Marking Scheme

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Senior Secondary School Examination, 2023

SUBJECT NAME: INFORMATION TECHNOLOGY

(SUBJECT CODE – 802) (PAPER CODE – 326)

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 teaching profession. To avoid mistakes, it is requested that before starting evaluation, you must read and understand the spot evaluation guidelines carefully.
2	**"Evaluation policy is a confidential policy as it is related to the confidentiality of the examinations conducted, Evaluation done and several other aspects. Its' leakage to public in any manner could lead to derailment of the examination system and affect the life and future of millions of candidates. Sharing this policy/document to anyone, publishing in any magazine and printing in News Paper/Website etc. may invite action under various rules of the Board and IPC."**
3	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 latest information or knowledge and/or are innovative, they may be assessed for their correctness otherwise and due marks be awarded to them. In Class-XII, while evaluating two competency-based questions, please try to understand given answer and even if reply is not from marking scheme but correct competency is enumerated by the candidate, due marks should be awarded.**
4	The Marking scheme carries only suggested value points for the answers These are in the nature of Guidelines only and do not constitute the complete answer. The students can have their own expression and if the expression is correct, the due marks should be awarded accordingly.
5	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. If there is any variation, the same should be zero after deliberation and discussion. 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.
6	Evaluators will mark (√) wherever answer is correct. For wrong answer CROSS 'X" be marked. Evaluators will not put right (✓) while evaluating which gives an impression that answer is correct and no marks are awarded. **This is most common mistake which evaluators are committing.**
7	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 totalled up and written in the left-hand margin and encircled. This may be followed strictly.

8	If a question does not have any parts, marks must be awarded in the left-hand margin and encircled. This may also be followed strictly.
9	If a student has attempted an extra question, answer of the question deserving more marks should be retained and the other answer scored out with a note **"Extra Question"**.
10	No marks to be deducted for the cumulative effect of an error. It should be penalized only once.
11	A full scale of marks _____ (example 0 to 80/70/60/50/40/30 marks as given in Question Paper) has to be used. Please do not hesitate to award full marks if the answer deserves it.
12	Every examiner has to necessarily do evaluation work for full working hours i.e., 8 hours every day and evaluate 20 answer books per day in main subjects and 25 answer books per day in other subjects (Details are given in Spot Guidelines).This is in view of the reduced syllabus and number of questions in question paper.
13	Ensure that you do not make the following common types of errors committed by the Examiner in the past: - ● Leaving answer or part thereof unassessed in an answer book. ● Giving more marks for an answer than assigned to it. ● Wrong totalling of marks awarded on an answer. ● Wrong transfer of marks from the inside pages of the answer book to the title page. ● Wrong question wise totalling on the title page. ● Wrong totalling of marks of the two columns on the title page. ● Wrong grand total. ● Marks in words and figures not tallying/not same. ● Wrong transfer of marks from the answer book to online award list. ● 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 answer.) ● Half or a part of answer marked correct and the rest as wrong, but no marks awarded.
14	While evaluating the answer books if the answer is found to be totally incorrect, it should be marked as cross (X) and awarded zero (0)Marks.
15	Any unassessed portion, non-carrying over of marks to the title page, or totalling 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.
16	The Examiners should acquaint themselves with the guidelines given in the "**Guidelines for spot Evaluation**" before starting the actual evaluation.
17	Every Examiner shall also ensure that all the answers are evaluated, marks carried over to the title page, correctly totalled and written in figures and words.
18	The candidates are entitled to obtain photocopy of the Answer Book on request on payment of the prescribed processing fee. All Examiners/Additional Head Examiners/Head Examiners are once again reminded that they must ensure that evaluation is carried out strictly as per value points for each answer as given in the Marking Scheme.

INFORMATION TECHNOLOGY (Subject Code–802)

[Paper Code:326]

Max. Time: 3 Hours   **Max. Marks: 60**

General Instructions:

(i)   Please read the instructions carefully.

*(ii) This Question Paper consists of **24** questions in **two** sections: **Section A** and **Section B**.*

*(iii) **Section A** has Objective type questions whereas **Section B** contains Subjective type questions.*

*(iv) Out of the given (6 + 18)= 24 questions, a candidate has to answer (6 + 11)= 17 questions
       in the allotted (maximum) time of 3 hours.*

(v) All questions of a particular section must be attempted in the correct order.

