

DELHI PUBLIC SCHOOL, BHILAI (C.G.)

DATE :10-09-2018

FIRST TERM EXAMINATION, 2018



TIME : 3 Hours

CLASS : XII

HOME SCIENCE

M.M. : 70

- 1 Other than FSSAI, which standard mark should you check while buying soyabean oil and milk powder. (1)
- 2 How will you remove a ball point pen stain from your school uniform? (1)
- 3 Name the most commonly used oxidative bleach. (1)
- 4 Compare the conductivity and wicking properties of Rayon and Nylon. (1)
- 5 What are the sources of real indirect income? (1)
- 6 Make a format to maintain a record of daily income and expenditure. (1)

- 7 Write the requirements of a lactating mother under the given heads. Support your answer with the reason. a) Protein b) Calcium (2)
- 8 What is informal balance? How is it created while designing? (2)
- 9 Write the chemical composition of a soap. (2)
- 10 Guide a short and slender lady in selection of her dress. (2)
- 11 What do you know about the silk mark? (2)
- 12 What is the need of savings? (2)
- 13 What do these signs represent?   (2)

- 14 Write six unhygienic practices adopted by a vender selling cut fruits on the road side. (3)
- 15 Write down the procedure and care to be taken while storing a silk garment. (3)

- 16 Write a common meal of the family and modify as per the requirement of a diarrhoea patient. (4)
- 17 Explain the cleansing action of detergents. (4)
- 18 How is emphasis created while designing? (4)
- 19 What do you understand by quasi-judicial machinery? (4)
- 20 What are the consumers rights under COPRA? How do rights go with responsibilities? (4)
- 21 What is Public Provident Fund? (4)

- 22 Mention the names of two diseases which are called as life style problems. Write their dietary considerations and clinical symptoms. (5)
- 23 What are the methods used to remove stains? (5)
- 24 What all you will keep under considerations while checking the workmanship of a readymade shirt? (5)
- 25 Draw a flow chart to show elements of art. (5)

DELHI PUBLIC SCHOOL, BHILAI (C.G.)

Time: 3 hrs.

FIRST TERM EXAMINATION, 2018

10.09.18

Class: XII

BIOTECHNOLOGY

M.M.:70

General Instructions:

1. Question paper consists of four sections - A, B, C and D.
2. Questions 1 to 6 carry one mark each.
3. Questions 7 to 14 carries two marks each.
4. Questions 15 to 25 carries three marks each.
5. Questions 26 to 28 carries five marks each.

SECTION -A

1. What experimental approaches would you suggest an avocado grower to prevent his fruit from ripening during shipping? (1)
2. Why is it possible to store animal cells in presence of DMSO and serum? (1)
3. Why is Bt. Cotton insect resistant? (1)
4. Name the vector used in the first cloning experiment involving mammalian cells. (1)
5. Which protein is administered in patients with Haemophilia A? (1)
6. Why are restriction enzymes so named? What is their importance? (1)

SECTION- B

7. What is a vector? Enumerate any three features of a vector. (2)
8. What are artificial seeds? Explain diagrammatically. (2)
9. How are adherent cells scaled up? (2)
10. Explain how unnecessary pollination can be prevented and how can it be restored? (2)
11. Using lipofection procedure how can genes be introduced into cells? (2)
12. How can GM plants tolerate abiotic stress? (2)
13. Compare pBR322 and pUC19. (2)
14. There are several concerns in raising GM plants. State any four of them. (2)

SECTION- C

15. Explain the method of generating sufficient amount of DNA sample recovered from a crime site. (3)
16. How is pH and osmolality maintained in animal cell culture? (3)
17. How can millions of people suffering from night blindness be treated using biotechnological procedure? (3)
18. Compare M13 phage and Lambda phage. [Any 6 points] (3)
19. The use of plastics create a lot of environmental problems. Suggest a method of making biodegradable plastics. (3)
20. How can blood clots be selectively removed. Explain with diagram. (3)
21. What are the different methods of introducing rDNA into the host cell? (3)
22. How are finite cell lines different from infinite cell lines? (3)
23. What is molecular pharming? Explain the production of edible vaccines. (3)
24. What is RFLP? State any two applications of it. (3)
25. What is cryopreservation and how the cells can be revived for any experimental purpose. (3)

OR

What is insertional inactivation? Explain blue white screening method of identifying recombinants.

SECTION -D

26. What are monoclonal antibodies? Explain the production of mAb through well labelled diagram. State the use of OKT-3 in treating patients.

OR

State the draw backs of primary cell culture. Explain the procedure of getting secondary cells from primary cell culture. What is use of Herceptin? (5)

27. Explain with diagram vector mediated gene transfer in plants. (5)

28. State the principle of DNA sequencing by Sanger's method. Explain the procedure of sequencing DNA. Write the structure of ddNTP.

OR

Which is better Genomic library or cDNA library and why.

How can a fragment of DNA be identified from a heterologous population of DNA. Explain the procedure through diagram. (5)

DELHI PUBLIC SCHOOL, BHILAI
FIRST TERM EXAMINATION 2018

Date : 10.09.2018
CLASS - XII

SUBJECT : Informatics Practices

Time : 3 Hours
Max. Marks : 70

Instructions:

- (i) All questions are compulsory.
 - (ii) Answer the questions after carefully reading the text.
1. (a) A school with 50 stand-alone computers is considering networking them together and adding a Server. State any 2 advantages of doing this. 2
 - (b) Distinguish between LAN and WAN. 2
 - (c) Write one example of MAC address. 1
 - (d) Identify the odd one out: Optical Fibre, Coaxial Cable, Bluetooth, UTP Cable 1
 - (e) Write any four advantages of Star Topology. 2
 - (f) Name any two popular search engines. 1
 - (g) Explain the use of Repeater in a Network. 1
 2. (a) Expand the terms: SDLC, FLOSS 1
 - (b) Write any two differences between Proprietary Software and Open Source Software. 2
 - (c) Name two encodings used for Indian languages computing. 1
 - (d) In how many different ways can you type Indian Script on a computer? 1
 3. (a) How many times the following while loop gets executed? 1

```
int x=9;
while (x < 50)
{
    x = x + 8;
}
```
 - (b) Rewrite the following code using switch statement: 2

```
if (test == 3)
    System.out.print ("Very good");
else if (test == 2)
    System.out.print ("Good");
else if (test == 1)
    System.out.print ("Average");
else
    System.out.print ("Below Average")
```
 - (c) Write Java Code to assign 850 to a variable x. Increase the value of x by 25 and store it in a variable y. 2
 - (d) What will be contents of TextField1 and TextField2 after executing the following Java Code: 2

```
String S=" You must be the change you wish to see in the world."
TextField1.setText (S.length() + "");
TextField2.setText (S.toUpperCase ());
```
 - (e) Find the errors in the following code and underlining all the connections made: 2

```
Int v=0
Int n=15
Do ;
v=v + 5 ;
n = n x 2 ;
While v<=50;
```
 - (f) Give a suitable example of Jdialogbox () with complete syntax. 1

4. (a) Ankita Super Store has decided to computerized its billing department:

ANKITA SUPER STORE		-	<input type="checkbox"/>	X
Bill No. <input style="width: 100%;" type="text"/>	Customer Name <input style="width: 100%;" type="text"/>			
<input type="checkbox"/> Category <input type="radio"/> Footwear <input type="radio"/> Garments	Price <input style="width: 100%;" type="text"/>	<input checked="" type="checkbox"/> Membership		
<input type="button" value="Find Bill"/>	<input type="button" value="Clear"/>	<input type="button" value="Quit"/>		
Discount <input style="width: 100%;" type="text"/>				
Net Amount <input style="width: 100%;" type="text"/>				

- (i) Write Java Code for button "Find Bill" to find Discount amount and Net amount on the basis of the following table : 3

Category	Discount
Footwear	25%
Garments	20%

Give an additional discount of 5% if membership checkbox is checked.
- (ii) Write Java Code to clear all textfields and check box as unticked. 1

- (iii) Write JAVA Code close the application when button "QUIT" is clicked. 1
- (b) Write Java statement to make a **Textfield1** uneditable during execution. 1
- (c) Write Java Code to transfer the selected item of **Combobox** to a variable CHOICE. 1
- (d) Which property of list box is used to display values in the list. 1
- (e) Explain the use of the following Java functions with example: 2
 - charAt (), equals ()
- 5. (a) Write any two attributes of < body > tag with example. 1
- (b) Write HTML Code to display Horizontal line with red color. 1
- (c) Explain the use of < FONT > tag with suitable example. 1
- (d) What is the difference between Container Tag and Empty Tag ? 1
- (e) Write HTML Code for the following : 1
 - To provide hyperlink to a website
 - http://www.dpsbhilai.in"
- 6. (a) Write update command to increase salary by 15% to all "Manager" 1
 - (Column name : Post). The table name is PAYROLL.
- (b) How is **Primary Key** constraint different from **Unique Key**? 1
- (c) Write one similarity and one difference between Char () and Varchar () data types. 1
- (d) How would you display the day (Monday, Tuesday...) of your birthday? Give example. 1
- (e) If fname = "Nancy" and lname = "Gupta", 1
 - then write SQL command to display the output as "Nancy Gupta" as single column.
- (f) Write the output of the following MySQL statements: 5
 - (i) Select ascii ('A');
 - (ii) Select truncate (17.99, -1);
 - (iii) Select (4.798, 2);
 - (iv) Select pow (-2, 5);
 - (v) Select 1.234x2.432;
- 7. (a) Differentiate between where and having clause. 2
- (b) Write any two DDL commands. 2
- (c) How to modify the structure of any table? Explain with SQL command. 2
- (d) Write any two examples of DBMS software (other than MySQL) 2
- (e) How sysdata () is different from now () ? 2
 - Explain with suitable example.
- (f) Consider the following table named "Softdrink". Write SQL commands for (i) to (v) 5

Table : SOFTDRINK

Drinkcod	Dname	Price	Calories
101	Lime	20	120
102	Apple Drink	25	140
103	Nature Nectar	35	135
104	Mango	30	125
105	Orange	50	150

- (i) Write SQL commands to see the details of structure of a table SOFTDRINK.
- (ii) Write SQL command to convert all Dname into uppercase letters.
- (iii) Write command to add new column Exp.date.
- (iv) Add new record of your own choice of drink.
- (v) Write SQL command to display the details of a table SOFTDRINK in alphabetical order on the basis of Dname.
- (g) In a database Company, there are two tables given below : 5

TABLE : SALES

Salesmanid	Name	Sales	Location id
S1	Nidhi Yadav	25000	102
S2	Shifa	35000	101
S3	Yashi	45000	103
S4	Rohan Yadav	15000	102
S5	Anshul	20000	103

TABLE : LOCATION

LOCATIONID	LOCATIONNAME
101	Delhi
102	Raipur
103	Chennai
104	Durg

- Write MySQL Commands for the following
- (i) To display Salesmanid, names of Salesman, Locationid with Corresponding Location names.
 - (ii) To display names of salesman, sales and corresponding location names who have achieved sales more than 25,000.
 - (iii) To display names of those salesmen who have "Yadav" in their names.
 - (iv) Identify Primary Key in the table sales.
 - (v) Write command to change the location ID to 104 of the salesmanid as "S2" in a table SALES.



DELHI PUBLIC SCHOOL, BHILAI (C.G.)

FIRST TERM EXAMINATION-2018

Date of Exam: 10.09.2018

Mathematics

M.M.: 100

Max. Time: 3 Hrs.

Class XII

General Instructions:

- (i) All questions are compulsory.
- (ii) This question paper contains 29 questions.
- (iii) Question 1- 4 in Section A are very short-answer type questions carrying 1 mark each.
- (iv) Question 5-12 in Section B are short-answer type questions carrying 2 marks each.
- (v) Question 13-23 in Section C are long-answer type questions carrying 4 marks each.
- (vi) Question 24-29 in Section D are long-answer-II type questions carrying 6 marks each.

Section-A

1. What is the principal value of $\cos^{-1} \left(\frac{\sqrt{3}}{2} \right) + \cos^{-1} \left(\frac{-1}{2} \right)$?
2. If $f: \mathbb{N} \rightarrow \mathbb{N}$ is given by $f(x) = 4x + 7$. Is this function onto? Give reasons.
3. Consider the binary operation on \mathbb{Q} defined by $a * b = a + 12b + ab$ for every $a, b \in \mathbb{Q}$, find $2 * \frac{1}{5}$
4. For the curve $y = 5x - 2x^3$, if x increases at 2 units/sec then how fast is the slope of the curve changing when $x = 3$

Section-B

5. If $y = (\log x)^x$ then find $\frac{dy}{dx}$.
6. If $x = a(\theta - \sin \theta)$, $y = a(1 + \cos \theta)$ find $\frac{dy}{dx}$.
7. Find a matrix A satisfying the matrix equation $\begin{bmatrix} 2 & 1 \\ 3 & 2 \end{bmatrix} A = \begin{bmatrix} 1 & 0 \\ 0 & 1 \end{bmatrix}$.
8. Let A be a non-singular square matrix of order 3×3 and $|A| = 4$, find $|\text{adj}(\text{adj} A)|$
9. Give an example of a relation in the set $\{1, 2, 3\}$ which is reflexive and symmetric but not transitive. Give reasons.
10. Without expanding, show that $\begin{vmatrix} a & b & c \\ a + 2x & b + 2y & c + 2z \\ x & y & z \end{vmatrix} = 0$, using properties of determinants.
11. Find the points on the curve $x^2 + y^2 - 2x - 3 = 0$ at which the tangents are parallel to X - axis.
12. Verify mean value theorem for the function $f(x) = \sin x + \cos x$ in $[0, 2\pi]$.

