



DOON PUBLIC SCHOOL, PASCHIM VIHAR, NEW DELHI.

SUMMER VACATION ASSIGNMENT 2020-21

CLASS: 11

ENGLISH

Read the instructions carefully:-

1. The assignment should be done in the Writing Skills Notebook.
2. The work should be neat and systematic.
3. Label the assignment properly; use headings and sub-headings wherever required.
4. Paste the samples of writing skills neatly; no loose ends of the paper should be visible.

ASSIGNMENT

1. Read a book/novel of your choice and write its **review** including the plot, theme, characters and other important elements in about 200-250 words.
2. Read the lesson-‘Discovering Tut.....the saga continues’ from Hornbill and make a **collage on King Tut** by finding details about him and his reign. It should be made in the notebook only.
3. **Read the newspaper daily** and find out samples of the following:-
 - a. 5 Reports
 - b. 5 Posters
 - c. 8 Advertisements [eg-situation vacant, lost and found, missing and sale/purchase from the **classified columns** of a newspaper.]
Paste them neatly in the writing-skills notebook.
4. **Writing Skills-**
 - a. You are Vineet/Vaanya of 97, Safdarjung Enclave, New Delhi. You have observed that subways in Delhi are seldom used by the pedestrians to cross heavy-traffic, resulting in accidents and traffic jams. Write a **letter to the editor** (in about 120-150 words) of the Hindustan Times, highlighting the need for creating awareness among the people about it.
 - b. You are Gagan/Garima of 27, MG Road, Bangalore. You bought a 1.5-ton branded air conditioner from West Side, Trinity Avenue, MG Road, Bangalore about a month ago. Now you find that the AC makes a lot of noise and the cooling is also not effective. Write a **letter of complaint** to the manager asking him to get the AC replaced at the earliest. (120-150 words)

- c. Express your views in the form of an **article** on the topic ‘What will a post-corona virus world look like?’ [150-200 words]
 - d. Water is precious and each one of us must stop wastage. **Design a poster** in not more than 50 words urging people to employ various methods of **rain water harvesting** in their colonies.
5. **Revise lessons** – The summer of the beautiful white horse, The Address and Ranga’s Marriage from Snapshots for test.

PHYSICS

Do the following questions

1. Define the terms “Unification” and “Reductionism” in context of two principle thrusts in physics. Explain with an example.
2. Name the Branches of Physics and discuss with example their domain of application.
3. Name one discovery of each of the following scientists: Galileo Galilei, Michael Faraday, Marie Curie, J. C Bose, James Clerk Maxwell, S. Chandrashekhar, Meghnad Saha, C.V Raman, Werner Heisenberg, Paul Dirac, Abdus Salam.
4. State the four fundamental forces of nature and mention its main characteristics.
5. Mention the seven fundamental base units and two supplementary units.
6. The Sun’s angular diameter is measured to be $1920''$. The distance of earth and sun is 1.496×10^{11} m. What is the diameter of the sun?
7. Define the following units: Astronomical Unit, Parsec, Light Year, Atomic mass unit, Quintal, Angstrom.
8. What is the difference between accuracy and precision? Explain with example.
9. What are systematic errors? Mention the ways in which systematic errors can come in a measurement.
10. What are Random errors? How it can be minimized?
11. The time period of a simple pendulum is measured in successive measurements as 2.63s, 2.56s, 2.42s, 2.71s and 2.80s. Calculate the absolute errors, relative error and percentage error.
12. Two resistors of resistance 100 ± 3 ohm and 200 ± 4 ohm are connected in series and then in parallel in turn. Find the equivalent resistance in each case.
13. State the number of significant figures in the following: 98.0071, 56.7600, 0.004532, 0.000300890, 45780000000, 324156.
14. Round off the following to three significant figures: 27.657843, 1.37654, 5.555667.
15. In the expression $P = E L^2 m^{-5} G^{-2}$. E, L, m and G are energy, angular momentum, mass and gravitational constant. Find dimensions of the quantity P.