*(vi) **Section A** : Objective Type Questions (30 Marks):*

   *(a)   This section has **6** questions.*

   (b)   Marks allotted are mentioned against each question/part.

   (c)   There is no negative marking.

   (d)   Do as per the instructions given.

*(vii) **Section B** : Subjective Type Questions (30 Marks):*

   *(a)   This section has **18** questions.*

   *(b)   A candidate has to do **11** questions.*

   (c)   Do as per the instructions given.

   (d)   Marks allotted are mentioned against each question/part.

Q. No.	EXPECTED ANSWER / VALUE POINTS	Marks
	SECTION—A **(Objective Type Questions)**	**(30 Marks)**
Q1.	**Answer any *4* questions out of the given *6* questions on Employability Skills.**	**4×1=4**
i)	An individual's motivations, inspired by others or events is known as _____ **Ans:** Extrinsic motivation **OR** External motivation **OR** Motivation *(1 mark for correct answer)*	**1**
ii)	What is stress? **Ans:** Stress is a state of feeling upset, annoyed and hopeless. There are times when we feel nothing is working right, we are not able to achieve our goals and feel hopeless. During such times, if we manage and control our emotions, it helps us to sail through. **OR** Stress can be defined as a state of worry or mental tension caused by a difficult situation. **OR** Stress is a feeling of emotional or physical tension. It can come from any event or thought that makes you feel frustrated, angry, or nervous. **OR** Stress is a normal reaction the body has when changes occur, resulting in physical, emotional and intellectual responses. **OR** Stress is how we react when we feel under pressure or threatened. It usually happens when we	**1**

	are in a situation that we don't feel we can manage or control.	
	(1 mark for any correct/relevant answer)	
iii)	A _____ is rectangle shaped box, where row and column meet in a spreadsheet. **Ans:** Cell *(1 mark for correct answer)*	1
iv)	Decisiveness is one of the entrepreneurial competencies. State True/False. **Ans:** True *(1 mark for correct answer)*	1
v)	The act of setting up and running a business and taking risks in order to earn profits is known as _____. **Ans:** Entrepreneurship **OR** Start up *(1 mark for correct answer)*	1
vi)	In Open Office Calc _____contains the Name Box which shows the location of the selected cell. **Ans:** (a) **OR** Formula Bar *(1 mark for correct answer)*	1
Q2.	**Answer any 5 out of the given 7 questions.**	5×1=5
i)	_____ command displays all the tables created in the current database. **Ans:** (b) **OR** SHOW TABLES *(1 mark for correct answer)*	1
ii)	_____symbol replaces a single character while matching a pattern with LIKE keyword. **Ans:** _ (underscore) *(1 mark for correct answer)*	1

iii)	Predict the output:
	```String myStr = "Welcome Users";```
	```System.out.println("New String:"+myStr.toUpperCase());```
	Ans: New String: WELCOME USERS
	(1 mark for correct answer)
	(1/2 mark for WELCOME USERS)
		1

iv)	An attribute value may not be permitted to be NULL value with _____ constraint. **Ans:** NULL Value **OR** NOT NULL *(1 mark for correct answer)*	1
v)	_____ statement in Java, allows to use a prebuilt class and its associated methods from a package. **Ans:** (d) **OR** import *(1 mark for correct answer)*	1

vi)	_____ is an e-commerce application where the customer can purchase goods over the Internet. **Ans:** Online shopping **OR** Amazon.com **OR** Flipkart.com **OR** Myntra.com _(1 mark for correct answer/relevant sites)_	**1**

vii)	Ranjana has written the following query but it is giving an error. Rectify the error and rewrite the query.
	