Section-C

13. If $y = (x + \sqrt{x^2 + 1})^m$, then show that $(x^2 + 1) \frac{d^2y}{dx^2} + x \frac{dy}{dx} = m^2 y$.
14. Sand is pouring from a pipe at the rate of $12 \text{ cm}^3/\text{s}$. The falling sand forms a cone on the ground in such a way that the height of the cone is always one-sixth of the radius of the base. How fast is the height of the sand cone increasing when the height is 4 cm?
15. If $(\cos x)^y = (\cos y)^x$, find $\frac{dy}{dx}$
16. Show that $\begin{vmatrix} (b+c)^2 & a^2 & a^2 \\ b^2 & (c+a)^2 & b^2 \\ c^2 & c^2 & (a+b)^2 \end{vmatrix} = 2abc(a+b+c)^3$

(OR)

Show that $\begin{vmatrix} b+c & c+a & a+b \\ q+r & r+p & p+q \\ y+z & z+x & x+y \end{vmatrix} = 2 \begin{vmatrix} a & b & c \\ p & q & r \\ x & y & z \end{vmatrix}$

17. Find the intervals in which the function $f(x) = 2x^3 - 3x^2 - 36x + 7$ is increasing or decreasing.
18. Prove that $\tan^{-1} \left(\frac{\sqrt{1+x} - \sqrt{1-x}}{\sqrt{1+x} + \sqrt{1-x}} \right) = \frac{\pi}{4} - \frac{\cos^{-1} x}{2}$, $-\frac{1}{\sqrt{2}} \leq x \leq 1$.

(OR)

Prove that : $2 \sin^{-1} \frac{3}{5} - \tan^{-1} \frac{17}{31} = \frac{\pi}{4}$

19. Define a binary operation $*$ on the set $\{0, 1, 2, 3, 4, 5\}$ as $a * b = \begin{cases} a + b & \text{if } a + b < 6 \\ a + b - 6 & \text{if } a + b \geq 6 \end{cases}$

Show that zero is the identity for this operation and each element $a \neq 0$ of the set is Invertible with $6 - a$ being the inverse of a .

P.T.O.

(2)

20. Show that the relation R in the set $A = \{x \in \mathbb{Z} : 0 \leq x \leq 12\}$, given by $R = \{(a, b) : |a - b| \text{ is a multiple of } 3\}$, is an equivalence relation. Find the set of all elements related to 1.

21. If $\cos y = x \cos(a+y)$, with $\cos a \neq \pm 1$, prove that $\frac{dy}{dx} = \frac{\cos^2(a+y)}{\sin a}$

22. Using properties of determinants, prove that $\begin{vmatrix} x+4 & 2x & 2x \\ 2x & x+4 & 2x \\ 2x & 2x & x+4 \end{vmatrix} = (5x+4)(4-x)^2$

(OR)

Using properties of determinants, prove that

$$\begin{vmatrix} 1+a^2-b^2 & 2ab & -2b \\ 2ab & 1-a^2+b^2 & 2a \\ 2b & -2a & 1-a^2-b^2 \end{vmatrix} = (1+a^2+b^2)^3$$

23. Using elementary transformations find the inverse of the matrix $\begin{bmatrix} 2 & -2 & 0 \\ 1 & 2 & -2 \\ 0 & -1 & 4 \end{bmatrix}$

Section-C

24. Two schools A and B decided to award prizes to their students for three values honesty(x), punctuality(y) and obedience(z). School A decided to award a total of Rs.11000 for the three values to 5,4 and 3 students respectively while school B decided to award Rs.10700 for the three values to 4,3 and 5 students respectively. If all the three prizes together amount to Rs.2700, then (i) represent the above situation by a matrix equation and form linear equations using matrix multiplication. (ii) Solve using matrix method.

(OR)

Find A^{-1} , where $A = \begin{bmatrix} 4 & 1 & 3 \\ 2 & 1 & 1 \\ 3 & 1 & -2 \end{bmatrix}$. Hence solve the following system of linear equations :

$$4x+2y+3z=2, x+y+z=1 \text{ and } 3x+y-2z=5.$$

25.(i) Solve for x : $\begin{vmatrix} a+x & a-x & a-x \\ a-x & a+x & a-x \\ a-x & a-x & a+x \end{vmatrix} = 0.$

(ii) Express $\begin{bmatrix} 5 & 4 & -2 \\ 3 & -4 & 6 \\ 0 & -2 & 3 \end{bmatrix}$ as a sum of a symmetric and a skew-symmetric matrices.

26. Show that the height of the cylinder of greatest volume which can be inscribed in a sphere of radius R is $\frac{2R}{\sqrt{3}}$. Also find the maximum volume.

(OR)

A window is in the form of a rectangle surmounted by a semi circle. The total perimeter of the window is 10m. Find the dimensions of the window to admit maximum light through the whole opening.

27. If the curves $x = y^2$ and $xy = k$ cut at right angles, prove that $8k^2 = 1$.

28. (i) Consider $f: \mathbb{R}_+ \rightarrow [-9, \infty)$ given by $f(x) = 5x^2 + 6x - 9$. Show that f is invertible with

$$f^{-1}(y) = \left[\frac{\sqrt{5y+54}-3}{5} \right].$$

(ii) Let * be a binary operation on \mathbb{Q}_0 (set of all non-zero rational numbers) defined by

$$a*b = \frac{ab}{4}, \text{ for every } a, b \in \mathbb{Q}_0. \text{ Determine whether * is associative.}$$

29. (i) If $y = (\tan^{-1}x)^2$, show that $(x^2+1)^2 y_2 + 2x(x^2+1) y_1 = 2$.

(ii) If $y = \tan^{-1}\left(\frac{3x-x^3}{1-3x^2}\right)$, $-\frac{1}{\sqrt{3}} < x < \frac{1}{\sqrt{3}}$ then find $\frac{dy}{dx}$

(OR)

(i) Determine the values of α for which the function

$$f(x) = \begin{cases} \alpha(x^2 - 2x), & \text{if } x \leq 0 \\ 4x + 1, & \text{if } x > 0 \end{cases} \text{ is continuous at } x = 0$$

(ii) If the radius of a sphere is measured as 8 m with an error of 0.03 m, find the approximate error in calculating its surface area.

DELHI PUBLIC SCHOOL, BHILAI
FIRST TERM EXAMINATION-2018

PHYSICS (42)
(CLASS: XII)

Date of Exam: 17.09.2018

Time: 3 Hours

Maximum Marks: 70

No. of printed pages: 2

General Instructions

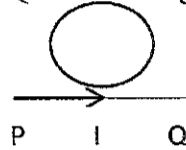
1. All questions are compulsory. There are 26 questions in all.
2. This question paper has five sections: Section A, Section B, Section C, Section D and Section E.
3. Section A contains five questions of one marks each, Section B contains five question of two marks each, Section C contains twelve questions of three marks each, Section D contains one value based question of four marks and Section E contains three question of five marks each.
4. There is no overall choice. However, an internal choice has been provided in one question of two marks, one question of three marks and all the three questions of five marks weightage. You have to attempt only one of the choices in such questions.

SECTION-A

Q.1 Plot a graph showing the variation of resistance of a conducting wire as a function of its radius keeping the length of wire and its temperature as constant. 1

Q.2 Define magnetic dip 1

Q.3 The current through the wire PQ is increasing. In which direction does the induced current flow in the closed loop? 1



Q.4 By using expression for force acting upon a charge in an external magnetic field define SI unit of magnetic field. 1

Q.5 What is the ratio of speed of infrared and ultraviolet ray in vacuum? 1

SECTION-B

Q.6 The dielectric constant of water is 80 what is its permittivity? 2

Or

Define dielectric strength. Write it's SI unit.

Q.7 Two cells of different emfs and internal resistances are connected in parallel with one another find the expression for the equivalent emf and equivalent internal resistance of combination. 2

Q.8 a) Name the transformer which is having a transformation ratio $K > 1$.

b) A power transmission line feeds input power at 2300V to a transformer having 400 turns in its primary, what should be the number of turns in the secondary to get output power at 230V. 2

Q.9 State the principle of A.C. generator and draw its neat labeled diagram. 2

Q.10 What is displacement current? Show that displacement current is equal to conduction current. 2

SECTION-C

Q.11 Draw field lines due to an electric dipole and derive an expression for its electric field at any point on its axis. 3

Q.12 What is an equipotential surface? State and explain any two properties of equipotential surface. 3

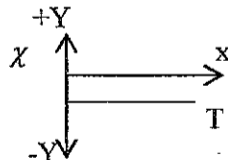
Q.13 Two tiny spheres carrying charges $1.5\mu\text{C}$ and $2.5\mu\text{C}$ are located 30 cm apart find the potential (a) at the mid point of the line joining the two charges and (b) at a point 10 cm from this mid point in a plane normal to the line and passing through mid point. 3

Q.14 A potential difference V is applied to a conductor of length ' l ' diameter ' D '. How are the electric field E and drift velocity \vec{v}_d affected when $\vec{v}_d \rightarrow$ 3

- (a) V is doubled
- (b) l is doubled
- (c) D is doubled

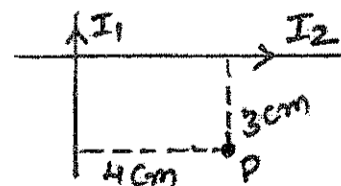
Q.15 State Wheatstone bridge principle and with the help of suitable circuit diagram derive condition for which bridge is balance. 3

Q.16 a. The graph shows variation of susceptibility of a substance with its temperature. Identify the substance. 3



- b. What happens when this substance is placed in non-uniform field?
- c. What happens when rod of this substance is suspended freely in a uniform magnetic field.

Q.17 Two infinitely long insulated wires are kept perpendicular to each other. They carry currents $I_1 = 2\text{A}$ and $I_2 = 1.5\text{A}$ (i) Find the magnitude and direction of the magnetic field at P. (ii) if the direction of current is reversed in one of the wires, what would be the magnitude of the field B? 3



Q.18 Derive an expression for magnetic dipole moment of an electron revolving around a nucleus. Define Bohr magneton and write its value. 3

Q.19 Derive expression for self-inductance of a long solenoid state the factors on which the inductance of coil depends. 3

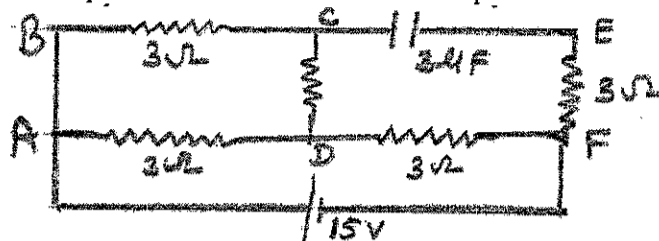
PTO.

Q.20 A sinusoidal emf is applied to a circuit containing capacitor only. Show that the current leads the voltage by $\pi/2$ radian. Also derive an expression for its reactance give SI unit of reactans. 3

Q.21 A 10 meter long wire of uniform cross-section, 20Ω resistance is used as potentiometer wire. This wire is connected in series with a battery of 5V along with an external resistance of 480Ω if an unknown emf 'E' is balanced at 600 cm of this wire calculate (i) potential gradient of wire (ii) and the value of unknown emf. 3

OR

In the circuit shown find the potential difference between the point DF.



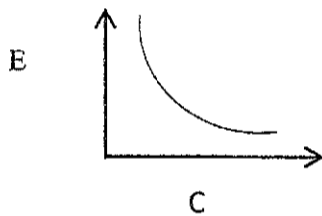
Q.22 Name the electromagnetic waves used for the following and arrange them in increasing order of their penetrating power. 3
 a) Water Purification b) Remote sensing c) Treatment of cancer

SECTION-D

Q.23 Laxmi and her mother went to the market to purchase some household articles. Laxmi's mother was going to purchase 100W electric bulb. Laxmi advised her to purchase CFL she told her mother that its will consume less amount of power and will save electricity. 4
 a) What qualities do you notice in Laxmi?
 b) A 100W bulb and a 500W bulb are joined in parallel to the mains which bulb will draw more current?

SECTION-E

Q24. a) Derive an expression for energy density of a parallel plate capacitor. (2+2+1)
 b) A 900pF capacitor is charged by a 100V battery. The capacitor is disconnected from the battery and connected to another uncharged 900pF capacitor what is the loss in electrostatic energy stored by the system.
 c) In following graph 'C' is capacitance of a capacitor and 'E' is energy stored in it. Which of two the charge on capacitor or potential used to charge it is kept constant?



