

**ST. FRANCIS XAVIER SCHOOL**  
**SPECIMEN QUESTION PAPER (BIOLOGY XI)**  
**2022-2023**

**Time: 1 1/2 Hours**

**Maximum Marks: 40**

**General Instructions:**

- (i) *All questions are compulsory.*
- (ii) *There are 18 questions in the question paper.*
- (iii) *There is no overall choice. However, internal choices have been provided in some questions. A student has to attempt only one of the alternatives in such questions.*
- (iv) *Wherever necessary, neat and properly labeled diagrams should be drawn.*

	Questions	Marks
1.	Give one example, where you can apply classification in general , in your day to day life.	1
2.	The highest taxonomic rank is ----- .	1
3.	Name the five kingdoms of life.	1
4.	What is the contribution of Ivanowsky?	1
5.	State the difference between plasmogamy and karyogamy.	1
6.	What are mycobiont and phycobiont?	1
7.	Give an example of aerobic bacterium.	1
8.	Give the biological name of the fungus which is commonly called baker's yeast.	1
9.	Give an outline classification of man.	1
10.	What do you mean by binomial nomenclature?	1

11.	<p>Kingdom Protista includes:</p> <p>a) Amoeba, Euglena, Chlamydomonas  b) Amoeba, Euglena, Escherichia  c) Amoeba, Euglena, Pseudomonas  d) Amoeba, Euglena, Penicillin</p> <p style="text-align: center;"><b>OR</b></p> <p>Which is not applicable to biological species concept:</p> <p>a) Hybridisation  b) Natural population  c) Reproductive isolation  d) Gene pool</p>	1
12.	<p>To which group would you assign a plant which produces spores, embryo but lacks seed and vascular tissues:</p> <p>a)Algae  b) Fungi  c) Bryophyta  d) Pteridophyta</p>	1
13.	Give the graphic representation of life cycle of <i>Pinus</i> .	5

14.	Give a diagrammatic representation of alternation of generation in plants with proper explanation.	5
15.	Draw a well labelled diagram of life cycle of fern. Give four economic importance of Pteridophytes.	5
16.	Draw well labelled diagrams of: i) TMV ii) Bacteriophage	5
17.	Describe the methods of vegetative reproduction in Fungi.	5
18	Explain three major systems of classifications.	3

**ST. FRANCIS XAVIER SCHOOL**  
**MODEL PAPER 2022-23**  
**CHEMISTRY PAPER – 1**  
**CLASS-XI**

(Max.Marks- 40)

(Time-One & half hours)

*All questions are compulsory.*

*Question 1 to 5 is a one mark all of which are compulsory*

*Question 6 to 10 carry two marks with two Questions having internal choice .*

*Question 11 to 15 carry three marks with two questions having internal choice question .*

*Balanced equation must be given wherever possible and diagrams wherever they are helpful .*

*Candidates are allowed additional 5 minutes for only reading the paper they must not start*

*writing during this time .All essential working must be shown in solving numerical*

*problems. Answers to this paper must be written in the test Copy. The intended marks for the questions are given in the brackets[.]*

**Question 1**

Calculate energy of one mole of photons of radiation whose frequency is  $5 \times 10^{14}$  Hz.

[1]

**Question 2**

[1]

Define Dipole moment and explain that  $\text{CO}_2$  the dipole moment is zero.

**Question 3**

State the Hund's Rule of Multiplicity. [1]

**Question 4**

For how many orbitals ,the quantum numbers  $n=3, l=2, m=+2$  are possible

(a) 1 (b) 2 (c) 3 (d) 4

[1]

**Question 5**

Define Aufbau Principle .

[1]

**Question 6**

Which of the following sets of quantum numbers for orbitals are correct;

i.  $n=2, l=2, m=-1$

ii.  $n=1, l=0, m=-1$

[2]

**Question 7**

A photon of 300nm is absorbed by a gas .It then emits two photons . The wavelength of one re-emitted photon is 496nm. Calculate the energy of other photon emitted.

OR

If the photon of the wavelength 150 pm strikes an atom and one of its inner bound electron is ejected out with a velocity of  $1.5 \times 10^7 \text{ms}^{-1}$ , calculate the energy with which it is bound to the nucleus .