	        SELECT * FROM PRODUCT
	        SORT BY PRICE;
	Ans: Instead of SORT BY it should be ORDER BY
	
	SELECT * FROM PRODUCT
	 ORDER BY PRICE;
	(1 mark for correct query)
	(1/2 marks for writing ORDER BY)
		1

Q3.	**Answer any 6 out of the given 7 questions**	**6×1=6**
i)	The _____blocks follow a try block. It contains the exception handler-specific code that is executed when the exception occurs. **Ans:** Catch block _(1 mark for correct answer)_	**1**
ii)	"Database management system could not find any usage in hospital domain." Is the above statement true or false? **Ans:** False _(1 mark for correct answer)_	**1**
iii)	NeGP stands for _____. **Ans:** National e-Governance Plan _(1 mark for correct answer)_	**1**
iv)	The _____ command is used to view the structure and description of a table. **Ans:** (a) **OR** DESCRIBE TABLE **OR** DESCRIBE **OR** DESC _(1 mark for correct answer)_	**1**
v)	Define Referential Integrity. **Ans: Referential Integrity:** The main purpose of this constraint is to check that data entered in one relation/table is consistent with the data entered in another relation/table. **OR** Referential integrity refers to the relationship between two or more tables. When a primary key from one table appears in another table as a foreign key.	**1**

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	OR	
	Any valid example using two tables with an appropriate explanation.	
	(1 mark for correct answer/relevant answer)	
vi)	What is a Compiler?	**1**
	Ans: A compiler is a special program that translates a programming language's source code into machine code, bytecode or another programming language.	
	OR	
	A compiler is a computer software that translates (compiles) source code written in a high-level language into a set of machine-language instructions that can be understood by a digital computer's CPU.	
	OR	
	A compiler is a language translator.	
	(1 mark for correct answer/relevant answer)	
vii)	Name any two Primitive datatypes in Java.	**1**
	Ans: byte, short, int, long, float, double, boolean and char.	
	(1/2 mark for each correct primitive data type (ignore case))	
Q4.	**Answer any 5 out of the given 6 questions.**	**5×1=5**
i)	_____ is a group of statements written to perform a specific task.	**1**
	Ans: (a)	
	OR	
	Method	
	(1 mark for correct answer)	

ii)	Predict the output of the given Java code:
	`String first_name = "Priyanka";`
	`String last_name = "Arora"`
	`System.out.println(first_name. length()+last_name.length());`
	Ans: error / semicolon missing in line number 2
	(1 mark to be given)
	OR
	Output: 12
	OR
	(1 mark for attempting the question (with any answer)
	(1 mark for correct answer)
		1

iii)	In which of the following phase of web based application project, we create backend database, frontend and the connectivity between them? **Ans:** (c) **OR** Implementation phase *(1 mark for correct answer)*	**1**

iv)	Which of the following constraints specifies that the value of every attribute in each tuple must be from the domain of that attribute? **Ans:** (a) **OR** Domain Constraint *(1 mark for correct answer)*	**1**	

v)	Database can be removed by using_____command. **Ans:** DROP DATABASE **OR** DROP; *(1 mark for correct answer)*	**1**

vi)	What will be the output of the following code if value of variable a is 1?	**1**

```
        switch(a)
        {
        case 0: jTextField1.setText("Blue");
        case 1: jTextField1.setText("Red");
        case 2: jTextField1.setText("Orange");
        break;
        case 3: jTextFieldl.setText("Black");

        default:jTextFieldl.setText("transparent");

        break;

        }
```

Ans: Orange
 OR
orange

(1 mark for correct answer)

Q5.	**Answer any 5 out of the given 6 questions.**	**5×1=5**

i)	Define Front End, with respect to web based application project. **Ans:** Frontend development focuses on the graphical aspects of a website. **OR** A frontend application, commonly known as the interface of an application, is the layer or element that the user has the ability to use, see, and interact with through buttons, images, interactive elements, navigational menus, and text. **OR** Frontend uses the Page Structure and the Page Layout defined in Design phase to implement the frontend code. It identifies the inputs that are required to be taken from the user in the Frontend of the application. **OR** Frontend developers design the visual aspect of websites for user to interact with, including colors, layout and fonts. **OR** Frontend development is programming which focuses on the visual elements of a website that a user interacts with (the client side) **OR** The frontend uses web languages such as CSS, HTML, and JavaScript that allow users to access and interact with the site. *(1 mark for correct answer/ relevant answer)*	**1**