OR

a) Derive an expression for electric field due to a uniformly charged thin spherical shell at a point 'P' (i) lies outside the shell (ii) lies inside the shell using gauss law.
 b) A uniformly charged spherical shell of 2.4m diameter has surface charge density of $80.0 \mu\text{C}/\text{m}^2$. Find total charge and total flux associated with it.
 c) Draw a graph showing variation of Electric field due to uniformly charged spherical shell with distance of point.
 Q.25 a) A circular coil of 20 turns and radius 10 cm is placed in a uniform magnetic field of 0.10T normal to the plane of the coil. If the current in the coil is 5.0A what is the (i) total torque on the coil (ii) total force on the coil (iii) torque in magnetic field of same magnitude but acting parallel to the plane of coil.
 b) Give reason:
 (i) Radial magnetic field is used in moving coil galvanometer.
 (ii) Phosphor bronze hair spring is used for suspension of coil in moving coil galvanometer. (3+2)

OR

a) A proton, a deuteron and an alpha particle having the same kinetic energy are allowed to pass through a uniform magnetic field perpendicular to their direction of motion compare the radii of their circular paths.
 b) Explain any two limitations of cyclotron.
 Q.26 a) Using Phasor diagram derive an expression for impedance of series LCR series circuit (3+2)
 b) What do mean by
 (i) Condition of resonance of LCR series circuit
 (ii) Quality factor.

OR

a) Derive expression for mutual inductance of two long coaxial solenoids.
 b) State the factors on which mutual inductance depends.

General Instructions:

- This question paper contains two parts A and B.
- All the questions are compulsory.
- Each question carries marks indicated against it.
- All parts of a question should be attempted at one place.
- Give your working notes wherever required.

Part A**(Accounting for Partnership Firms)**

1. A partnership deed provides for the payment of interest on capital @ 10% p.a. but there was a loss instead of profit during the year 2017-18. At what rate will the interest be allowed on capital? (1)
2. How is goodwill valued under the capitalisation of Average Profit method? (1)
3. Name the two situations in which sacrificing ratio is computed. (1)
4. X, Y and Z were partners sharing profits and losses in the ratio of 7:5:3. X retires and it was decided that profit-sharing ratio between Y and Z will be same as existing between X and Y. Calculate gaining ratio. (1)
5. There was an old computer which was written off in the books of accounts in the previous year. The same has been taken over by a partner Nitin for ₹3,000. Journalise the transaction, assuming that the firm has been dissolved. (1)
6. X, Y and Z are partners in a firm sharing profits in the ratio of 5:3:2. Their fixed capitals were ₹3,00,000; ₹2,00,000 and ₹1,00,000 respectively. For the year ended 31st March, 2018, interest on capital was credited to their capital accounts 8% p.a. instead of 10% p.a. Showing your workings clearly, pass the necessary adjusting journal entry. (3)
7. A, B and C were partners in a firm sharing profits in 4:3:1. The firm closes its books on 31st March every year. It is provided that on death of any partner, the goodwill of the firm is to be valued on the basis of such partner's share of 2 year's profits calculated on the average of 4 completed years' profit immediately preceding the year of death less 20% and share in the profits of the firm till the time of his death was to be calculated on the basis of previous year's profits. B died on 12th June, 2018. The result of the firm's trading profits for the last four years were as follows: 2017-18: ₹1,50,000; 2016-17: ₹30,000 (Loss); 2015-16: ₹1,40,000; 2014-15: ₹2,20,000. Calculate the amount that should be credited to B in respect of his share of goodwill and profit of the firm and pass necessary journal entry for treatment of goodwill. (3)
8. Leena Meena and Neena are partners sharing profits in the ratio of 5:4:1. Neena is given a guarantee that her share of profit, in any year, will not be less than ₹50,000. The profits for the year ending 31st March, 2018 amounted to ₹3,50,000. Shortfall, if any, in the profits guaranteed to Neena is to be borne by Leena and Meena in the ratio of 3:2. Record necessary journal entries for the distribution of profits among partners. (3)
9. A and B are partners in a firm sharing profits and losses in the ratio of 3:2. They decide to admit C into partnership with 1/4th share in profits. C will bring in ₹30,000 for capital and the requisite amount of goodwill premium in cash. The goodwill of the firm is valued at ₹20,000. The new profit sharing ratio is 2:1:1. A and B withdrew their share of goodwill. Give necessary journal entries. (4)
10. Pass necessary journal entries under the following situations at the time of dissolution of firm:
 - (i) Realisation expenses were ₹10,000. Out of the said expenses, ₹4,000 were to be borne by the firm and the balance by Sahil, a partner.
 - (ii) Realisation expenses were ₹6,000; ₹5,000 were to be borne by the firm and the balance by Satish, a partner. The expenses were paid by Satish.
 - (iii) Harish, a partner, was to bear all expenses of realisation for which he is given a commission of ₹6,000. Actual expenses paid by him amounted to ₹9,000.
 - (iv) Kamal, a partner, is to bear all expenses of realisation for which he is allowed a commission of ₹6,000. Actual realisation expenses were ₹5,000 and were paid by the firm. (4)
11. X, Y and Z are in partnership with capital of ₹1,20,000 (Cr.), ₹1,00,000 (Cr.) and ₹8,000 (Dr.) respectively on 1st April, 2017. Their partnership deed provides for the following:
 - (a) 7.5% of Net Profit to be transferred to General Reserve.
 - (b) Partners are to be only allowed interest on capital @ 5% p.a. and are to be charged interest on drawings @ 6% p.a.
 - (c) Z is entitled to a salary of ₹7,000.
 - (d) X is entitled to a remuneration of 10% of the net profit before making any appropriation.
 - (e) Y is entitled to a commission of 8% of the net profit before charging interest on drawings but after making all appropriations.

During the year, X withdrew ₹1,000 at the beginning of every month, Y ₹1,000 during the month and Z ₹1,000 at the end of every month. On 1st October, 2017, Z granted a loan of ₹6,00,000 to the firm.

The manager of the firm is entitled to a salary of ₹1,000 per month and a commission of 10% of net profit after charging his salary and commission.

The net profit of the firm for the year ended 31st March, 2018 before providing for any of the above adjustments was ₹1,62,000.

Prepare Profit and Loss Appropriation Account for the year ended on 31st March, 2018. (4)

12. A, B and C are partners sharing profits and losses in the ratio of 3:3:2. Their Balance Sheet as at 31st March, was as follows:

Liabilities		Amount	Assets		Amount
		₹			₹
Sundry Creditors		24,000	Cash at Bank		37,000
General Reserve		36,000	Sundry Debtors		44,000
Capital Accounts:			Stock		1,20,000
A	2,00,000		Machinery		1,59,000
B	1,50,000		Buildings		2,00,000
C	1,50,000	5,00,000			
		5,60,000			5,60,000

Partners decided that with effect from 1st April, 2018, they would share profits and losses in the ratio of 4:3:2. It was agreed that:

- Stock be valued at ₹1,10,000.
- Machinery is to be depreciated by 10%.
- A provision for doubtful debts is to be made on debtors @ 5%.
- Building to be appreciated by 20%.
- A liability for ₹2,500 included in sundry creditors is not likely to arise.

Partners agreed that the revised values of assets and liabilities are not to be recorded in the books and they also do not want to distribute the general reserve. You are required to record the change by passing a single journal entry with necessary working note. Also prepare the revised Balance Sheet. (6)

13. Pawan, Qureshi and Ram were partners in a firm sharing profits and losses in the ratio of 3:2:1. On 1st April, 2018, their Balance Sheet was as follows:

Liabilities		Amount	Assets		Amount
		₹			₹
Bills Payable		90,000	Cash at Bank		87,000
Sundry Creditors		1,60,000	Bills Receivable		38,000
General Reserve		48,000	Sundry Debtors		90,000
Capital Accounts:			Stock		1,11,000
Pawan	3,58,000		Furniture		2,33,000
Qureshi	3,00,000		Plant and Machinery		2,95,000
Ram	2,62,000	9,20,000	Land and Buildings		3,64,000
		12,18,000			12,18,000

On the above date, Shanti was admitted on the following terms:

- She will bring ₹ 1,00,000 for her capital and will get 1/10th share in the profits.
- She will bring necessary cash for her share of goodwill premium. The goodwill of the firm was valued at ₹3,00,000.
- A liability of ₹18,000 will be created against bills receivable discounted.
- The value of stock and furniture will be reduced by 20%.
- The value of land and building will be increased by 10%.
- Capital accounts of the partners will be adjusted on the basis of Shanti's capital in their profit sharing ratio by opening current accounts.

Prepare Revaluation Account and Partners' Capital Accounts. (6)

14. Ram, Mohan and Sohan were partners sharing profits and losses in the ratio of 5:3:2. On 31st March, 2018, their Balance Sheet was as follows:

Liabilities		Amount	Assets		Amount
		₹			₹
Sundry Creditors		30,000	Cash at Bank		40,000
Workmen Compensation Reserve		1,55,000	Stock		1,90,000
Capital Accounts:			Machinery		1,50,000
Ram	1,50,000		Patents		30,000
Mohan	1,25,000		Leasehold		1,25,000
Sohan	75,000	3,50,000			
		5,35,000			5,35,000

Sohan died on 1st August, 2018. It was agreed that:

- Goodwill of the firm is to be valued at ₹1,75,000.
- Machinery be valued at ₹1,40,000; Patents at ₹ 40,000; Leasehold at ₹1,50,000 on this date.
- For the purpose of calculating Sohan's share in the profits of current year upto the date of his death, the profits should be taken to have accrued on the same scale as in 2017-18, which were ₹75,000.

Prepare Sohan's Capital Account and Revaluation Account. (6)

15. Arun and Tarun were partners sharing profits and losses in the ratio of 3:2. They decided to dissolve the firm on 31st March, 2018, when their Balance Sheet was as follows:

Liabilities		Amount	Assets		Amount
		₹			₹
Sundry Creditors		40,000	Cash in hand		14,000
Mrs. Arun's Loan		10,000	Stock		8,000
Tarun's Loan		15,000	Debtors	18,000	
General Reserve		5,000	Less: Provision	1,000	17,000
Capital Accounts:			Furniture		4,000
Arun	10,000		Plant		30,000
Tarun	8,000	18,000	Investments		10,000
			Profit and Loss A/c		5,000
		88,000			88,000

The firm was dissolved on 1st April, 2018 on the following terms:

- Arun took over investments at ₹ 8,000 and agreed to pay off Mrs. Arun's loan.
- The assets realised as follows:
 - Stock ₹ 2,000
 - Debtors ₹ 20,500
 - Furniture ₹ 1,000 more than its book value
 - Plant ₹ 20,000 less than its book value
- Expenses of realisation were ₹ 1,200.
- Creditors were paid off at a discount of 3%.
- Firm had an unrecorded asset which was valued at ₹ 5,000 which was accepted by unrecorded liability of ₹ 7,000, in full settlement of their claim.

Prepare Realisation Account, Partners' Capital Accounts and Bank Account to close the books of the firm. (8)

16. A, B and C are partners sharing profits in the ratio of 3:2:1. B retires from the firm due to his illness. On 31st March, 2018, the Balance Sheet of the firm was as follows:

Liabilities		Amount	Assets		Amount
		₹			₹
Bills Payable		16,000	Cash in hand		18,000
Sundry Creditors		30,000	Debtors	25,000	
General Reserve		12,000	Less: Provision	3,000	22,000
Capital Accounts:			Stock		18,000
A	40,000		Furniture		30,000
B	40,000		Machinery		70,000
C	30,000	1,10,000	Goodwill		10,000
		1,68,000			1,68,000

The other terms of on retirement are as follows:

- Provision for doubtful debts to be raised by ₹1,000.
- Stock to be depreciated by 10% and furniture by 5%.
- There is an outstanding claim of damages of ₹1,100 and it is to be provided for.
- Creditors will be written back by ₹ 6,000.
- Goodwill of the firm is valued at ₹ 22,000.
- B is paid in full with the cash brought in by A and C in such a manner that their capitals are in proportion to their new profit sharing ratio and cash in hand remains at ₹10,000.

Prepare Revaluation Account, Partners' Capital Accounts and the Balance Sheet of the new firm. (8)

Part B

(Analysis of Financial Statements)

- Where is 'Calls-in-Advance' shown in the Balance Sheet of a Company? (1)
- What do you mean by Securities Premium Reserve? (1)
- You are a shareholder of Green Ltd. Mention any two ratios that you will compute to examine whether your decision was correct to invest in Green Ltd. (1)
- Classify the following into Non-Current Assets and Current Assets and give reasons for such classification:
 - A company has an operating cycle of 11 months and the expected period of realisation of Trade Receivable is 10 months. (1)
 - A company has an operating cycle of 11 months and the expected period of realisation of Trade Receivable is 15 months. (1)
 - A company has an operating cycle of 20 months and the expected period of realisation of Trade Receivable is 24 months. (3)

21. Under which major headings and sub-headings will the following items be shown in the Balance Sheet of a Company as per Schedule III, Part I of the Companies Act, 2013?