[2]

**Question 8**

The electronic configuration of valence shell of Cu is  $3d^{10}4s^2$  and  $3d^94s^2$ . Discuss the reasons.

**Question 9**

[2]

Find energy of each of the photons which

i. Correspond to light of frequency  $3 \times 10^8$  Hertz.

ii. Have wavelength of  $0.50 \text{Å}$

**Question 10**

Explain , giving reasons which of the following sets of quantum numbers are not possible ?

i.  $n=0, l=0, m=0, s=+1/2$

ii.  $n=1, l=0, m=0, s=-1/2$

**Question 11**

[3]

$\text{BeF}_2$  molecule is linear while  $\text{SF}_2$  is linear though both are triatomic, explain.

OR

Give reason  $\text{NF}_3$  is pyramidal but  $\text{BF}_3$  is triangular planar.

**Question 12**

[3]

Give the reason why  $\text{BeH}_2$  has a zero dipole moment .

OR

Define bond length.

**Question 13**

Describe hybridisation in the case of  $\text{PCl}_5$  and  $\text{SF}_6$ . The axial bonds are longer as compared to equatorial bonds in  $\text{PCl}_5$  whereas the axial and equatorial bonds are same in  $\text{SF}_6$ . Explain.

**Question 14**

[3]

The radius of first Bohr orbit of Hydrogen atom is  $0.529\text{Å}$ .

Calculate the radii of (i) the third orbit of  $\text{He}^+$  ion and (ii) second orbit of  $\text{Li}^{2+}$  ion.

**Question 15**

[3]

The Vividh Bharati Station of All India ,Delhi Broadcasts on a frequency of  $1368\text{ kHz}$

.Calculate the wavelength of the electromagnetic radiation emitted by transmitter .Which part of the electromagnetic spectrum does it belong to?

**Question 16**

[5]

Write the values of the quantum number for electron in the last electron in the Chromium atom.

Give the type of MO in the and the nature of magnetic behaviour of the following:

i.  $\text{N}_2^{2-}$

ii.  $\text{O}_2^{2-}$

**Question 17**

[5]

Predict the shape and write the hybridisation

$\text{XeF}_2$  and  $\text{ICl}_4$

**THIS QUESTION PAPER CONSISTS OF 3 PRINTED SIDES.**

# ST. FRANCIS XAVIER SCHOOL

Academic year – 2022-2023

Class - XI

## SAMPLE QUESTION PAPER FOR UNIT TEST – 1 PHYSICS PAPER 1 (THEORY)

**Maximum Marks: 40**

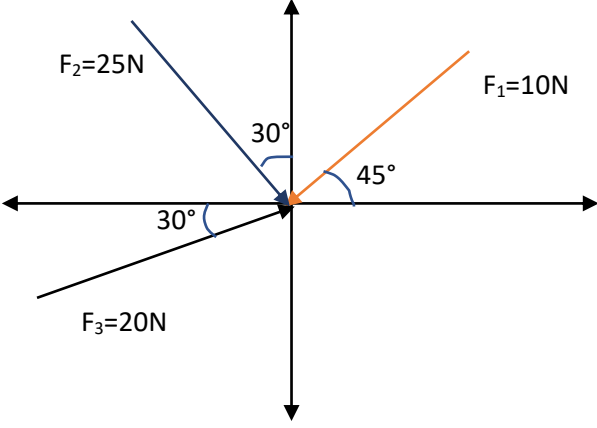
**Time allowed: 1 hr. 40 min**

Candidates are allowed an additional **10 minutes for only reading the paper.**

They must *NOT* start writing during this time.