16. If velocity of light, Planck constant and gravitational constant are taken as fundamental quantities, then express mass, length and time in terms of these quantities.
17. Two quantities A and B are measured as $A = 1.0 \pm 0.2$ m, $B = 2.0 \pm 0.2$ m. How should you report the correct value of \sqrt{AB} ?
18. Do back exercise questions 2.1 to 2.16, 2.20 and 2.24.
19. Define point object with an example.
20. Explain the concept of motion in 1D, 2D and 3D with suitable examples.
21. Draw the x-t and v-t graph for a body at rest, uniform motion and non-uniform motion.
22. Derive the three kinematic equations of motion using graphical as well as calculus method.
23. A vehicle travels half the distance L with speed v_1 and the other half with speed v_2 . Find average speed.
24. The displacement of a particle is given by $X = (t-2)^2$. Find the distance covered by the particle in first four seconds.
25. Do back exercise 3.1 to 3.4, 3.11 to 3.16.
26. Discuss the free fall motion with x-t, v-t and a-t graph.

BIOLOGY

CHAPTER 16

DIGESTION AND ABSORPTION

MULTIPLE CHOICE QUESTIONS

1. Select what is not true of intestinal villi among followings
 - a. They possess microvilli
 - b. They increase the surface area
 - c. They are supplied with capillaries and the lacteal vessels
 - d. They only participate in digestion of fats
2. Hepato-pancreatic duct opens into the duodenum and carries
 - a. Bile
 - b. Pancreatic juice
 - c. Both bile and pancreatic juice
 - d. Saliva
3. One of the following is not a common disorder associated with digestive system
 - a. Tetanus
 - b. Diarrhoea

- c. Jaundice
- d. Dysentery

4. A gland not associated with the alimentary canal is

- a. Pancreas
- b. Adrenal
- c. Liver
- d. Salivary glands

5. Match the two columns and select the correct among options given

Column I

Column II

- | | |
|---|---|
| <ul style="list-style-type: none"> A. Biomacromolecules of food B. Human digestive system | <ul style="list-style-type: none"> i. Alimentary canal and associated gland ii. Embedded in jawbones. |
|---|---|

- iii. Outer wall of visceral organs
- iv. Converted into simple substances
- v. J-shaped bag like structure

- C. Stomach
- D. Thecodont
- E. Serosa

Options:

- a. A-ii, B-i, C-v, D-iii, E-iv
- b. A-iv, B-i, C-v, D-ii, E-iii
- c. A-i, B-ii, C-iii, D-iv, E-v
- d. A-i, B-iii, C-ii, D-iv, E-v

6. Match the two columns and select the right one among options given

Column I

Column II

- | | |
|---|--|
| <ul style="list-style-type: none"> A. Duodenum B. Epiglottis C. Glottis D. Caecum | <ul style="list-style-type: none"> i. A cartilaginous flap ii. Small blind sac 'U' shaped structure emerging from the stomach iii. from the stomach iv. Opening of wind pipe |
|---|--|

Options

- a. A-i, B-ii, C-iii, D-iv
- b. A-iv, B-iii, C-ii, D-i

- c. A-iii, B-i, C-iv, D-ii
- d. A-ii, B-iv, C-i, D-iii

7. Match the enzyme with their respective substrate and choose the right one among options given

Column I	Column II
A. Lipase	i. Dipeptides
B. Nuclease	ii. Fats
C. Carboxypeptidase	iii. Nucleic acids
D. Dipeptidases	iv. Proteins, peptones and proteoses.

Options:

- a. A-ii, B-iii, C-i, D-iv
- b. A-iii, B-iv, C-ii, D-i
- c. A-iii, B-i, C-iv, D-ii
- d. A-ii, B-iii, C-iv, D-i

8. Dental formula in human beings is

- a. $\begin{array}{cccc} \underline{3} & \underline{2} & \underline{2} & \underline{3} \\ 3 & 2 & 2 & 3 \end{array}$
- b. $\begin{array}{cccc} \underline{2} & \underline{1} & \underline{2} & \underline{3} \\ 2 & 1 & 2 & 3 \end{array}$

c. $\begin{array}{cccc} \underline{1} & \underline{2} & \underline{3} & \underline{2} \\ 1 & 2 & 3 & 2 \end{array}$

d. $\begin{array}{cccc} \underline{2} & \underline{2} & \underline{3} & \underline{3} \\ 2 & 2 & 3 & 3 \end{array}$

9. Liver is the largest gland and is associated with various functions, choose one which is not correct

- a. Metabolism of carbohydrate
- b. Digestion of fat
- c. Formation of bile
- d. Secretion of hormone called gastric