- (i) Net Loss as shown by Statement of Profit and Loss
- (ii) Capital Redemption Reserve
- (iii) Bonds
- (iv) Loans Repayable on Demand
- (v) Unpaid Dividend
- (vi) Buildings
- (vii) Trademarks
- (viii) Raw Materials

(4)

22. Following information is extracted from the Statement of Profit and Loss of Gold Star Ltd. for the years ended 31st March, 2018 and 2017:

Particulars	Note No.	31 st March, 2018	31 st March, 2017
		₹	₹
Revenue from Operations		40,00,000	32,00,000
Employee Benefit Expenses		20,00,000	16,00,000
Depreciation and Amortisation Expenses		50,000	40,000
Other Expenses		1,50,000	3,60,000
Tax Rate		30%	30%

Prepare Comparative Statement of Profit and Loss.

(4)

23. (a) The Quick Ratio of a company is 1.5:1. State with reason which of the following transactions would increase, decrease or not change the ratio:

- (i) Paid rent ₹ 3,000 in advance.
- (ii) Trade Receivables included a debtor Shri Ashok who paid his entire amount due ₹ 9,700.

(b) on the basis of the information given below, calculate:

- (i) Gross Profit Ratio
- (ii) Inventory Turnover Ratio
- (iii) Debt-Equity Ratio
- (iv) Working Capital Turnover Ratio

Information: Revenue from Operations ₹ 7,87,500; Cost of Revenue from Operations ₹ 3,95,600; Current Liabilities ₹ 2,37,000; Long-term Loan ₹ 87,000; Current Assets ₹ 3,99,000; Equity Share Capital ₹ 3,75,000; 8% Debentures ₹ 1,25,000 and Average Inventory ₹ 1,97,800.

(2+4=6)

DELHI PUBLIC SCHOOL, BHILAI (C.G.)

Time: 3 hrs.

FIRST TERM EXAMINATION, 2018

14.09.18

Class: XII

BUSINESS STUDIES

M.M.:80

General Instructions:

1. Answers to questions carrying 1 mark may be from one word to one sentence.
2. Answers to questions carrying 3 marks may be from 50-75 words.
3. Answers to questions carrying 4-5 marks each may be about 150 words.
4. Answers to questions carrying 6 marks may be about 200 words.
5. Attempt all parts of a question together.

1. Suhasini, a home science graduate from a reputed college has recently done a cookery course. She wished to start her own venture with a goal to provide 'health food' at reasonable price. After analyzing various options for starting her business venture, she shortlisted the option to sell readymade and 'ready to make' vegetable shakes. Name the function of management being discussed above. (1)
2. Rohan, after completing his MBA, joined his father's business. He analysed the situation and applied his educational knowledge according to the prevalent conditions. As a result, the turnover of his father's business doubled in a span of six months.
Identify the nature of management being highlighted. (1)
3. Which type of organisational structure is suitable for a large scale organisation having diversified activities requiring high degree of specialisation in operations? (1)
4. Name the technique of scientific management which is an extension of the principle of division of work and specialisation. (1)
5. Name the concept which suggests that only significant deviations which go beyond the permissible limit should be brought to the notice of management. (1)
6. Win Electronics sells its goods only through recognised dealers. What type of plan is it? (1)
7. State any two features of demonetisation. (1)
8. Harish, the manager of a business undertaking, is very lax with his fellow employees and subordinates. He does not give them parameters or rules for reporting to work and completion of assignments. Which principle of management is being overlooked here? (1)
9. Atul Sharma is working in 'Excel Security Services Ltd'. He is also recruiting security guards for the company. The company provides security services in Delhi and Noida at short notice to various companies. The guards are recruited on a temporary basis. The guards provided by this company are known for their honesty and punctuality. Atul Sharma is well known in his village for providing employment to unskilled people.
(a) Name the source of recruitment used by 'Excel Security Services Ltd'.
(b) State any one disadvantage of this source of recruitment.
(c) Identify any two values communicated to the society in the above stated case. (1+1+1=3)
10. Super Fine Rice Ltd. has the largest share of 55% in the market. The company's policy is to sell only for cash. In 2018, for the first time, the company's number one position was threatened because other companies started selling rice on credit also. But the managers of Super Fine Rice Ltd. continued to rely on its previously tried and tested successful plans which didn't work because the environment is not static. This led to decline in sales of Super Fine Rice Ltd. The above situation is indicating two limitations of one of the functions of management. Identify the function of management and its two limitations. Explain these limitations briefly. (1+2=3)
11. Mrs. Sarojini is working as the Human Resource Consultant in a firm manufacturing cosmetics, which is facing a problem of high employee turnover. The CEO of the company has invited suggestions from her for reducing the employee turnover. Mrs. Sarojini recommends that the good employees be rewarded in a way that it creates a feeling of ownership among the employees and at the same time makes them contribute towards the growth of the organisation.
(a) Identify the incentive and its type, which has been suggested by Mrs. Sarojini to the CEO of the company.
(b) Also explain any one other incentive of the same type. (2+1=3)
12. Differentiate between Functional and Divisional structure on the basis of (3)
(a) Formation (b) Coordination (c) Responsibility

13. Global Pvt Ltd is a publishing company. Its book on Business Studies for class XII is in great demand. As a result, the employees in the marketing department are always racing against time. The employees have to work overtime and on holidays to cater to the demand. Managers in the marketing department are under stress as they have to handle more than two territories. The work stress has led to dissatisfaction among the employees and managers.
- (a) Name and explain the step of staffing process which has not been performed properly.
 (b) State the next two stages immediately following the step identified in part 'a'. **(2+1=3)**
14. Harsh started a company 'Tiny-Toys Ltd' to manufacture economical toys for the Indian rural market, with 20 employees. As the product was good and marketed well, the demand of its products went up. To increase the production the company decided to recruit additional employees. Harsh who was earlier taking all decisions for the company had to selectively disperse the authority. He believed that subordinates are competent, capable and resourceful and can assume responsibility for effective implementation of their decisions. This paid off and the company was not only able to increase its production but also expanded its product range with different features.
- (a) Identify the concept used by Harsh through which he was able to steer his company to greater heights.
 (b) Also explain any three points of importance of this concept. **(1+3=4)**
15. Sun Power Ltd. set up a factory for manufacturing solar lanterns in a remote village as there was no reliable supply of electricity in rural areas. The revenue earned by the company was sufficient to cover the costs and the risks. The demand of lanterns was increasing day by day, so the company decided to increase production to generate higher sales. For this they decided to employ people from nearby villages as very few job opportunities were available in that area.
- (a) Identify and explain the objectives of management discussed above by quoting the lines from the given paragraph.
 (b) State any two values which the company wanted to communicate to the society. **(2+2=4)**
16. Rajat and Anoop after finishing their graduation under vocational stream decided to start their own travel agency which will book Rail Tickets and Air Tickets on commission basis. They also thought of providing tickets within ten minutes through the use of internet. They discussed the idea with their Professor, Mr. Sharma, who told them about the technological improvements and shifts in consumer preferences that were taking place. He also emphasised on making plans keeping in mind the threat posed by the competitors. This alignment of business operations with the business environment will result in better performance.
- (a) Identify the component of business environment highlighted in the above paragraph.
 (b) State the feature of business environment as discussed by Professor Sharma.
 (c) State and explain two points of importance of business environment as stated by Professor Sharma. **(1+1+2=4)**
17. Saket, a sales representative of 'Nicon Ltd' has changed seven jobs in the last one year. He is a hard working person but is not able to finalise deals with the customers due to his inadequate vocabulary and omission of needed words. Sometimes he uses wrong words because of which intended meaning is not conveyed. All this created a misunderstanding between him and his clients.
- (a) Identify the communication barrier discussed above.
 (b) State the category of this communication barrier.
 (c) Explain any two other communication barrier of the same category. **(1+1+2=4)**
18. Ritesh set up a small plant manufacturing pesticides. To begin with he employed 10 people who had the experience of working in small factories. He was a strict task master. He kept all the decision making power with himself. The employees were frequently leaving the job as they were not satisfied about his way of dealing with them and as such Ritesh faced a lot of problems tackling the employees. He then appointed a manager who through his experience, creativity and personalised way created an atmosphere of complete cooperation and coordination which led to the achievement of goals.
- (a) Which principles of management were ignored by Ritesh? Identify by quoting the lines.
 (b) What does the manager's way of dealing tell about the nature of management? Discuss. **(2+2=4)**

19. The CEO of XYZ Ltd, Mr. Raghu, after consultation with his department heads, declared the sales target of one million units of the product. The financial department was asked to prepare a detailed plan with expected cash flow to ensure the achievement of the target. The sales and production department were asked to coordinate the development of routine steps to be followed to achieve the given target. The team leaders in the sales team and the supervisors in production team briefed their team members on the manner in which the activities had to be performed to have a good qualitative and quantitative control. Due to the coordinated efforts of all the members the target was easily achieved by the company. Quoting lines from the above, identify the various types of plans. (4)

20. Euro Ltd. is a large company engaged in assembly of air-conditioners. Recently the company had conducted the 'Time' and 'Motion' study and concluded that, on an average, a worker can assemble ten air-conditioners in a day. The target volume of the company in a day is assembling of 1000 units of air-conditioners. The company is providing attractive allowances to reduce labour turnover and absenteeism. All the workers are happy. Even then the assembly of air-conditioners per day is 800 units only. To find out the reasons the company compared actual performance of each worker and observed through C.C.T.V. that some of the workers were busy in gossiping.

(a) Identify the function of management discussed above.

(b) Explain the steps in the process of the function identified by quoting the lines from the above paragraph. (1+4=5)

21. Neeraj Kharia was working in 'Trendz Ltd', a company manufacturing air purifiers. He found that the profits had started declining from the last six months. Profit had an implication for the survival of the firm. So he analysed the business environment to find out the reasons for this decline.

(a) Identify the level of management at which Neeraj Kharia was working.

(b) State any four functions of Neeraj Kharia. (1+4=5)

22. What do you mean by Training? Explain briefly the following two methods of training.

(i) Vestibule Training.

(ii) Apprenticeship Training. (1+4=5)

23. Hariom Cables, a small cable manufacturing company, was facing a lot of problem in their manufacturing process. It had different functional departments headed by the functional managers. Each department had a goal to achieve. At times, the workers in the production department would get the instructions from the marketing manager as well. This caused a little confusion in the minds of the workers. To discuss the problems, the supervisor directly approached the Managing Director who then called for an inter departmental meeting with the production manager, marketing manager, supervisors and the representatives of the workers from both the departments and asked them to suggest the ways to solve the problem.

By quoting the relevant lines, identify and explain the principles of management followed and violated in the above case. (6)

24. Explain briefly Maslow's Need Hierarchy Theory and also state the assumptions on which it is based. (6)

25. 'Ruchi Spices Ltd' are the manufacturer of different food-specific spices like Rajma Masala, Chholley Masala, Aaloo Paratha Masala etc. Mr Ranjish, the owner of the company believes that effective planning leads to achievement of organisational objectives. So, in order to make employees focus on objectives, he issued instructions that during working hours, only official matters will be discussed. He made certain rules and code of conduct for the employees to follow, according to which employees are not allowed to visit and talk to the employees of other departments except for official work. He emphasised on work performance which resulted in smooth functioning of the organisation.

(a) Identify and explain the type of organisation mentioned in the above para.

(b) State one feature of the concept identified in part (a) as mentioned in the above para.

(c) What was the purpose behind the formulation of rules for the employees that restricted their personal communication with the employees of other departments?

(d) State two values violated by Mr. Ranjish.

(2+1+1+2=6)

DELHI PUBLIC SCHOOL, BHILAI (C.G.)

Time: 3 hrs.

FIRST TERM EXAMINATION, 2018

14.09.18

Class: XII

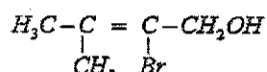
CHEMISTRY

M.M.:70

General Instructions:

1. All questions are compulsory.
2. Questions No. 1 to 5 are very short answer question and carry 1 mark each.
3. Questions No. 6 to 10 are short answer type questions and carry 2 marks each.
4. Questions No. 11 to 22 carry 3 marks each.
5. Question No. 23 is value based question and contain 4 marks.
6. Questions No. 24 to 26 are long answer questions and carry 5 marks each.

1. Which stoichiometric defect in crystals increases the density of a solid ? (1)
2. How many faradays of charge are required to convert 1 mole of MnO_4^- to Mn^{+2} ion ? (1)
3. Define zero order reaction. (1)
4. Why is it necessary to prepare Grignard reagent in anhydrous condition? (1)
5. Write IUPAC name of the compound: (1)



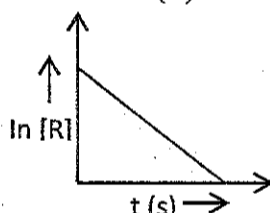
6. If NaCl is doped with 10^{-3} mol % SrCl₂, what is the concentration of cation vacancies? (2)

OR

Analysis shows that nickel oxide has the formula. $Ni_{0.98}O_{1.00}$. What percentage of metal ions exist as Ni^{2+} and Ni^{+3} ?