Sr. No.		Marks
	<b>Section – A</b>	
	<b>All questions are compulsory. In case of internal choices, attempt any one of them.</b>	
1.	If density $\rho$ , acceleration due to gravity $g$ and frequency $\nu$ are the basic quantities, find the dimensions of force.	1
2.	A player throws a ball upwards with an initial speed of $29.5 \text{ m s}^{-1}$ . What are the velocity and acceleration of the ball at the highest point of its motion?	1
3.	Define systematic error.	1
4.	Which physical quantity we can have from the slope of a velocity time graph.	1
5.	What will be the effect on the centripetal acceleration, if both the speed and the radius of the circular path of a body are doubled?	1
	<p><b>For question numbers 6, 7 and 8, two statements are given-one labelled Assertion (A) and the other labelled Reason (R). Select the correct answer to these questions from the codes (a), (b), (c) and (d) as given below.</b></p> <p><b>a) Both A and R are true and R is the correct explanation of A</b>  <b>b) Both A and R are true but R is NOT the correct explanation of A</b>  <b>c) A is true but R is false.</b>  <b>d) A is false and R is true.</b></p>	
6.	<p><b>Assertion:</b> Number of significant figures in 0.005 is one and that in 0.500 are three  <b>Reason:</b> This is because zeros before decimal are nonsignificant.</p>	1
7.	<p><b>Assertion:</b> Small displacement is a vector quantity.  <b>Reason:</b> Pressure and surface tension are also vector quantities.</p>	1
8.	<p><b>Assertion:</b> Magnitude of average velocity is equal to average speed, if velocity is constant.  <b>Reason:</b> If velocity is constant, then there is no change in direction of motion.</p>	1
	<b>Section – B</b>	
	<b>Questions 9 is a Case Study based questions and are compulsory. Attempt any 4 sub parts from each question. Each question carries 1 mark.</b>	
9.	<p>You must be familiar with the experience of travelling in a train and being overtaken by another train moving in the same direction as you are. While that train must be travelling faster than you to be able to pass you, it does seem slower to you than it would be to someone standing on the ground and watching both the trains. In case both the trains have the same velocity with respect to the ground, then to you the other train would seem to be not moving at all. To understand such observations, we now introduce the concept of relative velocity. Consider two objects A and B moving uniformly with average velocities <math>v_A</math> and <math>v_B</math> in one dimension, say along x-axis. (Unless otherwise specified, the velocities mentioned in this chapter are measured with reference to the ground). If <math>x_A(0)</math> and <math>x_B(0)</math> are positions of objects A and B, respectively at time <math>t = 0</math>, their positions <math>x_A(t)</math> and <math>x_B(t)</math> at time <math>t</math> are given by:</p> <p><math>x_A(t) = x_A(0) + v_A t</math> .....(1)  <math>x_B(t) = x_B(0) + v_B t</math> .....(2)</p> <p>Then, the displacement from object A to object B is given by</p> <p><math>x_{BA}(t) = x_B(t) - x_A(t) = [x_B(0) - x_A(0)] + (v_B - v_A)t</math> .....(3)</p>	4