10. Mark the right statement among the following

- a. Trypsinogen is an inactive enzyme
- b. Trypsinogen is secreted by intestinal mucosa
- c. Enterokinase is secreted by pancreas
- d. Bile contains trypsin

VERY SHORT ANSWER TYPE QUESTIONS

1. The food mixes thoroughly with the acidic gastric juice of the stomach by the churning movements of its muscular wall. What do we call the food then?
2. Trypsinogen is an inactive enzyme of pancreatic juice. An enzyme, enterokinase, activates it. Which tissue/ cells secrete this enzyme?/ How is it activated?
3. In which part of alimentary canal does absorption of water, simple sugars and alcohol takes place?
4. Name the enzymes involved in the breakdown of nucleotides into sugars and bases?
5. Define digestion in one sentence.
6. What do we call the type of teeth attachment to jaw bones in which each tooth is embedded in a socket of jaws bones?
7. Stomach is located in upper left portion of the abdominal cavity and has three major parts. Name these three parts.
8. Does gall bladder make bile?
9. Correct the following statements by deleting one of entries (given in bold).
 - a. Goblet cells are located in the intestinal mucosal epithelium and secrete **chymotrypsin / mucus**.
 - b. Fats are broken down into di- and monoglycerides with the help of **amylase/ lipases**.
 - c. Gastric glands of stomach mucosa have **oxyntic cell / chief cells** which secrete HCl.
 - d. Saliva contains enzymes that digest **starch /protein**.

SHORT ANSWER TYPE QUESTIONS

1. What is pancreas? Mention the major secretions of pancreas that are helpful in digestion.

2. Name the part of the alimentary canal where major absorption of digested food takes place. What are the absorbed forms of different kinds of food materials?
3. List the organs of human alimentary canal and name the major digestive glands with their location.
4. What is the role of gall bladder? What may happen if it stops functioning or is removed?
5. Correct the statement given below by the right option shown in the bracket against them
 - a. Absorption of amino acids and glycerol takes place in the. (small intestine/ large intestine)
 - b. The faeces in the rectum initiate a reflex causing an urge for its removal. (neural /hormonal)
 - c. Skin and eyes turn yellow in infection. (liver /stomach)
 - d. Rennin is a proteolytic enzyme found in gastric juice in (infants / adults).
 - e. Pancreatic juice and bile are released through. (intestine-pancreatic/ hepato- pancreatic duct)
 - f. Dipeptides, disaccharides and glycerides are broken down into simple substances in region of small intestine. (jejunum/ duodenum)
6. What are three major types of cells found in the gastric glands? Name their secretions.
7. How is the intestinal mucosa protected from the acidic food entering from stomach?
8. How are the activities of gastro-intestinal tract regulated?

9. Distinguish between constipation and indigestion. Mention their major causes.
10. Describe the enzymatic action on fats in the duodenum.

LONG ANSWER TYPE QUESTIONS

1. A person had roti and dal for his lunch. Trace the changes in those during its passage through the alimentary canal.
2. What are the various enzymatic types of glandular secretions in our gut helping digestion of food? What is the nature of end products obtained after complete digestion of food?
3. Discuss mechanisms of absorption.
4. Discuss the role of hepato – pancreatic complex in digestion of carbohydrate, protein and fat components of food.
5. Explain the process of digestion in the buccal cavity with a note on the arrangement of teeth.

CHAPTER 17

BREATHING AND EXCHANGE OF GASES

MULTIPLE CHOICE QUESTIONS

6. Respiration in insects is called direct because
 - a. The tissues exchange O_2/CO_2 directly with the air in the tubes
 - b. The tissues exchange O_2/CO_2 directly with coelomic fluid
 - c. The tissues exchange O_2/CO_2 directly with the air outside through body surface
 - d. Tracheal tubes exchange O_2/CO_2 directly with the haemocoel which then exchange with tissues
7. Regarding the functions of our respiratory system, mark the wrong entry.
 - a. Humidifies the air
 - b. Warms up the air
 - c. Diffusion of gases