ii)	_____ members of a class cannot be accessed outside the class. **Ans:** Private members *(1 mark for correct answer)*		**1**
iii)	Create Table is a _____command. **Ans:** DDL **OR** Data Definition Language command **OR** Data Definition *(1 mark for correct answer)*		**1**
iv)	Name any 2 web browsers. **Ans:** • Chrome • Microsoft Edge • Firefox • Brave • Safari • Opera • Internet Explorer • Chromium etc. *(1/2 mark for each correct web browser)*		**1**
v)	Name the Indian Government portal for booking train tickets. **Ans:** www.irctc.co.in *(1 mark for correct answer)*		**1**
vi)	Name the method that is used to concatenate a string at the end of another string in Java. **Ans:** concat() method *(1 mark for correct answer)*		**1**
Q6.	**Answer any 5 out of the given 6 questions.**		**5×1=5**
i)	RDBMS packages are widely used as _____(Frontend/Backend) Ans: Backend *(1 mark for correct answer)*		**1**
ii)	Mention any one eGovernance initiative taken by the Central Government of India. **Ans:** • National e-Governance Plan (NeGP) • National e-Governance Division (NeGD) • e-Governance Infrastructure • Mission Mode Projects • Citizens Services • Business Services • Government Services • Projects and Initiatives • R&D in e-Governance • National Portal of India • The Ministry of Electronics and Information Technology (https://www.meity.gov.in/e-governance) • uidai.gov.in		**1**

	• incometaxindiaefiling.gov.in • indiapost.gov.in • passportindia.gov.in • epfindia.gov.in • UPSC.GOV.IN • ClearTax, etc. *(1 mark for any correct/relevant example)*	
iii)	What is a Bytecode? **Ans:** Java Bytecode is the instruction set for the Java Virtual Machine. It acts similar to an assembler. As soon as a java program is compiled, java bytecode is generated. **OR** When an application is written in Java, the Java compiler converts the source code to bytecode, outputting the bytecode to a CLASS file. **OR** Byte code is the intermediate code compiled and executed by a virtual machine (VM). **OR** Bytecode is the compiled format for Java programs. **OR** As soon as a Java program is compiled bytecode is generated. To be more precise a Java bytecode is the machine code in the form of a class file. A bytecode in Java is the instruction set for Java Virtual Machine **OR** **Bytecode -** A Java compiler instead of translating Java code to machine language code, translates it into Java Bytecode. When the bytecode runs on a computer, a Java interpreter translates the bytecode into machine code and then executes it. **OR** | Java Program (Source Code)	→	Java Compiler	→	Java Program Byte Code | *(1 mark for any correct/relevant answer)*	**1**
iv)	Requirement, _____, Implementation and Testing are the phases in Web Application Development. **Ans:** Design Phase **OR** Design *(1 mark for any correct/relevant answer)*	**1**
v)	Which of the following is/are not a keyword in JAVA? break, While, for, switch, Display **Ans:** While, Display *(1/2 mark for each correct answer)*	**1**
vi)	The functions that are used to apply certain mathematical functions on a group of values in a database are called _____. **Ans:** Aggregate Functions **OR** Any two function names like SUM(), AVG(), COUNT(), MAX(), MIN() *(1 mark for any correct answer)* *(1/2 mark each for one correct function name)*	**1**

<table>
<tr><td colspan="3" align="center">**SECTION - B:**</td></tr>
<tr><td colspan="2" align="center">**(Subjective Type Questions)**</td><td align="center">**(30 marks)**</td></tr>
<tr><td colspan="2">**Answer any 3 questions out of the given 5 questions on Employability Skills.**
Answer each question in 20 – 30 words.</td><td>**3x2 = 6**</td></tr>
<tr><td>**Q7.**</td><td>Briefly discus the importance of positive attitude.