	<p>Equation (3) is easily interpreted. It tells us that as seen from object A, object B has a velocity <math>v_B - v_A</math> because the displacement from A to B changes steadily by the amount <math>v_B - v_A</math> in each unit of time.</p> <p>We say that the velocity of object B relative to object A is</p> $v_B - v_A : v_{BA} = v_B - v_A \dots\dots\dots(4)$ <p>Similarly, velocity of object A relative to object B is:</p> $v_{AB} = v_A - v_B \dots\dots\dots(5)$ <p>This shows: <math>v_{BA} = -v_{AB} \dots\dots\dots(6)</math></p> <p>(a) Which of the following statement is true if two objects A and object B as they are moving towards each other?</p> <p>(i) Velocity of A is greater is always greater than velocity of object B</p> <p>(ii) Velocity of object B is always greater than velocity of object A</p> <p>(iii) Relative velocity of object A with respect to object B is numerically always greater than the velocity of object A</p> <p>(iv) None of the above.</p> <p>(b) Two cars are moving in the same direction with a speed of 30Km/hr. they are separated from each other by 5Km. third car moving in the opposite direction meets the two cars after an interval of 4 minutes. What is the speed of the third car?</p> <p>(i) 35 km/hr</p> <p>(ii) 40 km/hr</p> <p>(iii) 45 km/hr</p> <p>(iv) 75 km/hr</p> <p>(c) Two trains A and B of length 100 m each, running on parallel track, take 20 seconds to overtake and 10 seconds to cross each other. Find their speeds (in m/s).</p> <p>(i) 15 m/s, 5 m/s</p> <p>(ii) 20 m/s, 10 m/s</p> <p>(iii) 15 m/s, 10 m/s</p> <p>(iv) 20 m/s , 5 m/s</p> <p>(d) A bus overtakes a car from behind. Then we can say-</p> <p>(i) Bus has a positive relative velocity in the direction of the car.</p> <p>(ii) Bus has a negative relative velocity in the direction of the car.</p> <p>(iii) Bus has a positive relative velocity in opposite to the car.</p> <p>(iv) Insufficient data.</p> <p>(e) Car A and B moving in the same direction with the velocities <math>v_A</math> and <math>v_B</math>, then the relative velocity of car A with respect to the car B is –</p> <p>(i) <math>v_A - v_B</math></p> <p>(ii) <math>v_B - v_A</math></p> <p>(iii) <math>v_A</math></p> <p>(iv) <math>v_B</math></p>	
<p><b>Section – C</b></p> <p><b>All questions are compulsory. In case of internal choices, attempt anyone.</b></p>		
10.	<p>The specific resistance <math>\sigma</math> of a thin wire of radius <math>r</math> cm, resistance <math>R \Omega</math> and length <math>L</math> cm is given by <math>\sigma = \frac{\pi r^2 R}{L}</math>, if <math>r = 0.25 \pm 0.02</math> cm, <math>R = 30 \pm 1 \Omega</math> and <math>L = 75 \pm 0.01</math> cm, find the percentage error in <math>\sigma</math>.</p>	2
11.	<p>The orbital velocity 'v' of a satellite may depend on its mass 'm', and distance 'r', from the centre of the earth and acceleration due to gravity 'g'. Obtain an expression for orbital velocity by dimensional method.</p> <p style="text-align: center;"><b>OR,</b></p> <p>The time period of an oscillating drop of radius <math>r</math>, density <math>\rho</math> and the surface tension <math>S</math> is <math>T = \sqrt{\frac{\rho r^3}{S}}</math>, check the correctness of the equation. [given surface tension = <math>\frac{\text{force}}{\text{length}}</math>]</p>	2
12.	<p>Derive the kinematics equation: <math>v = u + at</math>. (Derive graphically), where, 'v' is the final velocity, 'u' is the initial velocity, 'a' is the acceleration. Assume that object is moving under uniform acceleration.</p>	2

13.	A motor car, starting from rest, moves with uniform acceleration and attains a velocity of 8m/s in 8s. It then moves with uniform velocity and finally brought to rest in 32m under uniform retardation. The total distance covered by the car is 464m. Plot the velocity-time graph of the motor car. Find: (i)The acceleration (ii)The retardation	2
14.	Derive polygon theorem with help of triangle law.	2
15.	What should be the angle between two vectors (R+S) and (R-S), so that their resultant will be $\sqrt{3R^2 + S^2}$	2
16.	A cyclist moving with a velocity of 7.5 m s <sup>-1</sup> approaches a U-turn of radius 80 m. He applies brakes to slow down his speed at a rate of 0.5 m s <sup>-2</sup> . Calculate the acceleration of the cyclist on the turn.	2
	<b>Section -D</b> <b>All questions are compulsory. In case of internal choices, attempt anyone.</b>	
17.	A ball is thrown vertically upward from the top of a tower with a velocity of 20 m/s. the ball strikes the earth after 5s of its throwing. What is the height of the tower? What will be the velocity of the ball while striking the earth? (g = 9.8 m/s)	3
18.	Resultant of two vectors <b>A</b> and <b>B</b> is <b>P</b> and directed vertically. Where <b>A</b> is directed horizontally and <b>B</b> is making 30° angle with vertical. Draw the vector diagram and find the relation between the magnitudes of <b>A</b> and <b>B</b> .  <b>OR,</b> The resultant of two forces <b>P</b> and <b>Q</b> is equal to $Q\sqrt{3}$ and it makes an angle of $\pi/6$ with the direction of <b>P</b> . show that either <b>P=Q</b> or <b>P = 2Q</b> .	3
19.	The period of vibration of tuning fork depends on the length l of its prong, density d and Young's modulus Y of its material. Deduce an expression for the time period of vibration on the basis of dimensions.	3
	<b>Section – E</b> <b>All questions are compulsory. In case of internal choices, attempt anyone.</b>	
20.	(a) Find the subtraction of two vectors A and B with the help parallelogram law. Making an acute angle $\theta$ between them. (a) Three forces $F_1, F_2, F_3$ are acting at the same point as shown in the figure below. (i) Calculate the components of each force along x and y axis. (ii) Also calculate the resultant of these three vectors.   <b>OR,</b> (a) Two vectors A and B are inclined to each other at an angle $\theta$ . Using triangle law of vector addition, find the magnitude and direction of their resultant. (b) Two vectors $\vec{A} = 3\hat{i} + 2\hat{j} + 3\hat{k}$ and $\vec{B} = \hat{i} - 3\hat{j} + 4\hat{k}$ are given. (i) Find the resultant of these two vectors. Also (ii) find the unit vector along the direction of resultant.	5