7. Account for the following: (2)
 - (a) Conductivity of silicon increases on doping it with phosphorus.
 - (b) Glass objects from ancient civilization is found to be milky.
8. What is Van't Hoff factor? What type of values can it have if the solute in the solution undergoes (i) Dissociation (ii) Association. (2)
9. The decomposition of NH₃ on a platinum surface, $2NH_3(g) \xrightarrow{Pt} N_2(g) + 3H_2(g)$, is zero order with $k = 2.5 \times 10^{-4} \text{ mol L}^{-1} \text{ s}^{-1}$. What are the rates of production of N₂ and H₂? (2)
10. For a certain chemical reaction, variation in the concentration (R) vs time (sec) plot is given in the figure (2)

- (i) What is the order of the reaction?
- (ii) Give the relationship between K and $t_{1/2}$.
- (iii) What is the unit of K for this reaction?
- (iv) What does the slope of the line indicate?



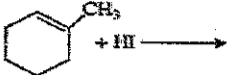
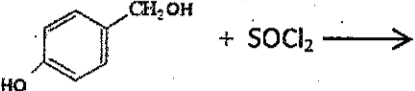
11. (a) Based on the nature of intermolecular forces, classify the following solid: Diamond, Argon. (3)
- (b) Calculate the packing efficiency of a metal crystal for a body centred cubic lattice. (3)
12. An element with density 2.8 g cm^{-3} forms a FCC unit cell with edge length $4 \times 10^{-8} \text{ cm}$. Calculate the molar mass of the element. (3)
13. Two elements A and B forms compound having formula AB₂ and AB₄. When dissolved in 20g of benzene C₆H₆, 1g of AB₂ lowers the freezing point by 2.3K whereas 1g of AB₄ lowers it by 1.3K. The molal depression constant for benzene is $5.1 \text{ K kg mol}^{-1}$. Calculate atomic masses of A and B. (3)

OR

Boiling point of water at 750 mm Hg is 99.63°C . How much sucrose is to be added to 500 g of water such that it boils at 100°C . Molal elevation constant for water is $0.52 \text{ K kg mol}^{-1}$. (Molar mass of sucrose = 342 g mol^{-1})

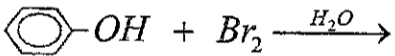
14. What are non-ideal solutions? What type of deviation (positive or negative) from ideal behaviour will be shown by the solution of chloroform and acetone and why? (3)
15. (a) Predict the product of electrolysis. (3)
 - (i) An aqueous solution of AgNO₃ with platinum electrodes.
 - (b) What is the effect of dilution on the conductivity of a solution? Explain.
16. Calculate the e.m.f of the following cell at 298K (3)

$$Fe | Fe^{+2} (0.001M) || H^+ (0.01M) | H_2(g), (1bar) | Pt(s) \quad E^\circ(Fe^{+2} | Fe) = -0.44 \text{ V}, E^\circ(H^+ | H_2) = 0.00 \text{ V}.$$
17. A reaction is second order with respect to a reactant A and first order with respect to reactant B. (3)
 - (i) Write differential rate equation.
 - (ii) How is the rate affected on increasing the concern of A three times?
 - (iii) How is the rate affected when concentration of both A and B is doubled?

18. (a) Define Activation energy. (3)
 (b) If the activation energy for the forward reaction is 150 kJ/mol and that of the backward reaction is 260 kJ/mol, what is the enthalpy change for the reaction?
19. (a) Arrange each set of compounds as per the property indicated. (3)
 (i) 1-chloropropane, 1-chlorobutane, 1-bromobutane, isopropyl chloride. (increasing boiling point)
 (ii) 1-bromo-3-methyl butane, 2-bromo-2-methyl butane, 2-bromo-3-methyl butane, 1-bromo-2-methyl butane, (reactivity towards S_N^2)
 (b) Convert propene to propan-1-ol.
20. Complete the following reactions: (3)
- (i)  $\text{C}_6\text{H}_{11}\text{CH}_3 + \text{HI} \longrightarrow$
- (ii)  $\text{HO}-\text{C}_6\text{H}_4-\text{CH}_2\text{OH} + \text{SOCl}_2 \longrightarrow$
- (iii)
$$\text{H}_3\text{C}-\overset{\text{CH}_3}{\underset{\text{CH}_3}{\text{C}}}-\text{Br} + \text{alc KOH} \xrightarrow{\Delta}$$
21. a) Write a chemical test to distinguish propanol and isopropyl alcohol. (3)
 b) Out of o-nitrophenol and p-nitrophenol which is steam volatile and why?
 c) Write a note on Kolbe's reaction.
22. Write a mechanism for acid catalysed dehydration of ethanol at 443K. (3)
23. Farmers are freely using D.D.T. as an insecticide for the crops. However, in the recent years, they are giving preferences to B.H.C or even neem leaves. (4)
 (i) What is the IUPAC name of D.D.T?
 (ii) What is the problem created by D.D.T?
 (iii) What are the values associated with the above narration?
24. (a) Name the reagent used for the conversion of a primary alcohol to an aldehyde.
 (b) Complete the following reaction:

$$\text{C}_2\text{H}_5\text{OH} \xrightarrow[573\text{K}]{\text{Cu}} \text{A} \xrightarrow[\text{(ii) H}_2\text{O}|\text{H}^+]{\text{(i) CH}_3\text{MgBr}} \text{B}$$

 (c) Unlike phenol, alcohol is easily protonated. Why?
 (d) Show how will you synthesise cyclohexylmethanol using an alkyl halide by S_N^2 reaction. (1+2+1+1)
OR
 (a) Name the reagent which can be used for the conversion of Butan-2-one to Butan-2-ol.
 (b) Write the equation for the preparation of ethoxybenzene by Williamson synthesis.
 (c) Complete the following reaction:
 (i)
$$\text{H}_3\text{C}-\overset{\text{CH}_3}{\underset{\text{CH}_3}{\text{C}}}-\text{O}-\text{CH}_3 + \text{HI} \longrightarrow$$

 (ii)  $\text{C}_6\text{H}_5\text{OH} + \text{Br}_2 \xrightarrow{\text{H}_2\text{O}}$
- (d) Why phenol is more acidic than ethanol? (1+1+2+1)
25. (a) State Raoult's law for a solution containing non-volatile solute.
 (b) Why NaCl solution boils at a higher temperature than water?
 (c) Calculate the mass of a non-volatile solute (molar mass = 40g mol^{-1}) which should be dissolved in 114g octane to reduce its vapour pressure to 80%. (1+1+3)
OR
 (a) Define antifreeze.
 (b) Equimolar solutions of sugar and sodium chloride are not isotonic.
 (c) Determine the amount of CaCl_2 ($i=2.47$) dissolved in 2.5 litres of water such that its osmotic pressure is 0.75 atm at 27°C . (1+1+3)
26. (a) Define electrochemical equivalent.
 (b) Explain the variation of molar conductivity for strong and weak electrolyte.
 (c) Write the reactions involved in a lead storage battery during its discharge. (1+2+2)
OR
 (a) State Kohlrausch law.
 (b) Why mercury cell gives a constant voltage throughout its life?
 (c) Explain how rusting of iron is envisaged as setting up of an electrochemical cell.
 (d) Write two advantages of fuel cell. (1+1+2+1)

DELHI PUBLIC SCHOOL, BHILAI (C.G.)

Class: XII

FIRST TERM EXAMINATION (2018)

04.09.18

Time: 50 min.

GENERAL KNOWLEDGE

M.M: 50

Name: _____ Roll No. _____ Class/Sec. _____

Invigilator's Sign. _____

Note: • All questions are compulsory. • Each question carries 1 mark.

1. Which city is situated on the banks of Darling River?
 (a) Rome, Italy (b) Paris, France (c) Sydney, Australia (d) Bristol, UK
2. Durand line is international boundary between-
 (a) Pakistan & Afghanistan (b) China & Pakistan (c) India & China (d) India & Pakistan
3. GST is aimed to-
 (a) raise the prices of foreign goods (b) raise the prices of luxury goods
 (c) lower the prices of goods of everyday use.
 (d) avoid repeated payments of tax from the raw material stage to the final product and thus reduce the burden of tax on the final product.
4. A 200m long train crosses a platform of double its length in 36 second. What is speed of train in kmph?
 (a) 60 (b) 48 (c) 64 (d) 66
5. If numerator of a fraction is increased by 200% and denominator is increased by 300%, the resultant fraction is $\frac{15}{26}$. What was the original fraction?
 (a) $\frac{10}{13}$ (b) $\frac{10}{11}$ (c) $\frac{18}{11}$ (d) $\frac{9}{13}$
6. A, B, C, D, E and H are sitting around a circle facing centre. 'F' is third to right of C and second to left of 'H'. 'D' is not an immediate neighbour of 'C' or 'H'. 'E' is immediate right of 'A', who is second to right of 'G'. Who sits between 'G' and 'D'?
 (a) F (b) C (c) A (d) H
7. Which has highest energy?
 (a) Alpha particle (b) Beta particle (c) X-rays (d) Gamma rays
8. Which one of following is a physical process?
 (a) Digestion (b) Corrosion or rusting of a metal
 (c) Production of Hydrogen from an acid (d) Sublimation of Iodine
9. The stethoscope used by a medical practitioner is based on phenomena of-
 (a) Multiple reflection of sound waves (b) Scattering of sound
 (c) Refraction of sound (d) None of these
10. The ratio of the width (proportion) of Indian National Flag to its length is-
 (a) 2 : 5 (b) 2 : 3 (c) 1 : 2 (d) 2 : 1
11. The ancient kingdom of "Avanti" had its capital at-
 (a) Vaishali (b) Kausambi (c) Ujjain (d) Ayodhya
12. A pilot less Target Aircraft developed by DRDO is-
 (a) Vajra (b) Jaguar (c) Cheetah (d) Lakshay
13. This day is called equinox-
 (a) September 10 (b) May 1 (c) March 21 (d) April 1
14. Which of the following is not part of ecosystem-
 (a) Earth's Crust (b) Flowers
 (c) Carbon and Nitrogen (d) All of these are part of ecosystems
15. To which of the following countries did Karl Marx belong?
 (a) Italy (b) Yugoslavia (c) Russia (d) Germany
16. Color depends on what characteristic of light?
 (a) its frequency (b) its wavelength (c) both 'a' & 'b' (d) neither 'a' or 'b'
17. When a bee stings, one of the compounds it injects is-
 (a) acetic acid (b) butyric acid (c) formic acid (d) hydrochloric acid
18. Blood sugar is-
 (a) Fructose (b) Glucose (c) Lactose (d) Galactose
19. Which one is not a port on the west coast-
 (a) Nhava Sheva (b) Kochi (c) Mangalore (d) Vizag
20. The place where Akber's Tomb is situated-
 (a) Agra (b) Delhi (c) Fatehpur Sikri (d) Sikandra
21. Flag day is celebrated in India every year on-
 (a) 8th October (b) 7th November (c) 7th December (d) 8th September