Ans:
Start the day with a morning routine. Say positive affirmations, smile often and think about the tasks to be accomplished during for the day.
Feed the mind with positivity, read motivating books, listen to music with uplifting lyrics, watch inspiring movies, etc.
Be proactive. A proactive person decides how one must feel regardless of what may be going around or what the day may bring.
Focus on constructive and positive things. Do not approach life with 'problems'. Approach it with 'solutions'.
Learn from failures. Think what could have been better and work towards the goals.
Learn to focus on the present. Negativity mostly stems out from anxiety of the past and future events.
Move towards your goals and dreams. Be cheerful and work hard to achieve the dreams.
(2 mark for any relevant answer)</td><td>**2**</td></tr>
<tr><td>**Q8.**</td><td>Name any two types of Entrepreneurs.
Ans:
Types of Entrepreneurs:
Service entrepreneurs
Business entrepreneurs
Industrial entrepreneurs
Agricultural entrepreneurs
Technical entrepreneurs
Non-technical entrepreneurs
Professional entrepreneurs
IT entrepreneurs
Women entrepreneurs
Social entrepreneurs
Family business entrepreneurs
(*Any 2 from the above mentioned points*)
(*1 mark for each correct answer/ Any other relevant answer*)</td><td>**2**</td></tr>
<tr><td>**Q9.**</td><td>Write down the main steps to apply filter to a tabular data in Calc.
Ans:
To apply AutoFilter in a worksheet, the steps are:

1. Select the data range.

2. Select Data ➢ Filter ➢ AutoFilter.
3. A drop-down menu arrows appear in each column heading.
4. Click the drop-down menu arrow for any column and select an item. Only those rows whose contents meet the filter criteria are displayed.

(1/2 mark for each step for any correct/ relevant answer)</td><td>**2**</td></tr>
</table>

Q10.	Mention any two common barriers to entrepreneurship.
	Ans: Some of the common barriers to entrepreneurship are:
	    1. Environmental barriers
	    2. Personal barriers
	    3. No or faulty business plan
	    4. Self-doubt
	    5. Forming a team and teamwork
	    6. Unsupportive business environment
	    7. Market entry regulations
	    8. Shortage of capital
	    9. Skilled workforce challenges
	    10. Lack of Entrepreneurial Mindset & Training
	    11. Fear as a barrier
	    12. Fear of failure
	    13. Fear of the unknown
	    14. Fear of not being an expert
	    15. Fear of being pushed into uncomfortable situations
	    16. Fear of risk taking
	
	(1 mark for each correct / relevant answer)
		2

Q11.	Mention any two steps to overcome personality disorders. **Ans:** If anyone is identified with personality disorders, counselling shall be provided by family members, teachers and counsellors. Following points should be taken into consideration: • **Not to be Paranoid** - Do not feel nervous and worried because you believe that other people do not like you or are trying to harm you. • **To be social** • **Not to be Schizoid** - interested in social relationships without shying away from interaction not being defensive. • **Borderline** - No mood swings or impulsiveness. • Not to be **Narcissistic** – Not having egoistic behaviour and exaggerated sense of self-importance. Always be Empathetic. • Congenial approach / Not to be **Avoidant** - Being social and less sensitive to negative criticism. • Be Independent. • Not to be **Obsessive** *(1 mark each for any one correct answer)* *(Any other valid explanation is also accepted)*	2
	Answer any 3 out of the given 5 questions in 20 – 30 words each.	**3x2=6**
Q12.	Write a query to modify the value of field 'dept' from 'marketing' to 'sales' in the table Department. **Ans:** UPDATE Department SET dept = 'sales' WHERE dept = 'marketing'; *(2 marks for correct query)* *(1 mark for correct usage of UPDATE and SET keywords)* *(1 mark for correct usage of WHERE clause)*	2
Q13.	What is the purpose of using try and catch statements in JAVA? **Ans:** Java provides the following keywords to handle an exception: **try -** A try block surrounds the part of the code that can generate exception(s). **catch –** The catch blocks follow a try block. A catch block contains the exception/error handler - specific code that is executed when the exception occurs. Multiple catch blocks following a try block can handle different types of exceptions.	2

Q14.	Explain any two methods of String class in Java with suitable example.
	Ans:
	charAt():-Returns the character at the specified index(position).
	``
	String myStr = "Hello";
	char result = myStr.charAt(0);
	System.out.println(result);
	``
	
	concat():-Append a string to the end of another string.
	``
	String firstName = "John ";
	String lastName = "Doe";
	System.out.println(firstName.concat(lastName));
	``
	
	indexOf():-Returns the position of the first found occurrence of specified characters in a string
	``
	String myStr = "Hello planet earth, you are a great planet.";
	System.out.println(myStr.indexOf("planet"));
	``
	