**ST. FRANCIS XAVIER SCHOOL**  
**MATHEMATICS**  
**CLASS XI**

TIME: 1 ½ HOURS

MARKS:40

**GENERAL INSTRUCTIONS:**

1. The question paper consists of 14 questions divided into 3 sections - A, B and C.
2. All questions are compulsory.
3. Section A comprises of 6 questions of 2 marks each. Internal choice has been provided in two questions.
4. Section B comprises of 4 questions of 3 marks each. Internal choice has been provided in one question.
5. Section C comprises of 4 questions of 4 marks each. An Internal choice has been provided in one question. It contains one case study based question.

Section A		
Q.No		Marks
1.	Find the equation of the circle with radius 5 whose center lies on x-axis and passes through the point (2,3).  ( OR )  Find the centre and the radius of $3x^2 + 3y^2 + 6x - 4y - 1 = 0$	2
2.	Find the equation of the ellipse whose vertices are $(\pm 13, 0)$ and foci are $(\pm 5, 0)$ .	2
3.	Find the derivative of $\frac{5 - \cos x}{\sin x}$ with respect to x	2
4.	Find the conjugate of $\frac{(3-2i)(2+3i)}{(1+2i)(2-i)}$  ( OR )  Given $P(A) = \frac{3}{5}$ and $P(B) = \frac{1}{5}$ Find $P(A \text{ or } B)$ , if A and B are mutually exclusive events.	2
5.	Prove that $\frac{\cos(\pi+x)\cos(-x)}{\sin(\pi-x) \cdot \cos(\frac{\pi}{2}+x)} = \cot^2 x$	2
6.	If $\frac{1}{8!} + \frac{1}{9!} = \frac{x}{10!}$ , find x.	2

Section B		
Q.No.		Marks
7.	If $\cot x = \frac{-5}{2}$ $x$ lies in second quadrant, find the values of other five trigonometric functions. (OR) Prove that $3\sin\frac{\pi}{6} \sec\frac{\pi}{3} - 4\sin\frac{5\pi}{6} \cot\frac{\pi}{4} = 1$	3
8.	Find the coordinates of the points which trisects the line segment QP formed by joining the point P(4,2,-6) and Q(10,-16,6)	3
9.	How many words, with or without meaning can be made from the letters of the word MONDAY, assuming that no letter is repeated, i) 4 letters are used at a time, ii) All letters are used at a time, iii) All letters are used but first letter is vowel?	3
10.	What is the number of ways of choosing 4 cards from a pack of 52 playing cards? In how many of these i) Four cards are of the same suit, ii) Four cards belong to four different suits,	3