- d. Cleans up the air
8. A person suffers punctures in his chest cavity in an accident, without any damage to the lungs its effect could be
- a. Reduced breathing rate
 - b. Rapid increase in breathing rate
 - c. No change in respiration
 - d. Cessation of breathing
9. It is known that exposure to carbon monoxide is harmful to animals because
- a. It reduces CO₂ transport
 - b. It reduces O₂ transport
 - c. It increases CO₂ transport
 - d. It destroys hemoglobin

F. Mark the true statement among the following with reference to normal breathing

Inspiration is a passive process where as expiration is active

Inspiration is a active process where as expiration is passive

Inspiration and expiration are active processes

Inspiration and expiration are passive processes

G. A person breathes in some volume of air by forced inspiration after having a forced expiration. This quantity of air taken in is

Total lung capacity

Tidal volume

Vital capacity

Inspiratory capacity

H. Mark the incorrect statement in context to O₂ binding to Hb

Higher pH

Lower temperature

Lower pCO₂

Higher PO₂

- I. Mark the correct pair of muscles involved in the normal breathing in humans

External and internal intercostal muscles

Diaphragm and abdominal muscles

Diaphragm and external intercostal muscles

Diaphragm and internal intercostal muscles

- J. Incidence of Emphysema – a respiratory disorder is high in cigarette smokers. In such cases

The bronchioles are found damaged

The alveolar walls are found damaged

The plasma membrane is found damaged

The respiratory muscles are found damaged

- e. Respiratory process is regulated by certain specialized centres in the brain. One of the following listed centres can reduce the inspiratory duration upon stimulation

Medullary inspiratory centre

Pneumotaxic centre

Apneustic centre

Chemosensitive centre

- vi. CO₂ dissociates from carbamino haemoglobin when
pCO₂ is high & pO₂ is low
pO₂ is high and pCO₂ is low
pCO₂ and pO₂ are equal
None of the above
- vii. In breathing movements, air volume can be estimated by
Stethoscope
Hygrometer
Sphignomanometer
Spirometer
- viii. Identify the correct and incorrect match about respiratory volume and capacities and mark the correct answer
Inspiratory capacity (IC) = Tidal Volume + Residual Volume

Vital Capacity (VC) = Tidal Volume (TV) + Inspiratory Reserve Volume (IRV) + Expiratory Reserve Volume (ERV).

Residual Volume (RV) = Vital Capacity (VC) – Inspiratory Reserve Volume (IRV)

Tidal Volume (TV) = Inspiratory Capacity (IC) – Inspiratory Reserve Volume (IRV)

Options:

(i) Incorrect, (ii) Incorrect, (iii) Incorrect, (iv) Correct

(i) Incorrect, (ii) Correct, (iii) Incorrect, (iv) Correct

(i) Correct, (ii) Correct, (iii) Incorrect, (iv) Correct

(i) Correct, (ii) Incorrect, (iii) Correct, (iv) Incorrect

2 The oxygen - haemoglobin dissociation curve will show a right shift in case of

- a. High $p\text{CO}_2$
- b. High $p\text{O}_2$
- c. Low $p\text{CO}_2$
- d. Less H^+ concentration

3 Match the following and mark the correct options

Animal	Respiratory Organ
A. Earthworm	i. Moist cuticle
B. Aquatic Arthropods	ii. Gills
C. Fishes	iii. Lungs
D. Birds/Reptiles	iv. Trachea

Options:

8. A-ii, B-i, C-iv, D-iii

9. A-i, B-iv, C-ii, D-iii

10. A-i, B-iii, C-ii, D-iv

11. A-i, B-ii, C-i.v, D-iii

VERY SHORT ANSWER TYPE QUESTIONS

2 Define the following terms?

- a. Tidal volume
- b. Residual volume

c. Asthma

- 3 A fluid filled double membranous layer surrounds the lungs. Name it and mention its important function.
- 4 Name the primary site of exchange of gases in our body?
- 5 Cigarette smoking causes emphysema. Give reason.
- 6 What is the amount of O₂ supplied to tissues through every 100 ml. of oxygenated blood under normal physiological conditions?
- 7 A major percentage (97%) of O₂ is transported by RBCs in the blood. How does the remaining percentage (3%) of O₂ transported?
- 8 Arrange the following terms based on their volumes in an ascending order

a. Tidal Volume (TV)

b. Residual Volume (RV)

c. Inspiratory Reserve Volume (IRV)

d. Expiratory Capacity (EC)

9 Complete the missing terms

a. Inspiratory Capacity (IC) = _____ + IRV

b. _____ = TV + ERV

c. Functional Residual Capacity (FRC) = ERV + _____

10 Name the organs of respiration in the following organisms:

a. Flatworm - _____

b. Birds - _____

c. Frog - _____

d. Cockroach - _____

9. Name the important parts involved in creating a pressure gradient between lungs and the atmosphere during normal respiration.