22. Todarmal was the famous revenue minister of which Mughal Emperor?
 (a) Shah Jahan (b) Bahadur Shah (c) Akbar (d) Aurangzeb
23. At what temperature (in Fahrenheit) pure water freezes?
 (a) 32 (b) 0 (c) 48 (d) 37
24. A person scores 45% of the total marks in the exam and still fails by 40 marks. The passing percentage of the exam is 55%. What is the maximum marks of the exam?
 (a) 300 (b) 350 (c) 400 (d) 500
25. Which of the following diseases is caused by female Anopheles mosquito?
 (a) Chicken Pox (b) Malaria (c) Black fever (d) Cholera
26. Salar Jung Museum is in-
 (a) Delhi (b) Hyderabad (c) Kolkata (d) Bhopal
27. Which of the following cities had been declared the cleanest city in Swachh Survekshan 2018?
 (a) Indore (b) Bhopal (c) Chandigarh (d) Vijayawada
28. Talcher Coal field are in-
 (a) Bihar (b) Jharkhand (c) Orissa (d) Chhattisgarh
29. What is 'Jhum'?
 (a) A type of cultivation (b) A tribe (c) A folk dance (d) Name of river valley
30. Which of the following a mineral?
 (a) Isabgol (b) Camphor (c) Tobacco (d) Nickel
31. The term 'ISP' stands for-
 (a) Information system protocol (b) Internet system protocol
 (c) Internet service provider (d) None of above
32. Which of following is the new variant of National Literacy Mission?
 (a) Abhinav Bharat (b) Saakshar Bharat (c) Sushikshit Bharat (d) Viksit Bharat
33. Who among the following is the author of the book 'Playing to Win'?
 (a) V. Anand (b) P. Gopichand (c) Saina Nehwal (d) Sania Mirza
34. Which of the following is not a site for 'Kumbh Mela'?
 (a) Haridwar (b) Ujjain (c) Allahabad (d) Vidisha
35. How many members are nominated by the President in Lok Sabha in India?
 (a) 1 (b) 2 (c) 10 (d) 12
36. The term NHAI stands for-
 (a) National Health Agency of India (b) National Highest Airways Institute
 (c) National Health Authority of India (d) National Highway Authority of India
37. The width of Railway Broad Gauge is approx.-
 (a) 2.1 m (b) 1.67 m (c) 2 m (d) 1.57 m
38. 'Panthi Nritya' is an important dance form of the state of-
 (a) Chhattisgarh (b) Sikkim (c) Punjab (d) Kerala
39. Shivarinarayan is situated on the banks of the river-
 (a) Shivenath (b) Mahanadi (c) Kharun (d) Indravati
40. Bhilai Steel Plant was established by the assistance of which of the following countries?
 (a) USA (b) Russia (c) UK (d) France
41. The saffron colour in Indian Tricolor signifies-
 (a) Courage and sacrifice (b) Truth and peace (c) Faith and belief (d) Peace
42. Biopsy is done on-
 (a) tissues taken from a dead body (b) tissues taken from a living body
 (c) blood from veins (d) blood from arteries
43. Sound waves travel faster in-
 (a) Water (b) Vacuum (c) Air (d) Steel
44. When you travel in certain parts of India, you will notice red soil. What is main reason for this colour?
 (a) Magnesium (b) Accumulated humus (c) Ferric Oxides (d) Phosphates
45. Boramdeo temple is in the district of -
 (a) Raipur (b) Kawardha (c) Raigarh (d) Korba
46. When was Chhattisgarh formed?
 (a) 1st Nov, 1999 (b) 1st Nov, 2000 (c) 1st Nov, 2001 (d) 1st Nov, 2002
47. Governor of RBI is appointed by-
 (a) Central Government (b) President (c) Prime Minister (d) Finance Minister
48. Members of Lok Sabha are elected for a period of-
 (a) 4 years (b) 5 years (c) 6 years (d) 3 years
49. Where is the shore based steel plant located?
 (a) Tuticorin (b) Salem (c) Vishakhapatnam (d) Mangalore
50. Which of the following is not a public sector undertaking enterprise?
 (a) NTPC (b) SAIL (c) BHEL (d) TISCO

General Instructions:

- i. Attempt all questions.
- ii. Internal choice is given in some questions.
- iii. Use both side of drawing sheet if required.
- iv. All dimensions are in mm.
- v. Missing and mismatching dimension if any may be suitably assumed.
- vi. Follow the SP: 46-2003 revised codes with first angle method of projection.
- vii. Give your answer according to question.

1. Explain following in short (5)
(a) pitch, (b) thread angle, (c) crest, (d) multi-start thread, (e) Journal
2. (a) Draw an isometric scale which can read upto 120 mm. (4)
(b) A frustum of an inverted hexagonal pyramid of shorter base side 20 mm and longer base side 40 mm and axial height of 65 mm resting on its shorter end on H.P. with two of its base sides perpendicular to the V.P. Draw its isometric projection. (7)
(c) Draw the isometric projection of a combination of an equilateral triangular prism (side = 40 mm and axis 50 mm) and a cylinder (diameter = 90 mm and height =30 mm). Cylinder is resting on its base on the H.P. and a rectangular face of prism is lying centrally on circular base of the cylinder with an edge of base perpendicular to V.P. (13)
3. (a) Draw to scale 1:1, the top view and sectional front view of single riveted lap joint, when the thickness of the plates to be joined = 16mm. (8)

OR

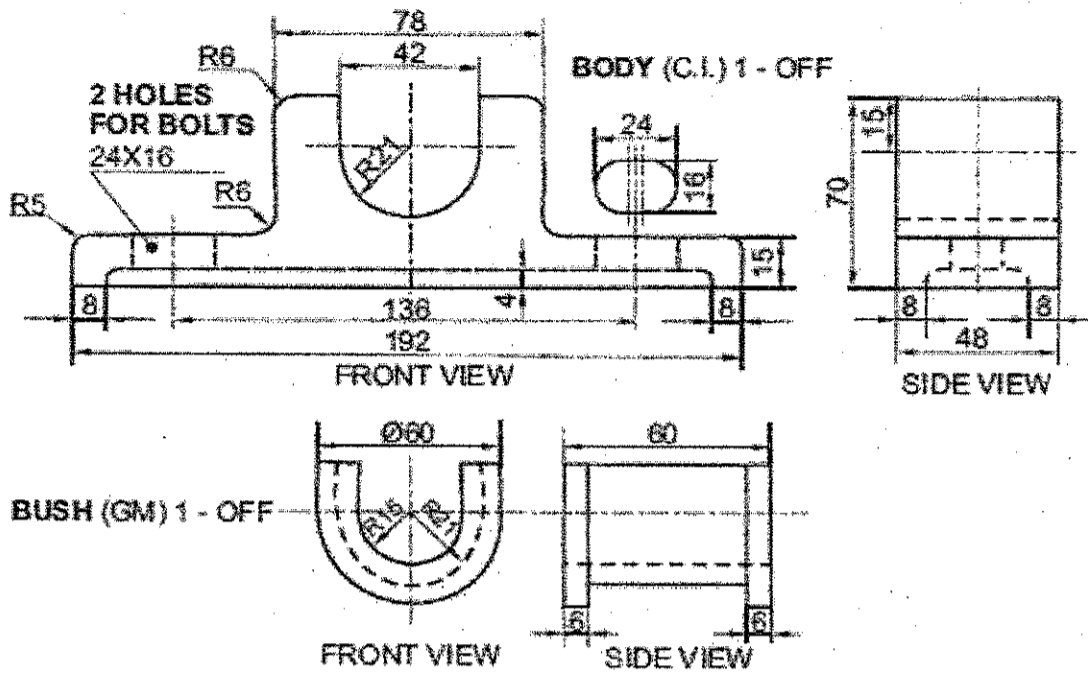
Draw to scale 1:1, the front view and side view of the assembly of square headed bolt with a hexagonal nut and a washer, with the diameter of bolt as 30mm, keeping their axis parallel to V.P and H.P and two of the opposite sides of the square head of the bolt and of the hexagonal nut, parallel to V.P.

- (b) Draw to scale 1:1, the front view and plan of hook bolt with diameter 20 mm, keeping the axis vertical. Give standard dimensions. (5)

OR

Draw to scale, 1:1, the standard profile of a Knuckle thread, taking enlarged pitch as 40mm.

4. The figure given below (fig:1) shows the details of an 'Open bearing'. Assemble these parts correctly and then draw its following views to scale 1:1:
- Front view, right half in section. (9)
 - Top view. (7)
 - Side view as viewed from left. (6)
- Write heading and scale used. Draw projection symbol. Give '6' important dimensions. (6)



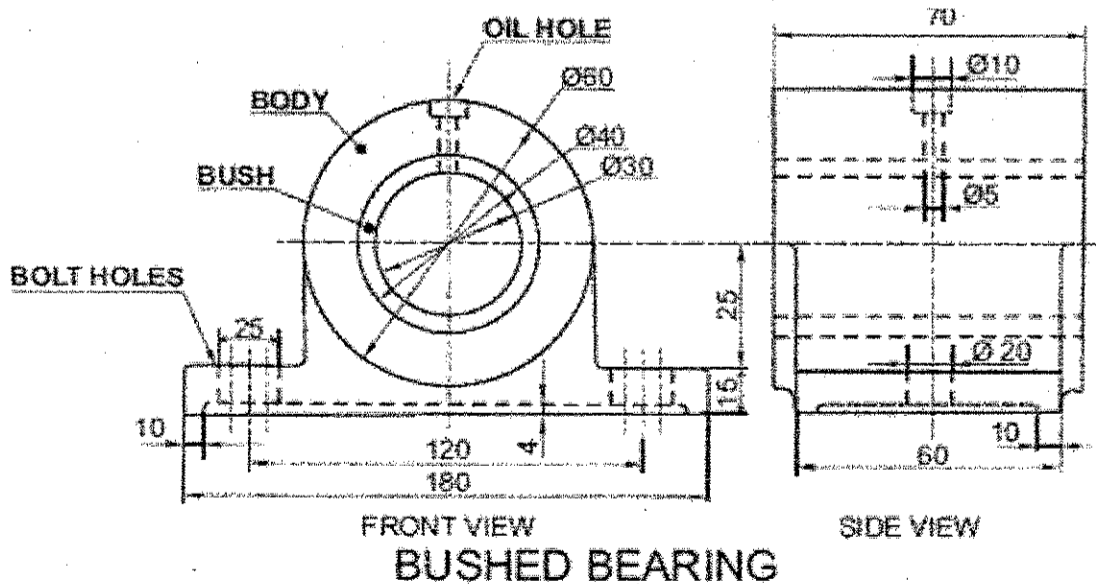
DETAILS OF OPEN BEARING

OR

The figure given below shows the assembled front view and the side view of a Bushed Bearing. Disassemble the body and the bush and draw the following views to a scale 1:1, keeping the same position of both the body and the bush, with respect to H.P. and V.P.

- Front view of the body, showing right half in section and its top view. (10+6)
 - Front view of the bush, showing left half in section and its top view. (3+3)
- Print titles of both and scale used. Draw the projection symbol. Give 8 important dimensions. (6)

Note : Take: R4 Radius For All Fillets And Rounds



DELHI PUBLIC SCHOOL, BHILAI (C.G.)

FIRST TERM EXAMINATION-2018

Date of Exam: 12.09.2018

Economics
Class XII

M.M.: 80

Max. Time: 3 Hrs.

No. of printed pages: 2

General instructions:

1. All question in both the sections are compulsory. However, there are internal choices in some questions.
2. Marks for each question are indicated against the question.
3. Questions 1 to 4 and 13-16 are very short questions of 1 mark each.
4. Questions 5 & 6 and 17 & 18 are short questions of 3 marks each. Answer to them should not normally exceed 60 words each.
5. Questions 7-9 and 19-21 are also short answer questions carrying 4 marks each. Answer to them should not normally exceed 70 words each.
6. Questions 10-12 and 22-24 are very long answer type questions carrying 6 marks each. Answer to them should not normally exceed 100 words each.

SECTION-A (MICRO)

1. At what rate Total Utility increases when Marginal utility is decreasing? 1
2. In free market economy, the allocation of resources is determined by: 1
(a) votes by consumers (b) central planning authority
(c) consumer preference (d) profit maximization motive
3. Area under marginal cost curve represents: 1
(a) Total cost (b) Total fixed cost (c) Total variable cost (d) None of these
4. What will be the elasticity of demand for school uniform? 1
5. State giving reasons whether the following statements are true or false: 3
(a) With increase in the level of output Average fixed cost goes on falling till it reaches zero.
(b) The difference between TC and TVC falls with increase in output.
6. Giving reasons, comment on the shape of PPC, based on the following schedule: 3
Good X - 0 1 2 3 4
Good Y - 30 27 21 12 0

OR

What is likely to be the impact of "Make in India" appeal to the foreign investors by the Prime Minister of India, on PPC of India? Explain.

7. A consumer consumes only two goods X and Y, whose prices are Rs. 5, and Rs. 4 respectively. If the consumer chooses a combination of the two goods with marginal utility of 'X' equal to 4 and that of 'Y' equal to 5. Is the consumer in equilibrium? Why or why not? What will a rational consumer do in this situation? Use utility analysis. 4

OR

A consumer consumes only two goods X and goods Y, both priced at Rs. 2 per unit. Is the consumer chooses a combination of the two goods with Marginal rate of substitution equal to 2. If the consumer in equilibrium why or why not? What will a rational consumer do in this situation? Explain.

8. Give two examples of fixed cost. Calculate TVC, AFC and MC at each given level of output from the following table: 4
Output (units) - 0 1 2 3 4
TC (Rs.) - 40 60 78 97 124
9. The quantity demanded of a good is 1500 units at the price of Rs. 10 per unit. Its price elasticity of demand is (-) 1.5. Calculate its quantity demanded, when its price falls to Rs. 8 per unit. 4
10. Giving reasons, state whether the following statements are true or false: 1½x4=6
(a) Average product will increase only when marginal product increases.
(b) Under diminishing returns to a factor, total product continues to increase till marginal product reaches zero.
(c) Increase in total product always indicates that there are increasing returns to a factor.
(d) When marginal product falls, average product will also fall.
11. How is demand for a commodity affected by the rise in price of related goods? Explain with diagram 6

OR

Why is demand curve of the commodity negatively sloped?

12. Explain the conditions of consumer's equilibrium under indifference curve approach. 6

SECTION-B (MACRO)

13. Name two components of money supply. 1
14. If real GDP is Rs. 200 and price index is 110, calculate nominal GDP. 1
15. _____ of the goods is the principle basis of classifying the goods into intermediate and final goods: 1
 (a) Production (b) Consumption (c) End-use (d) Expenditure
16. What is high powered money? 1
17. Explain how 'non-monetary exchanges' are a limitation in taking domestic product as an index of welfare. 3

OR

How can 'externalities' be a limitations of using GDP as an index of welfare?