SECTION C		
Q.No.		Marks
11.	Solve the following system of inequalities graphically: (i) $X + 2Y \leq 8, 2X + Y \leq 8, X \geq 0, Y \geq 0$ (OR) (ii) $2X + Y \geq 4, X + Y \leq 3, 2X - 3Y \leq 6$	4
12.	Find the derivative of i) $(5x^2 + 3x - 1)(x - 1)$ ii) $\frac{2}{x+1} - \frac{x}{3x-1}$	4
13.	Consider the experiment of rolling a die. Let A be the event 'getting a prime number', B be the event 'getting an odd number'. Write the set representing the events (i) A or B (ii) A and B (iii) A but not B (iv) not A'	4
14.	<b>CASE-BASED/DATA-BASED</b> Indian track and field athlete Neeraj Chopra, who competes in the javelin throw, won a gold medal at Tokyo Olympics. He is the first track and field athlete to win a gold medal for India at the Olympics. i) Name the shape of the path followed by a javelin a) Half ellipse b) Parabola c) Hyperbola d) None of these ii) If equation of such a curve is given by $y^2 = -16x$ , then the coordinates of the foci are; a) (4,0) b) (0,4) c) (0,-4) d) (-4,0) iii) The equation of the directrix is a) $y - 4 = 0$ b) $y + 4 = 0$ c) $y + 4 = 0$ d) $x - 4 = 0$ iv) The length of the latus rectum is a) -4 b) -16 c) 4 d) 16	4

**ST. FRANCIS XAVIER SCHOOL**  
**MODEL QUESTION PAPER**  
**CLASS – XI**  
**COMPUTER SCIENCE**  
**Paper – 1**  
**(THEORY)**

*(Maximum Marks: 70)*

*(Time allowed: Three hours)*

*(Candidates are allowed additional 15 minutes for **only** reading the paper.  
They must NOT start writing during this time)*

-----  
*Answer **all** questions in Part I (compulsory) and **six** questions from Part-II, choosing **two** questions from Section-A, **two** from Section-B and **two** from Section-C.*

*All working, including rough work, should be done on the same sheet as the rest of the answer.*

*The intended marks for questions or parts of questions are given in brackets [ ].*

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**PART I**

*Answer **all** questions*

*While answering questions in this Part, indicate briefly your working and reasoning, wherever required.*

**Question 1**

**20**

- a) Convert 1101.110 to decimal. [1]
- b) Which of these points about the return statement is FALSE? [1]
- a. A return statement can only be used inside a function
  - b. A return statement can be used without any expression
  - c. When encountered, a return statement terminates a function
  - d. A function cannot have more than one return statements
- c) What will be the value of this expression:  $4 / 2 ** 3 * 2$  [1]
- a. 16.0
  - b. 1.0
  - c. 1/4
  - d. 1/16
- d) Which of these statements about for loops in JAVA is TRUE? [1]
- a. A for loop usually run a given number of times
  - b. Statements in a for loop are always run at least once
  - c. A for loop cannot contain another for loop
  - d. A for loop always has to have a loop counter.
- e) What will be the output of the following program segment? [1]
- ```
.....  
String s ="ONE"+1+2+"TWO"+"THREE"+3+4+"FOUR"+"FIVE"+5;  
System.out.println(s);
```

**Question 2**

- a) State two email etiquette rules. [2]
- b) What are actual and formal parameters in functions of Java? [2]
- c) Evaluate the expression :-  $12 + 3 * (4 - 6) / 2$  [2]
- d) Write the syntax for 'for loop'. [2]
- e) Is this segment of code valid? State reasons. [2]
- char example[5];**

**Question 3**

i) In the given code segment, what is the value of p and why? [2]

```
double r;
double p;
r=92;
p=5/9 * (r- 32);
```

ii) What will be the output of the following program? [3]

```
public class MainClass
{
    static int methodOne(int i)
    {
        return methodTwo(i * =12 );    }
    static int methodTwo(int i)
    {
        return methodThree(i / =12);    }
    static int methodThree(int i)
    {
        return methodFour(i - =12);    }
    static int methodFour(int i)
    {
        return i + =12;                }
    public static void main(String[ ] args)
    {
        System.out.println(methodOne(12));    }
}
```

**PART II****Section – A**

Answer **any two** questions

**Question 4**

- a) Convert 10111.0111 to octal [3]
- b) What are operators in Java? Give examples of some unary and binary operators. [3]
- c) What is a class? Why is it needed? [2]
- d) How do you identify an initial class in a JAVA program? [2]