SHORT ANSWER TYPE QUESTIONS

- 2 State the different modes of CO₂ transport in blood.
- 3 Compared to O₂, diffusion rate of CO₂ through the diffusion membrane per unit difference in partial pressure is much higher. Explain.
- 4 For completion of respiration process, write the given steps in sequential manner
- c. Diffusion of gases (O₂ and CO₂) across alveolar membrane.
 - d. Transport of gases by blood.
 - e. Utilisation of O₂ by the cells for catabolic reactions and resultant release of CO₂.
 - f. Pulmonary ventilation by which atmospheric air is drawn in and CO₂ rich alveolar air is released out.
 - g. Diffusion of O₂ and CO₂ between blood and tissues.
- 5 Differentiate between
- c. Inspiratory and expiratory reserve volume
 - d. Vital capacity and total lung capacity
 - e. Emphysema and occupational respiratory disorder

LONG ANSWER TYPE QUESTIONS

- 2 Explain the transport of O₂ and CO₂ between alveoli and tissue with diagram.
- 3 Explain the mechanism of breathing with neat labelled sketches.
- 4 Explain the role of neural system in regulation of respiration.

MULTIPLE CHOICE QUESTIONS

10. Mark, among the following a cell which does not exhibit phagocytotic activity

- a. Monocytes
- b. Neutrophil
- c. Basophil
- d. Macrophage

11. One of the common symptoms observed in people infected with Dengue fever is

- a. Significant decrease in RBC count
- b. Significant decrease in WBC count
- c. Significant decrease in platelets count
- d. Significant increase in platelets count

12. Which among the followings is correct during each cardiac cycle?

- a. The volume of blood pumped out by the Rt and Lt ventricles is same.
- b. The volume of blood pumped out by the Rt and Lt ventricles is different
- c. The volume of blood received by each atrium is different
- d. The volume of blood received by the aorta and pulmonary artery is different

13. Cardiac activity could be moderated by the autonomous neural system. Tick the correct answer:

- a. The parasympathetic system stimulates heart rate and stroke volume
- b. The sympathetic system stimulates heart rate and stroke volume
- c. The parasympathetic system decreases the heart rate but increase stroke volume
- d. The sympathetic system decreases the heart rate but increase stroke volume

K. Mark the pair of substances among the following which is essential for coagulation of blood.

Heparin and calcium ions

Calcium ions and platelet factors

Oxalates and citrates

Platelet factors and heparin

- L. ECG depicts the depolarisation and repolarisation processes during the cardiac cycle. In the ECG of a normal healthy individual one of the following waves is not represented.

Depolarisation of atria

Repolarisation of atria

Depolarisation of ventricles

Repolarisation of ventricles

- M. Which one of the following type of cells lack nucleus?

RBC

Neutrophils

Eosinophils

Monocytes

- N. Which one of the following blood cells is involved in antibody production.

B-Lymphocytes

T-L ymphocytes

RBC

Neutrophils

- O. The cardiac impulse is initiated and conducted further upto ventricle. The correct sequence of conduction of impulse is

a. S A Node A V Node Purkinje fiber A V Bundle

b. S A Node Purkinje fiber A V Node A V Bundle

c. S A Node A V Node A V Bundle Purkinje fiber

d. S A Node Purkinje fiber A V Bundle A V Node

- f. The cells involved in inflammatory reactions are

Basophils

Neutrophils

Eosinophils

Lymphocytes

- ix. The second heart sound (dubb) is associated with the closure of

Tricuspid valve

Semilunar valves

Bicuspid valve

Tricuspid and bicuspid valves.

- x. Which of the following correctly explains a phase/ event in cardiac cycle in a standard electrocardiogram?

QRS complex indicates atrial contraction.

QRS complex indicates ventricular contraction.

