGH TOMAR	-	0000	101	
	E3	AJAY RAJPAL	-	0000	103	
	E4	MOHIT RAMNANI		0000	102	
	E5	SHAILJA SINGH	145	0000	103	
	Table : JOB					-1
	JOBID	JOBTITLE		SALARY	,	
	101	President		200000		
	102	Vice President		125000	)	
	103	Administration Assist	tant	80000		
	104	Accounting Manager		70000		
	105	Accountant 65000				
	106	Sales Manager		80000		
	Write SQL Que	ries for the following:				
(i)	To display employee ids, names of employees, job ids with					2
	corresponding job titles.					

Ans	SELECT EMPLOYEEID, NAME, E.JOBID, JOBTITLE	
	FROM EMPLOYEE E, JOB J	
	WHERE E.JOBID = J.JOBID;	
	OR	
	SELECT EMPLOYEEID, NAME, J.JOBID, JOBTITLE	
	FROM EMPLOYEE E, JOB J	
	WHERE E.JOBID = J.JOBID;	
	OR	
	SELECT EMPLOYEEID, NAME, EMPLOYEE. JOBID, JOBTITLE	
	FROM EMPLOYEE, JOB	
	WHERE EMPLOYEE.JOBID = JOB.JOBID;	
	(1/2 mark for SELECT)	
	(1/2 mark for FROM)	
	(1 mark for correct use of join)	
(ii)	To display names of employees, sales and corresponding job	2
	titles who have achieved sales more than 1300000.	
Ans	SELECT E.NAME, E.SALES, J.JOBTITLE	
	FROM EMPLOYEE E, JOB J	
	WHERE E.JOBID = J.JOBID AND E.SALES > 1300000;	
	OR	
	SELECT NAME, SALES, JOBTITLE	
	FROM EMPLOYEE, JOB	
	WHERE EMPLOYEE.JOBID = JOB.JOBID	
	AND SALES > 1300000;	
	OR	
	SELECT NAME, SALES, JOBTITLE	
	FROM EMPLOYEE , JOB	
	WHERE EMPLOYEE.JOBID = JOB.JOBID	
	AND EMPLOYEE.SALES > 1300000;	
	(½ mark for SELECT)	
	(½ mark for FROM)	
	(½ mark for JOIN)	
	(½ mark for CONDITION)	
(iii)	To display names and corresponding job titles of those	2
	employee who have 'SINGH' (anywhere) in their names.	

	Ans		
		SELECT E.NAME, J.JOBTITLE FROM EMPLOYEE E, JOB J	
		WHERE E.JOBID = J.JOBID AND NAME LIKE	
		'%SINGH%';	
		OR	
		SELECT NAME, JOBTITLE	
		FROM EMPLOYEE, JOB	
		WHERE EMPLOYEE.JOBID = JOB.JOBID	
		AND NAME LIKE `%SINGH%';	
		OR	
		SELECT NAME, JOBTITLE	
		FROM EMPLOYEE E, JOB J	
		WHERE E.JOBID = J.JOBID AND NAME LIKE `%SINGH%'	
<u> </u>			
		(½ mark for SELECT)	
		(½ mark for FROM)	
		(½ mark for use of JOIN)	
		(1/2 mark for CONDITION)	
	(iv)	Identify foreign key in the table EMPLOYEE.	1
	Ans	JOBID	
		(1 mark for correct answer)	
	(v)	Write SQL command to change the JOBID to 104 of the	1
		Employee with ID as E4 in the table 'EMPLOYEE'	
	Ans	UPDATE EMPLOYEE	
		SET JOBID = $104$ WHERE EMPLOYEEID = $E4'$ ;	
		OR	
		UPDATE EMPLOYEE	
		SET JOBID = `104' WHERE EMPLOYEEID = `E4';	
<u> </u>		( <sup>1</sup> / <sub>2</sub> mark for correct use of UPDATE SET)	
		( <sup>1</sup> / <sub>2</sub> mark for where)	

7	(a)	Write one advantage and one disadvantage of e-leaming to	2
		students.	
	Ans	<ul> <li><u>Advantages</u></li> <li>Students can <ul> <li>learn at their own pace.</li> <li>learn at any age.</li> <li>study anywhere provided they have access to a computer and Internet connection</li> <li>assess themselves and take feedback to enhance their learning.</li> </ul> </li> <li><u>Disadvantages</u> <ul> <li>As teacher-student personal interaction is absent, learners with low motivation or bad study habits may fall behind.</li> <li>Slow Internet connections may make accessing e-learning</li> </ul> </li> </ul>	
		course material difficult.	
		(1 mark for any one correct advantage) (1 mark for any one correct disadvantage)	
	(b)	What precaution must be taken with regard to making	1
	(~)	payments while shopping online?	
	Ans	<ul> <li>Share payment information only with known or reputable vendors</li> <li>Before entering any personal or payment information, make sure that the URL should start with http</li> <li>Look for a small lock icon in web browser.</li> <li>(1 mark for ANY one correct precaution)</li> </ul>	
	(c)	James works for a Garments company. He has created a form for the employees.Help him choose most appropriate controls from ListBox, ComboBox,TextField,TextArea, RadioButton, Checkbox, Label and Command Button for the following entries: <u>S.No. Function</u> <u>1 To enter first name of employee</u> <u>2 To select gender (M/F)</u> <u>3 To choose gender of employee (Permanent/Temporary)</u> <u>4 To allow entering remarks about the employee in the form of paragraph.</u>	2

Ans			
	S.No.	Function	Control
	1	To enter first name of employee	TextField
	2	To select gender (M/F)	RadioButton/ ComboBox
	3	To choose category of employee (Permanent/Temporary)	RadioButton/ ComboBox
	4	To allow entering remarks about the employee in the form of paragraph.	TextArea
	( ½ mark	for each correct answer)	