**Question 5**

- a) How do we write comments in a JAVA program? [2]
- b) State the two Absorption laws used in propositional logic. Prove any one of them using truth table. [3]
- c) Give the diagram and the truth table for 3-input XOR gate. [3]
- d) Convert  $(FACE)_{16}$  to decimal number? [2]

**Question 6**

- a) How is ordinary compilation different from Java compilation? [2]
- b) Prove that  $(A+B)(A+C) = A + BC$  where A,B,C are propositions. [3]
- c) Write the design rules for NAND-to-NAND logic network. [3]
- d) How is recursion useful? [2]

**Section – B**

Answer **any two** questions

*Each program should be written such that it clearly depicts the logic of the problem i.e. by using mnemonic names and comments in the program. Algorithms are not required.*

**Question 7****10**  
[2]

i) What will be the output of the following program?

```

int x= 10;
int y= 20;
if((x<y) || (x==5))
System.out.println(x);
else
System.out.println(y);
if((x<y) && (x==5))
System.out.println(x);
else
System.out.println(y);

```

ii) A class RecFact defines a recursive function to find the factorial of a number. The details of the class are given below :

**Class name : RecFact****Data members/instance variables**

n : stores the number whose factorial is required.

r : stores an integer

**Member functions**

RecFact() : default constructor

void readnum() : to enter values for 'n' and 'r'

int factorial(int) : returns the factorial of the number using the Recursive Technique.

void factseries() : to calculate and display the value of  $\frac{n!}{r! * (n-r)!}$ 

Specify the class RecFact giving the details of the constructor and member functions void readnum(),

int factorial(int) and void factseries(). Also define the main function to create an object and call methods accordingly to enable the task. [8]

**Question 8****10**

The sum of angles is calculated as :

Let the first angle = 12 degrees 40 minutes and the second angle = 20 degrees 45 minutes

The sum of angles will be 33 degrees 25 minutes. (where 60 minutes = 1 degree)

Design a class **Angle** with the following details**Class name : AngleData**

members/instance variables :

deg : integer to store degrees.

min : integer to store minutes.

**Member functions/methods :**Angle() : constructor to assign 0 to **deg** and **min**void inputAngle() : to input values of **deg** and **min**void dispAngle() : to print the values of **deg** and **min** with proper message.Angle sumAngle(Angle A, Angle B) : to find and return the sum of angles from objects **A** and **B**Specify the class **Angle** giving the details of all the functions. You **need not** write the main function.**Question 9****10**

Rot13 is a very simple encryption scheme used on some Internet newsgroups to conceal potentially offensive postings. It works by cyclically shifting each lowercase/uppercase letter 13 positions i.e. the letter 'a' is replaced by 'n' and the letter 'n' is replaced by 'a'. For example, the string "Encryption" is encoded as "Rapelcgvba".

Implement a class Encryption with the following specifications-

Class Name: Encryption

Data Members/Instance Variables

Message : a string

EncMsg : encrypted message

Methods

void readMessage() : reads the Message from user

String Rot13(String s): encrypts the passed string using Rot13 logic

void Encrypt() : invokes Rot13() to encrypt message and store in EncMsg

void display() : displays the encrypted message

Constructor : initializes data members

main() : creates an object of Encryption and invokes appropriate methods.

String EncodeDecode (int move) – replaces each character in s by a character which is at a fixed distance ahead or behind in the alphabet.(Assume alphabet wraps around i.e ‘A’ follows ‘Z’).

If move is positive, then each character is replaced by a character which is at a distance move ahead of it.

If move is 0 the original string returned is unchanged.

If move is negative, then each character is replaced by a character which is at a distance move behind it.

**Examples-**

When s="ABCXYZ", EncodeDecode(2) returns "CDEZAB" and

When s="ABCDE", EncodeDecode(-3) returns "XYZAB"

### Section – C

*Answer any two questions*

*Each program should be written such that it clearly depicts the logic of the problem stepwise. This can be achieved by using comments in the program and mnemonic names or pseudo codes for algorithms. The programs must be written in Java*

#### Question 10

5

Write a program in Java which reads character from the keyboard one by one. All lower case characters get stored inside the file LOWER, all uppercase get stored in file UPPER and all other characters get stored inside file OTHERS.