Time between S and T represents atrial systole.

P-wave indicates beginning of ventricular contraction.

- xi. Which of the following statements is incorrect?

A person of 'O' blood group has anti 'A' and anti 'B' antibodies in his blood plasma.

A person of 'B' blood group can't donate blood to a person of 'A' blood group.

Blood group is designated on the basis of the presence of antibodies in the blood plasma.

A person of AB blood group is universal recipient.

- xii. What would be the cardiac output of a person having 72 heart beats per minute and a stroke volume of 50 ml?

360 mL

3600 mL

7200 mL

5000 mL

- xiii. Match the terms given under Column 'A' with their functions given under Column 'B' and select the answer from the options given below:

Column A

Column B

A. Lymphatic System

i. blood

B. Pulmonary vein

ii. Immune Response

C. Thrombocytes

iii. fluid
to the circulatory system

D. Lymphocytes

iv. Coagulation of blood

Options:

A-ii, B-i, C-iii, D-iv
A-iii, B-i, C-iv, D-ii
A-iii, B-i, C-iii, D-iv
A-ii, B-i, C-iii, D-iv

4 Read the following statements and choose the correct option

Statement 1 : Atria receive blood from all parts of the body which subsequently flows to ventricles.

Statement 2 : Action potential generated at sino-atrial node passes from atria to ventricles.

- a. Action mentioned in Statement 1 is dependent on action mentioned in Statement 2
- b. Action mentioned in Statement 2 is dependent on action mentioned in Statement 1
- c. Action mentioned in Statements 1 and 2 are independent of each other.
- d. Action mentioned in Statements 1 and 2 are synchronous.

VERY SHORT ANSWER TYPE QUESTIONS

12. Name the blood component which is viscous and straw coloured fluid.

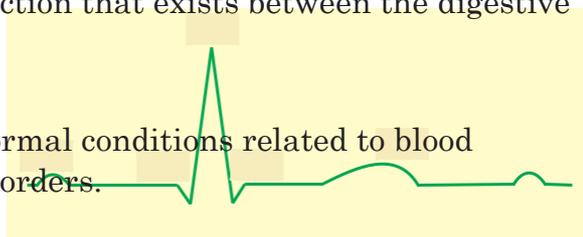
13. Complete the missing word in the statement given below:

- a Plasma without _____ factors is called serum.
- b _____ and monocytes are phagocytic cells.
- c Eosinophils are associated with _____ reactions.
- d _____ ions play a significant role in clotting.
- e One can determine the heart beat rate by counting the number of _____ in an ECG.

14. Given below is the diagrammatic representation of a standard ECG. Label its different peaks.

11 Name the vascular connection that exists between the digestive tract and liver.

12 Given below are the abnormal conditions related to blood circulation. Name the disorders.



- a. Acute chest pain due to failure of O₂ supply to heart muscles
- b. Increased systolic pressure

13 Which coronary artery disease is caused due to narrowing of the lumen of arteries?

14 Define the following terms and give their location?

- a. Purkinje fibre
- b. Bundle of His

15 State the functions of the following in blood

- a. Fibrinogen
- b. Globulin
- c. Neutrophils
- d. Lymphocytes

16 What physiological circumstances lead to erythroblastosis foetalis?

- 10. Explain the consequences of a situation in which blood does not coagulate.
- 11. What is the significance of time gap in the passage of action potential from sino-atrial node to the ventricle?
- 12. How will you interpret an electrocardiogram (ECG) in which time taken in QRS complex is higher.

SHORT ANSWER TYPE QUESTIONS

6 The walls of ventricles are much thicker than atria. Explain.

7 Differentiate between

- c. Blood and Lymph
- d. Basophils and Eosinophils
- e. Tricuspid and bicuspid valve