	length():-Returns the length of a specified string.
	``
	String txt = "ABCDEFGHIJKLMNOPQRSTUVWXYZ";
	System.out.println(txt.length());
	``
	
	replace():-Searches a string for a specified value, and returns a new string where the specified values are replaced
	``
	String myStr = "Hello";
	System.out.println(myStr.replace('l', 'p'));
	``
	
	toLowerCase():-Converts a string to lower case letters
	``
	String txt = "Hello World";
	System.out.println(txt.toLowerCase());
	``
	toUpperCase():-Converts a string to upper case letters
	``
	String txt = "Hello World";
	System.out.println(txt.toUpperCase());
	``
	
	trim():-Removes whitespace from both ends of a string.
	``
	String myStr = " Hello World! ";
	System.out.println(myStr);
	System.out.println(myStr.trim());
	``
	
	equals():-Compares two strings. Returns true if the strings are equal, and false if not.
	``
	String myStr1 = "Hello";
	String myStr2 = "Hello";
	String myStr3 = "Another String";
	System.out.println(myStr1.equals(myStr2));
	System.out.println(myStr1.equals(myStr3));
	``
		2

equalsIgnoreCase():-Compares two strings, ignoring case considerations
```
String myStr1 = "Hello";
String myStr2 = "HELLO";
String myStr3 = "Another String";
System.out.println(myStr1.equalsIgnoreCase(myStr2));
System.out.println(myStr1.equalsIgnoreCase(myStr3));
```

endsWith():-Checks whether a string ends with the specified character(s)
```
String myStr = "Hello";
System.out.println(myStr.endsWith("Hel"));
System.out.println(myStr.endsWith("llo"));
System.out.println(myStr.endsWith("o"));
```

isEmpty():-Checks whether a string is empty or not
```
String myStr1 = "Hello";
String myStr2 = "";
System.out.println(myStr1.isEmpty());
System.out.println(myStr2.isEmpty());
```

contains():-Checks whether a string contains a sequence of characters
```
String myStr = "Hello";
System.out.println(myStr.contains("Hel"));
System.out.println(myStr.contains("e"));
System.out.println(myStr.contains("Hi"));
```

(2 Marks for any two correct string methods with explanation and examples.)
(1/2 mark for writing a correct String function name and correct explanation)
(1/2 mark for correct example / syntax)

Q15.	Mention any two major significance of Database Management System.
	Ans:
	
	  Major significances of Data Base Management System are:
	
	 1. Reduction in Redundancy
	
	 2. Improved Consistency
	
	 3. Improved Availability
	
	  4. Improved Security
	
	 5. User Friendly
	
	(1 mark each for correct/relevant answer)
		2

Q16.	Fill in the blanks.
	
	a) The number of attributes in a relation is called the _____ of relation.
	
	b) To avoid repetition in the result of a SELECT Query _____ clause is used.
	Ans:
	
	   (a) Degree
	   (b) Distinct
	(1 mark for each correct answer)
		1
		
		1

	Answer any 2 out of the given 3 questions in 30 – 50 words.	**2x3=6**
Q17.	Discuss any three main purpose of using Database application in education domain. **Ans:** Following are a few domains where database applications used in Education: • For storing information such as student details, marks and result.	**3**

- For storing information about faculty and staff members.
- For storing details about school/college such as infrastructure details, department and offered course details.

OR

An educational database system helps in managing data automatically, reducing the paperwork and providing effective digital tracking of the data. All the documentation like admission forms, student records, financial aid, paperwork, and all other data can be managed effectively and efficiently.

(1 mark each for correct purpose of using Database Management in Education)

Q18.	Rewrite the following program code using switch statement:	3

```
if (color ==  10)
   { s y s t e m.out.println("Red");}
else  if (color ==  20)
{
System.out.println("Orange");
}
else if (color ==  30)
{
System.out.println("Green");
)
else
{
System.out.println("Invalid");
}
```

Ans:

```
switch (color)
{
    case 10: System.out.println("Red"); break;
    case 20: System.out.println("Orange"); break;
    case 30: System.out.println("Green"); break;
    default: System.out.println("Invalid");
}
```

1/2 mark for each correct case statement (1.5)
1/2 mark for correct default statement (0.5)
1/2 mark for correct placement of all break statements (0.5)
1/2 mark for switch statements (0.5)

Q19.	(i) State the role of a DBA (Database Administrator).	1

Ans:

(i) The DBA is responsible for authoring access, monitoring its use, providing technical support, acquiring software and hardware resources.
OR

A database administrator ensures the security of a database. A database administrator ensures integrity in the database, that is, they make sure that all the data stored in the database is not misplaced or mismatched. A database administrator ensures the availability and accessibility of database.