#### Question 11

5

a) What is software piracy and hacking?

[3]

b) What do you mean by Computer Viruses?

[2]

#### Question 12

5

Give the values that will be stored in myArr and k after you invoke mystery(myArr, k) where myArr, k and mystery() are declared below and justify your answer –

```
int myArr [ ]={1, 2, 3 ,4, 5};
```

```
int k = 3;
```

```
void mystery(int a[ ], int m)
```

```
{  
    ++a[m];  
    -- m;
```

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**CLASS – X C**

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*Maximum marks-50*

*Time allowed- 1 hour 15 minutes*

*You will not be allowed to write in the first 15 minutes.*

*This time is to be spent in reading the question paper.*

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*The intended marks for questions are given in the brackets[.].*

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**Question 1**

**Multiple choice questions:**

**[10x1=10]**

- a) "They assume greater risk of loss of capital" ,this is degree of risk estimated by:
- i) Creditors
  - ii) Stakeholders
  - iii) Suppliers
  - iv) Debtors
- b) All of the following are benefits of E-commerce except:
- i) No reach limitations
  - ii) Cost reduction
  - iii) Site crash
  - iv) Faster buying process
- c) Blog marketing is a type of:
- i) Sales
  - ii) Publicity
  - iii) Marketing
  - iv) Advertisement
- d) Preliminary expenses are:
- i) Capital expenditure
  - ii) Revenue expenditure
  - iii) Deferred revenue expenditure
  - iv) Capital receipts

- e) Wages paid for erection of machinery are debited to:
- i) Wages account
  - ii) Trading account
  - iii) Machinery account
  - iv) Profit and loss account
- f) Who are not considered stakeholders in a firm?
- i) Shareholders
  - ii) Customers
  - iii) Creditors
  - iv) Government
- g) "One spoon free in the bournvita jar" is which technique of sales promotion?
- i) Price off premium
  - ii) Money refund premium
  - iii) With pack premium
  - iv) Extra quantity premium
- h) Which type of insurance is not a contract of indemnity?
- i) Fire insurance
  - ii) Marine insurance
  - iii) Life insurance
  - iv) Health insurance
- i) RBI is :
- i) Commercial bank
  - ii) Specialised bank
  - iii) Central bank
  - iv) Rural bank
- j) Google Pay is an example of:
- i) Debit card
  - ii) Credit card
  - iii) E-wallet
  - iv) NEFT

## **Question 2**

**Short answer questions:**

**[10X2=20]**



- a) "Budgets are useful to management." Justify.
- b) " The Central Bank is a banker's bank." Explain.
- c) " Marketing is customer -oriented whereas selling is producer oriented." Explain
- d) "Marketing is called a system." Why?
- e) " Recruitment is a positive process and Selection is a negative process." Explain.
- f) Advertising encourages artificial living. Do you agree with this statement? Why?
- g) " Warehousing is essential in modern business." Discuss.
- h) "Closing stock is valued at cost price or market price whichever is lesser." Identify and explain the accounting principle underlying the statement.
- i) " Internal recruitment cannot be a complete method in itself." Why?
- j) " Master budget is also known as a Summary budget." Justify.

### **Question 3**

**Long answer questions:**

**[4X5=20]**

- a) Mr. Robert Shaw is the Marketing Manager of a company which is introducing a machine which can change the wheels of bikes, cars and heavy vehicles without any help from people. The Directors have asked Mr. Shaw to give a brand name and the most suitable media to advertise the brand.
  - i) Explain any four factors that Mr. Shaw should consider in selecting a suitable media to advertise.
  - ii) What is a brand?
  - iii) Give two factors to be kept in mind while selecting a good 'Brand' name.
- b) "Marketing is essential for the success of a business organisation." Give four reasons to support your answer.
- c) " A well-trained employee is an asset to the enterprise." Mention any five advantages of training.
- d) " Advertisement is a social waste." In this context, explain the demerits of advertisement.
- e) Suppose in a large modern organisation, you have been recruited as a staff training officer. Name and explain briefly different types of training programmes you would like to organise. Also indicate what will be your pre-training and post-training activities.