18. Explain the currency authority function and lender of last resort function of central bank. 3
19. Do you consider a commercial bank is a creator of money in the economy? 4
20. Find out net value added at factor cost: 4

	Particulars	Rs. in Crores
a)	Sales	500
b)	Purchase of intermediate goods	350
c)	Opening stock	60
d)	Indirect taxes	50
e)	Consumption of fixed capital	90
f)	Import of raw materials	85
g)	Closing stock	80
h)	Exports	40

21. Explain in brief, the steps of value added method of measuring national income by giving suitable example. 4

OR

Explain briefly the problem of double counting in estimating national income by giving suitable example.

22. Explain how bank rate and open market operations are helpful in controlling credit creation? 6

OR

Explain the components of legal reserve ratio and their role in controlling credit.

23. Giving reasons explain how the followings will be treated in estimation of national income: 1½x4=6
- (a) Interest paid by an individual on a car loan taken from a bank.
- (b) Free medicines provided by Government.
- (c) Imputed rent of self-occupied house.
- (d) Profit earned by a branch of an Indian bank in Canada.

24. Calculate GDP at MP by income method and GNP at FC by expenditure method from the following data: 6

	Particulars	Rs. in crores
a)	Private final consumption expenditure	1,000
b)	Net domestic capital formation	200
c)	Dividends	200
d)	Wages and salaries	400
e)	Corporate tax	100
f)	Social security contribution by employees	300
g)	Corporate savings	100
h)	Rent	250
i)	Government final consumption expenditure	500
j)	Consumption of fixed capital	60
k)	Interest	150
l)	Net current transfers from rest of the world	(-) 80
m)	Net factor income from abroad	(-) 10
n)	Net exports	(-) 20
o)	Net indirect taxes	80
p)	Mixed income	100

* * * * *

DELHI PUBLIC SCHOOL, BHILAI (C.G.)

FIRST TERM EXAMINATION-2018

Date of Exam: 12.09.2018

Biology

M.M.: 80

Max. Time: 3 Hrs.

Class XII

No. of printed pages: 2

General instructions:

1. All questions are compulsory and answer serially.
2. The question paper consists of five sections A, B, C & D. Section A contains 5 questions of 1 mark each. Section B contains 7 questions of 2 marks each. Section C contains 12 questions of 3 marks each. whereas Section D is of 3 questions of 5 marks each
3. There is no overall choice. However, an internal choice has been provided in one question of two marks, one question of 3 marks and all the three questions of 5 marks weightage. A student has to attempt only one of the alternatives in such questions.
4. Wherever necessary, the diagrams drawn should be neat and properly labelled.

SECTION-A

1. Offsprings derived by asexual reproduction are called clones. Justify giving two reasons. 1
2. Classify the following examples as dioecious and monoecious. 1
Cucurbita, Papaya, date palm, coconut palm
3. What stimulates the pituitary to release the hormone responsible for parturition? 1
4. Name the transcriptionally active region of chromatin in a nucleus. 1
5. Rearrange the following greenhouse gases in increasing order of their relative contribution to the total global warming: 1
N₂O; CFC; CO₂; C₂H₄

SECTION-B

6. Placenta acts as an endocrine organ. Justify. 2
7. What is Joint Forest Management? How can it help in conservation of forests? 2
8. (a) State a difference between a gene and an allele. 2
(b) What are 'true breeding lines' that are used to study the inheritance pattern of traits in plants?
9. Name the microbe that help in production of the following products commercially: 2
(a) Statin (b) Citric acid (c) Penicillin (d) Butyric acid
10. Pollinating species of wasps show interaction with specific fig plants. Mention the benefits the female wasps derive from the fig trees from such an interaction. Name the type of interaction. 2

OR

How does the floral pattern of Mediterranean Orchid, Ophrys guarantee cross pollination?

11. What is foetal ejection reflex? Where do the signals for parturition arise from? 2
12. Give the difference between the last two phases of the menstrual cycle (any four) 2

SECTION-C

13. Draw a well labelled diagram of a human ovum. 3
14. Both Haemophilia and Thalassemia are blood related disorders in humans. Write their causes and the difference between the two. Name the category of genetic disorder they both come under. 3
15. (a) Write the blood group of people with genotype I^A and I^B. Give reason in support of your answer. 3
(b) In one family, the four children, each has a different blood group. Their mother has blood group A and their father has blood group B. Work out a cross to explain how it is possible.
16. What is eutrophication? How does a lake undergo accelerated eutrophication? 3
17. Describe how do 'flocs' and 'activated sludge' help in sewage treatment. 3
18. Draw a schematic representation of a dinucleotide. Label the following: 3
(a) The components of a nucleotide (b) 5' end
(c) N-glycosidic linkage (d) phosphodiester linkage
19. Describe the packaging of DNA in an eukaryotic cell with diagram 3

20. (a) State the consequences, if the electrostatic precipitator of a thermal power plant fails to function. 3
 (b) Mention any four methods by which the vehicular air pollution can be controlled.
21. Describe the technique that can help a healthy married women who is unable to produce viable ova but wants to bear a child. 3

OR

- (a) How do 'implants' act as an effective method of contraception in human females? Mention its one advantage over contraceptive pills.
 (b) Why is amniocentesis so named?
22. (a) Comment on the significance of the results obtained in the series of experiments of F. Griffith. 3
 (b) State the contribution of Macleod, McCarty and Avery.
23. Every year in winter Siberian cranes migrate from Russia to India for breeding. In year 2006 a survey was done which has the values in the given equation: 3

$$N(t+1) = Nt + [(B+I) - (D+E)]$$
 as follows

$$N(t+1) = 1200 + [(600+700) - (200+800)]$$

 On the basis of the above, answer the following:
 (a) natality rate (b) mortality rate (c) population of cranes in India in 2006
 (d) number of cranes immigrated (e) number of cranes emigrated
24. Mention one application of the following microbes in organic farming: 3
 Anabaena, Rhizobium, Trichoderma

SECTION-D

25. (a) Draw a well labeled longitudinal view of an albuminous seed. 5
 (b) Mention the characteristic features and function of tapetum.
 (c) Give reasons why:
 (i) apple and cashew nut are not called true fruits?
 (ii) most zygotes in angiosperms divide only after certain amount of endosperm is formed.

OR

- (a) Describe the events of spermatogenesis with the help of a schematic representation.
 (b) Write two differences between oogenesis and spermatogenesis.
26. (a) Work out a cross upto F_2 generation between two pure-bred pea plants, one bearing violet flowers and the other, white flowers. 5
 (b) (i) Name the type of cross.
 (ii) State the different laws of Mendel that can be derived from such a cross.

OR

Explain Blender's experiment. Name the scientists who performed this experiment. Why is this experiment considered to be path breaking in the field of molecular biology?

27. (a) How does Jhum cultivation promote deforestation? 5
 (b) Why is CNG considered a better fuel?
 (c) Explain how bio-magnification of DDT occurs in an aquatic food chain.

OR

- (a) Explain with the help of a graph, the population growth curve when resources are (a) limiting and (ii) not limiting
 (b) 'Nature has a carrying capacity for a species'. Explain.

* * * * *

DELHI PUBLIC SCHOOL, BHILAI (C.G.)

FIRST TERM EXAMINATION-2018

Date of Exam: 12.09.2018

ENGLISH

M.M.: 80

Max. Time: 3 Hrs.

Class XI

No. of printed pages: 3

General Instructions:

1. The question paper is divided in three sections. All the sections are compulsory
(a) Section A - Reading Skills (b) Section B - Writing Skills & Grammar (c) Section C - Literature
2. Specific instructions, wherever necessary are given. Follow them strictly.

Section A – Reading Skills (20 marks)

1. Read the following passage carefully and answer the questions that follow: (12 Marks)

1. Maharana Pratap ruled over Mewar only for 23 years. However, he accomplished so much grandeur during his reign that his glory surpassed the boundaries of countries and time turning him into an immortal personality. He along with his kingdom became immortal because of his valour, sacrifice and patriotism. Mewar had been a leading Rajput kingdom even before Maharana Pratap occupied the throne. Kings of Mewar, with the cooperation of their nobles and subjects, had established such traditions in the kingdom, as augmented their magnificence despite the hurdles of having a smaller area under their command and less population. There did come a few thorny occasions, but soon their flag heaved high in the sky, thanks to the gallantry and brilliance of the people of Mewar.
 2. The destiny of Mewar was good in the sense that barring a few kings, most of the rulers were competent and patriotic. This glorious tradition of the kingdom almost continued for 1500 years since its establishment, right from the reign of Bappa Rawal. In fact only 60 years before Maharana Pratap, Rana Sanga drove the kingdom to the pinnacle of fame. His reputation went beyond Rajasthan and reached Delhi. Two generations before him, Rana Kumbha had given a new stature to the kingdom through victories and developmental work. During his reign, literature and art also progressed extraordinarily. Rana himself was inclined towards writing and his works are read with reverence even today. The ambience of his kingdom was conducive to the creation of high quality work of art and literature. These accomplishments were the outcome of a long standing tradition sustained by several generations.
 3. The life of the people of Mewar must have been peaceful and prosperous during the long span of time; otherwise such extraordinary accomplishment in these fields would not have been possible. This is reflected in their art and literature as well as their loving nature. They compensate for lack of admirable physique by their firm but pleasant nature. The ambience of Mewar remains lovely thanks to the cheerful and liberal character of its people.
 4. One may observe astonishing pieces of workmanship not only in the forts and palaces of Mewar but also in public utility buildings. Ruins of many structures which are still standing tall in their grandeur are testimony to the fact that Mewar was not only the land of the brave but also a seat of art and culture. Amidst aggression and bloodshed, literature and art flourished and creative pursuits of literature and artists did not suffer. Imagine, how glorious the period must have been when the Vijaya Stambha which is the sample of our great ancient architecture even today, was constructed. In the same fort, Kirti Stambha is standing high, reflecting how liberal the then administration was which allowed people from other communities and kingdoms to come and carry out construction work. It is useless to indulge in the debate whether the Vijay Stambha was constructed first or the Kirti Stambha. The fact is that both are standing side by side reveals the proximity between the king and the subjects of Mewar.
 5. The cycle of time does not remain the same. Whereas the reign of Rana Sanga was crucial in raising the kingdom to the acme of glory, it also proved to be his nemesis. History took a turn. The fortune of Mewar the land of the brave, started waning. Rana tried to save the day with his acumen which was running against the stream and the glorious traditions for some time.
- a) On the basis of your reading of the passage, answer the following questions by choosing the best of the given choices. (1 x 4 = 4)
- (i) Maharana Pratap became immortal because
 - (a) he ruled Mewar for 23 years
 - (b) he added a lot of grandeur to Mewar
 - (c) of his valour, sacrifice and patriotism
 - (d) both (b) and (c)
 - (ii) Difficulties in the way of Mewar were:
 - (a) lack of cooperation from the nobility
 - (b) ancient traditions of the kingdom
 - (c) its small area and small population
 - (d) the poverty of the subjects
 - (iii) During thorny occasions:
 - (a) the pride of Mewar seemed to be lowered
 - (b) the flag of Mewar was hoisted high
 - (c) the people of Mewar showed gallantry
 - (d) most of the rulers heaved a sigh of relief
 - (iv) Mewar was lucky because:
 - (a) all of its rulers were competent
 - (b) most of its people were competent
 - (c) most of its rulers were competent
 - (d) only a few of its people were incompetent

b) **Answer the following questions briefly:**

- (i) Who is the earliest King of Mewar mentioned in the passage?
- (ii) What was Rana Kumbha's contribution to the glory of Mewar?
- (iii) What does the writer find worth admiration in the people of Mewar?
- (iv) How could art and literature flourish in Mewar?
- (v) What does Kirti Stambha reflect about the administration?
- (vi) What does the erection of Vijaya Stambha and Kirti Stambha in the same fort signify?

c) **Find words from the passage which mean the same as each of the following:**

(1x2=2)

- (i) the character and atmosphere of a place (para 2) (ii) evidence (para 4)

2. **Read the passage given below:**

(8)

1. With society changing at a constant speed one thing remains steady our need and desire to learn. Although the classroom is viewed as a traditional setting for learning, it too is changing and evolving at lightning speed. With a growing population, continual technological advances and the constant demand for a valuable education, these institutions must continue to provide the materials to meet these changes. Even though it has existed for some time, a growing trend is distance education, as it is quickly becoming an integral part of the learning experience at all levels of higher education. Distance education has traditionally been referred to as correspondence, whereby the student completes the course by mail from another town or city other than that in which the school is located. The student is supplied with the necessary materials — books, tapes or videos and it is up to them to complete assignments by the deadline.
2. The appeal of distance education is that the students are allowed to complete the course at their own pace following their own schedule. The student has the choice of completing a few courses, perhaps out of interest or as a stepping stone for their career. With the growing number of accredited institutions there are numerous opportunities available to students wishing to enrich their lives with a certificate, diploma or degree. The newest trend to hit the distance education scene is the virtual classroom or distance education online. This has opened up a whole new world of opportunities for students.
3. Many schools are now offering distance education courses online with students receiving all course materials and grades as well as handing in assignments, communicating with professors/instructors or chatting with fellow students over the internet. It is also easier for students to access their instructor for clarification about assignment, grades or questions about their courses. From an international perspective, distance education online now gives pupils a chance to easily study at school in other countries. Canadian and international pupils now have the chance to explore each other's education systems without the hassle of acquiring a student visa or incurring expensive travel costs.
4. A few tips to think about before pursuing distance education are, students should be self-disciplined and motivated and should make sure they have the available time during the week to complete the work. Research your institution before enrolling, make sure it's accredited, so you know your certificate, diploma or degree will be recognized upon completion. If you are taking this programme as a requirement for a job, make sure your current or potential place of employment will recognize your certificate upon completion. Ask others who have already taken your course or another programme from the same institution about their experience with the programme or school. Ask yourself what level of involvement you would like from your instructor or other students.
 - a) On the basis of your understanding of the above passage make notes on it using headings and sub-headings. Use recognizable abbreviations (wherever necessary—minimum four). Also supply an appropriate title to it. (5)
 - b) Write a summary of the passage in about 80 words. (3)

Section B - Writing Skills & Grammar (30 Marks)

3. International Tobacco Control is an organisation that is working worldwide to spread awareness about the hazards of tobacco use. Create a poster for the organisation highlighting the harmful effects of smoking and tobacco consumption. (4)

OR

Your school, Amity Public School, is organising a 'Rangoli' competition on the occasion of Foundation Day. The Education Officer has consented to be the Chief Guest for the occasion. Draft a notice in about 50 words to be displayed on your school notice board. You are Ritwik/Ritvika, the Cultural Secretary of the school.