(1 mark for each correct answer)

	(ii) Sana has given the following query but she is unable to execute it successfully. Write the correct query after rectifying the error.
	
	      `SELECT NAME, MARKS`
	
	      `FROM STUDENT TABLE`
	
	      `WHERE NAME =`"`P%`"
	
	Ans:
	
	SELECT NAME, MARKS FROM STUDENT WHERE NAME LIKE "P%";
	
	OR
	
	SELECT NAME, MARKS FROM STUDENT WHERE NAME LIKE 'P%';
	
	(1 mark for correct usage of LIKE
	1/2 mark for removing TABLE after STUDENT
	1/2 mark for removing ' = ' after NAME)
		2

	Answer any 3 out of the given 5 questions in 50 – 80 words each.	**3x4=12**

Q20.	What is the purpose of HAVING clause? How is it different from WHERE clause in SQL? Give example to support you answer.
	Ans:
	
	  HAVING clause is used with **Group By** to check condition(s).
	
	  The **WHERE** clause works on row's data, **HAVING** works not on aggregated data.
	
	Example: we have to find those departments which have more than one teacher.
	SELECT DEPT_NO, DEPT_NAME, COUNT(*) AS NO_OF _TEACHERS
	FROM DEPARTMENT
	GROUP BY DEPT_NO
	HAVING COUNT(*) > 1;
	
	OR
	SELECT SECTION, AVG(FEE)
	FROM STUDENTS
	GROUP BY SECTION
	HAVING CLASS=12;
	
	OR
	Any other relevant example
	
	(1 Mark for correct purpose of HAVING clause
	2 Mark for correct difference of HAVING and WHERE clause
	1 Mark for correct example)
		4

Q21.	Write advantages of online tutorials.
	Ans:
	      • Convenient
	      • Better Time Management
	      • Global Access & certification
	      • Economical
	      • Repetitive access
	      • Advancement in career
	      • Opportunity to learn new skills at any age & time.
	      • Customizable learning environment.
	      • Multilingual Communication
	      • Self-Paced
	(1 mark for each correct/relevant advantage – Total 4 Marks)
		4

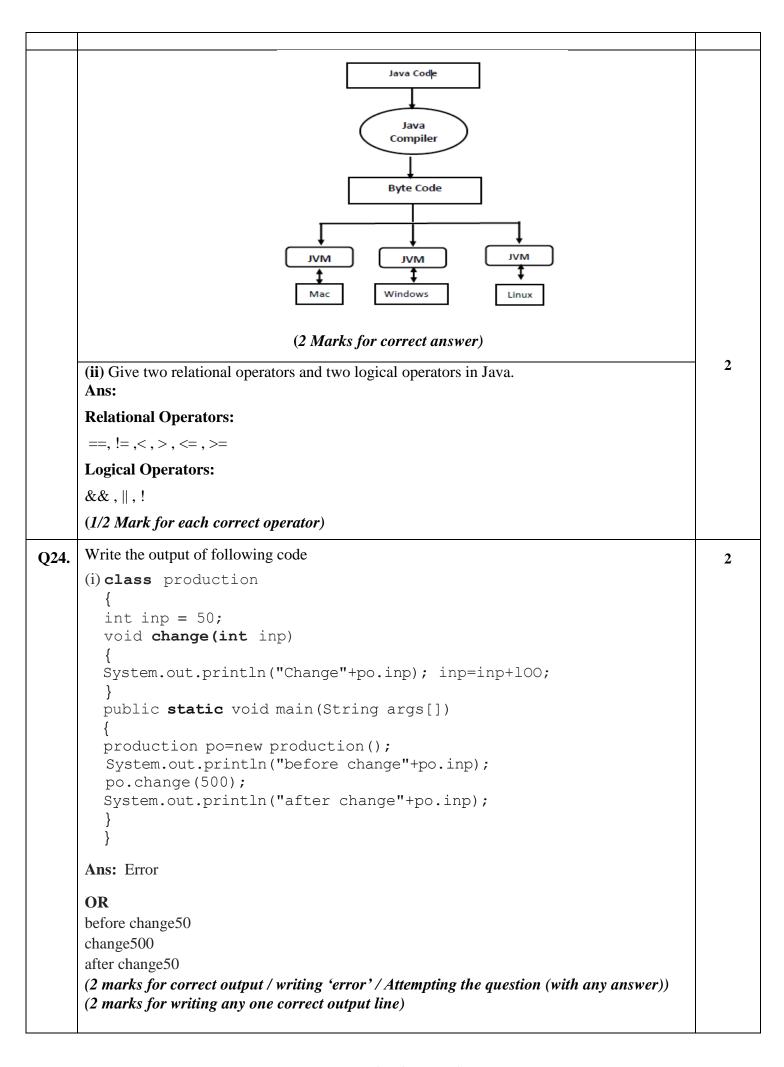| Q22.	Why is Java considered as an Object Oriented Programming language?	**4**
	Explain data members and member methods with the help of an example.	
	Ans:	
	• Java Language is considered an Object-Oriented Programming Language because it is based on the concept of objects and classes. Java supports the concepts of OOPs - Inheritance, Data abstraction, polymorphism, and data encapsulation.	
	• In an OOPs language, a program is a collection of objects that interact with other objects to solve a problem. Each object is an instance of a class.	
	• Without the creation of objects and classes, it is impossible to write any code in Java.	
	Data Members: The data members of a class are like global variables – they can be accessed by all the method members of the class.	
	Method members of a class are invoked on an object to perform the action associated with that method.	

	Example:
	``
	class Bicycle
	{
	private int gear=5;
	public void braking ()
	{
	System.out.println("Working of Braking");
	}
	}
	``
	(*1 mark for correct explanation of Java as OOPs*)
	(*1 mark each for correct explanation of data member*)
	(*1 mark each for correct explanation of member methods*)
	(*1 mark for correct / relevant example*)	

Q23.	(i) 'Java is a platform independent language.' Justify the statement.	**2**
	Ans:	
	(i) Once a programmer has compiled a Java program into bytecode, it can be run on any platform (like Windows, Linux, or Mac) as long as it has a JVM running on it. This makes Java programs **platform independent** and highly **portable**.	
	OR Java is a platform-independent language, means that we can run the same code on multiple platforms without making any changes. Java achieves this using JVM and Byte Code. **OR** The byte code generated by source code compilation would run in any operating system, but the JVM present in a machine differs for each operating system. **OR**	

(2 Marks for correct answer)

(ii) Give two relational operators and two logical operators in Java.

Ans:

Relational Operators:

==, != ,< , > , <= , >=

Logical Operators:

&& , || , !

(1/2 Mark for each correct operator)

Q24.	Write the output of following code	**2**

(i) ```
class production
  {
  int inp = 50;
  void change(int inp)
  {
  System.out.println("Change"+po.inp); inp=inp+l00;
  }
  public static void main(String args[])
  {
  production po=new production();
   System.out.println("before change"+po.inp);
   po.change(500);
   System.out.println("after change"+po.inp);
  }
  }
```

**Ans:** Error

**OR**
before change50
change500
after change50
*(2 marks for correct output / writing 'error' / Attempting the question (with any answer))*
*(2 marks for writing any one correct output line)*

| | | |
|---|---|---|
| | (ii) What are the two ways to write comments in Java?<br><br>**Ans:**<br><br>You can write comments in a Java program in the following two ways:<br>• Beginning a comment line with two consecutive forward slashes (//)<br>• Writing the comment between the symbols /* and */<br><br>The former method is used for single line comments while the latter is generally preferred for multiple line comments.<br><br><div align="center">**OR**</div><br>• //<br>• /* */<br><br><div align="center">**OR**</div><br>• Single line comment<br>• Multi line comment<br><div align="center">*(1 Mark each for each correct method)*</div> | **2** |
| | | |

<div align="center">***</div>