4. You are Rahul / Renu of 201, Gautam Enclave, New Delhi. Your colony is plunged in darkness due to frequent, unscheduled breakdowns of the supply of electricity. Write a letter to the editor of "The Hindustan Times" drawing the attention of the concerned authorities towards your plight. (6)

OR

As the Head Boy of your school, write a letter to the Principal requesting him to arrange a programme for career counselling for the students of classes XI and XII. Request him to invite experts from several professions to speak to the students to give insight and information.

With the onset of monsoons several mosquitoes borne diseases start spreading. They cause malaria, dengue, chikungunya etc. These diseases can sometimes prove to be fatal. As a concerned student of your school, you have decided to deliver a speech on ways to tackle this issue. Write that speech in about 200 words. (10)

OR

During your visit to the hilly areas of Himachal Pradesh you were moved by the sight of large scale deforestation. You were disturbed by the thought of dangerous consequences of deforestation. Write an article to be published in the school magazine on the harmful consequences of deforestation in not more than 200 words.

6. **The following passage has not been edited. There is one error in each line. Write the incorrect word and the correction against the correct blank.** (1 x 4 =4)

	Incorrect	Correct
The Earth himself becomes our enemy	eg. himself	Itself
when an earthquake strike. Every
country an the world is threatened by the
tremendously fury of earthquakes. Their
power exceeds all a forces under man.

7. **Rearrange the following words / phrases into meaningful sentences:** (1x3=3)

- a) old days/ she/ the/ also/ likes/ about/ talk/ to
- b) stores/ she/ to/ at/ shop/ the/ likes/ local
- c) pastries/ delicious/ when/ she/ bakes/ she/ is in/ mood/ the

8. **Change the following sentences from active voice to passive voice:** (1x3=3)

- (a) He wore a blue shirt.
- (b) I finished the job.
- (c) We expect good news.

Section C - Literature (30 Marks)

9. **Read the extract given and answer the questions that follow:** (1x3=3)

1. Now she's been dead nearly as many years
As that girl lived. And of this circumstance
There is nothing to say at all.
Its silence silences.
- a) Who does 'she' refer to?
 - b) Explain the sentence 'Its silence silences'.
 - c) What does 'circumstance' mean in the extract?

OR

And forever, by day and night, I give back life to my own origin,
And make pure and beautify it;
(For song, issuing from its birth place, after fulfilment, wandering reck'd or unreck'd, duly with love returns.)

- a) What is the figure of speech used in the first line?
- b) How does the rain benefit the earth? (Mention any two ways)
- c) Explain the last two lines of the extract.

10. **Answer any three of the following questions.** (3 x 3 = 9)

- a) Mention the ways in which the sparrows expressed their sorrow when Khushwant Singh's grandmother died?
- b) List the deeds that led Ray Johnson to describe Akhenaten as 'wacky'.
- c) What were the peculiarities in uncle Khusrove's behavior?
- d) Why did the narrator decide to forget the address?

11. **Answer any one of the following questions in 120 to 150 words.** (6)

What were the funerary treasures found in Tut's tomb? Why were these treasures buried along with his body?

OR

Highlight the tremendous courage and forbearance shown by the two children during the struggle to keep the boat from sinking. What values do you learn from them?

12. **Answer the following question in 120 to 150 words.** (6)

'The Address' is divided into pre war and post war times. What hardships do you think the girl underwent during these times?

OR

Why do the boys Mourad and Aram think that they had not stolen the white horse even though they had kept it with them for a long time? Why did they return it?

13. **Khushwant Singh's grandmother was person of strong character. Give at least four instances to show this from the lesson.** (6)

OR

What was the drastic decision taken by Carter regarding Tut's mummy? How did he justify it? What advances have taken place in Archaeology since Carter's time?

* * * * *

DELHI PUBLIC SCHOOL, BHILAI
FIRST TERM EXAMINATION-2018
COMPUTER SCIENCE (083)
(CLASS: XII)

Date of Exam: 12.09.2018
 Time: 3 Hours

Maximum Marks: 70
 No. of printed pages: 4

Q1. (a) Write the type of C++ token (keyword and user defined identifies) from the following: 2
 (i) if (ii) Double (iii) 5Stack (iv) _Count

(b) Rewrite the following program after removing the syntactical errors (if any): 2
 Underline each correction.

```
#include (iostream.h)
typedef char Text (80)
int main ( )
{
    Text T = "Chhattisgarh" ;
    int Count = strlen (T);
    cout << T << 'has' << Count<< 'Characters' << endl;
}
```

(c) Find the output of the following program (assume all header files are included) 3

```
void Revert (int& Num, int Last = 2)
{
    Last = (Last%2==0) ? Last+1:Last-1;
    for (int C=1; C<=Last; C++)
        Num += C;
}
void main ( )
{
    int A=20, B=4;
    Revert (A,B);
    cout <<A<< "&" <<B<< endl;
    B - - ;
    Revert (A,B);
    cout <<A<< "#" <<B<< endl;
    Revert (B);
    cout <<A<< "#" <<B<< endl;
}
```

(d) In the following program, final the correct possible output (s) from the options: 2

```
#include <stdlib.h>
#include <iostream.h>
void main ( )
{
    randomize( );
    char City [ ] [10] = { "DEL", "CHN", "KOL", "BOM", "BNG"};
    int Fly;
    for (int i=0; i<3; i++)
    {
        Fly = random (2) + 1;
        cout <<City[Fly]<< ".";
    }
}
```

Outputs:

(i) DEL : CHN : KOL : (ii) CHN : KOL : CHN :
 (ii) KOL : BOM : BNG: (iv) KOL : CHN : KOL:

(e) Give the difference between the **Type Casting** and **Automatic Type Conversion**. Also give suitable example. 2

(f) Name the header file to be included for the use of the following functions: 2
 (i) setw() (ii) gets() (iii) isalnum() (iv) getc()

(g) What is the difference between **# define** and **const**. Explain with suitable example. 2

PTO.

Q2. (a) What is the difference between **Object Oriented programming** and **procedural programming** (any two prints).

- (b) Explain **Data Hiding** concept with an example. 2
- (c) Illustrate the concept of **Function overloading** with C++ code example. 2
- (d) Mention any two restrictions on **Overloaded Functions**. 2
- (e) Explain the transitive nature of **Inheritance** with suitable example. 2

Q3. (a) Define a class **Garments** in C++ with the following descriptions; 4

Gcode string
Gtype string
Gsize integer
Gfabric string
Gprice Float

A function **Assign()** which calculates and assign the value of **Gprice** as follows:
For the value of **Gfabric** "COTTON";

Gtype	Gprice ₹
Trouser	1800
Shirt	1500

For fabric other than "COTTON" the above mentioned **Gprice** get reduce by 10%.

Public members:

- * A Constructor to assign initial values of **Gcode**, **Gtype** and **Gfabric** with the word "NOT ALLOTTED" and **Gsize** and **Gprice** with 0.
 - * A function **Input()** to input the values of the data members **Gcode**, **Gtype**, **Gsize** and **Gfabric** and invoke the **assign()** functions.
 - * A function **Display()** which displays the content of all the data members for a **Garment**.
- (b) What is inline function? How is it different from other user defined function? 2
- (c) Explain the use of **static data member** used in the class. Give suitable example. 2
- (d) Define class and object. 2

Q4 (a) What is Copy constructor? Give a suitable example. 2

(b) What will be the output of the following code? 3

```
#include <iostream.h>
class A
{
    public :
        A()
        {
            cout << "CA";
        }
        ~A()
        {
            cout << "DA";
        }
};
class B
{
    public :
        B()
        {
            cout << "CB";
        }
        ~B()
        {
            cout << "DB";
        }
};
```

```

class C
{
    A ob1, ob2;
    B ob3;
public :
    C()
    {
        cout << "CC";
    }
    ~C()
    {
        cout << "DC";
    }
};

void main ()
{
    C oc; B ob; A oa;
    return 0;
}

```

Q5 (a) Answer the questions (i) to (iv) based on the following code:

4

```

class FacetoFace
{
    char Center_Code [10];
public :
    void Input();
    void Output ();
};

class Online
{
    char Center_website [50];
public :
    void SiteIn();
    void SiteOut();
};

class Training : public FacetoFace , private Online
{
    long Tcide ;
    float charge ;
    int period ;
public :
    void Register();
    void Show();
};

```

- (i) Which type of Inheritance is shown in the above example?
- (ii) Write names of all the member functions accessible from Show() function in Class Training.
- (iii) Write name of all members accessible through an object of class Training.
- (iv) How many bytes will be required by an object of class Training?

(b) What do you mean by Virtual Base Classes? Explain with suitable example.

1

Q6 (a) Write a function in C++ to count the word "this" (including "this" / "THIS") present in a text file "TODO.TXT".

2

(b) Assume the class Computer as follows:

2

PTO.

class Computer

```

{
    char chiptype[10];
    int speed;

    public :
        void getdetails( )
        {
            gets(chiptype);
            cin>>speed;
        }
        void showdetails( )
        {
            cout<<chiptype<< '\t'<< speed<<endl;
        }
};

```

Write a function READFILE() to read all the records present in a binary file "CHIP.DAT" and display on screen, also count the number of records present in a file.

- (c) Write any two member functions belonging to fstream class. 2
- (d) Explain the use of ios: :nocreate and ios: :noreplace used with open(). 2
- (e) Explain the use of seekg(). How is it different from tellg()? 2

- Q7
- (a) Explain Cartesian Product of two relations with example. 2
 - (b) What do you mean by Degree and Cardinality of a table? Give example. 2
 - (c) Write one example of DML and DDL each. 1
 - (d) Write SQL commands for the following on the basis of the given table STUDENT. 5

Table: STUDENT

NAME	STIPEND	STREAM	AVGMARKS	GRADE
Karan	450	MEDICAL	78	C
Zubin	520	COMMERCE	92	A
Shubhi	980	HUMANITIES	85	B
Sakshi	450	MEDICAL	79	C
Nidhi	520	COMMERCE	81	B
Rajat	980	HUMANITIES	75	C

- (i) Display the details of all the students in alphabetical order.
- (ii) Change the average marks of Shubhi from 85 to 87.
- (iii) Display lowest and highest average marks of student table.
- (iv) Add one more column DOB of date type.
- (v) Remove the details of student "Nidhi".

- (e) Consider the following tables Books and ISSUED. Write SQL command for the following statements: 5

Table: BOOKS

Book_id	Book_name	Author_name	Pubication	Price	Qty
C0001	Fast Cook	Lata Kapoor	EPB	355	5
F0001	The Team	W. Hopkins	FPB	650	20
T0001	My File C++	B. and Brooke	EPB	350	10
T0002	C++ Brain	Aw Rossaine	TDH	750	15
F0002	Thunderbolt	Anna Roberts	FPB	450	10

Table: ISSUED

Book_id	Quantity issued
T0001	2
C0001	3
F0001	7

- (i) To Show the Book_id, Book_name and Quantity issued.
- (ii) To insert a new row in a table Issued having the data: "F0003", 1.
- (iii) Create a virtual table VBOOK to see only Book_name and Price of table BOOKS.
- (iv) Create a new table to copy Book_name, Price and Quantity in a table STOCK.
- (v) To increase the price of all books of EPB by ₹ 50.