8 Briefly describe the followings:

- c. Anaemia
- d. Angina Pectoris

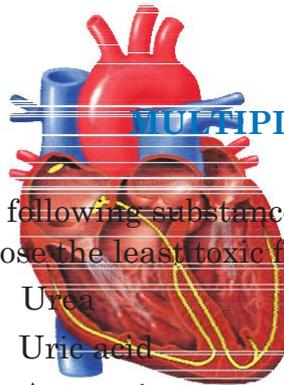
- a. Atherosclerosis

- b Hypertension
 - c Heart failure
 - d Erythroblastosis foetalis
10. Explain the advantage of the complete partition of ventricle among birds and mammals and hence leading to double circulation.
 11. What is the significance of hepatic portal system in the circulatory system?
 12. Explain the functional significance of lymphatic system?
 13. Write the features that distinguish between the two
 - a. Plasma and Serum
 - b. Open and closed circulatory system
 - c. Sino-atrial node and Atrio-ventricular node
 14. Thrombocytes are essential for coagulation of blood. Comment.
 15. Answer the following
 - a. Name the major site where RBCs are formed.
 - b. Which part of heart is responsible for initiating and maintaining its rhythmic activity?
 - c. What is specific in the heart of crocodiles among reptilians?

LONG ANSWER TYPE QUESTIONS

11. Explain Rh-incompatibility in humans.
12. Describe the events in cardiac cycle. Explain “double circulation”.
13. Explain different types of blood groups and donor compatibility by making a table.
14. Write short note on the following
 - a. Hypertension
 - b. Coronary Artery Disease
15. In the diagrammatic presentation of heart given below, mark and label, SAN, AVN, AV bundles, bundle of His and Purkinje fibres.

EXCRETORY PRODUCTS AND THEIR ELIMINATION



MULTIPLE CHOICE QUESTIONS

14. The following substances are the excretory products in animals. Choose the least toxic form among them?
 - a. Urea
 - b. Uric acid
 - c. Ammonia
 - d. Carbon dioxide
15. Filtration of the blood takes place at
 - a. PCT
 - b. DCT
 - c. Collecting ducts
 - d. Malpighian body
16. Which of the following statements is incorrect
 - a. ADH – prevents conversion of angiotensinogen in blood to angiotensin
 - Aldosterone – facilitates water reabsorption
 - ANF – enhances sodium reabsorption
 - Renin – causes vasodilation

g. A large quantity of one of the following is removed from our body by lungs.

CO₂ only

H₂O only

CO₂ and H₂O

ammonia

xiv. The pH of human urine is approximately

6.5

7

6

7.5

xv. Different types of excretory structures and animals are given below. Match them appropriately and mark the correct answer from among those given below:

Excretory structure/ organ	Animals
A. protonephridia	i. Prawn Cockroac
B. Nephridia	ii. h Earthwor
C. Malpighian tabules Green gland or Antennal gland	iii. m Flatworm
D. iv.	s

(B) iii and (A)

a. (D) i, (C) ii, iv

(A) iii and (B)

b. (B) i, (C) ii, iv

(A) iii and (B)

c. (D) i, (C) ii, iv

(B) iii and (D)

d. (B) i, (C) ii, iv

7. Which one of the following statements is incorrect?

Birds and land snails are uricotelic animals.

Mammals and frogs are ureotelic animals

Aquatic amphibians and aquatic insects are ammonotelic animals

Birds and reptiles are ureotelic

8. Which of the following pairs is wrong?

Uricotelic ----- Birds

Ureotelic ----- Insects

Ammonotelic ----- Tadpole

Ureotelic ----- Elephant

9. Which one of the following statements is incorrect?

The medullary zone of kidney is divided into a few conical masses called medullary pyramids projecting into the calyces.

Inside the kidney the cortical region extends in between the medullary pyramids as renal pelvis.

Glomerulus alongwith Bowman's capsule is called the renal corpuscle.

Renal corpuscle, proximal convoluted tubule (PCT) and distal convoluted tubule (DCT) of the nephron are situated in the cortical region of kidney.

- 5 The condition of accumulation of urea in the blood is termed as
- Renal Calculi
 - Glomerulonephritis
 - Uremia
 - Ketonuria

- 6 Which one of the following is also known as antidiuretic hormone?
- Oxytocin
 - Vasopressin
 - Adrenaline
 - Calcitonin

- 7 Match the terms given in Column I with their physiological processes given in Column II and choose the correct answer

Column I

Column II

D. Gout

Options:

- A-i, B-iii, C-ii, D-iv
- A-iii, B-ii, C-iv, D-i
- A-iv, B-iii, C-ii, D-i
- A-i, B-ii, C-iii, D-i

- | | | | |
|----|----------------------------|------|--|
| A. | Proximal convoluted tubule | i. | Formation of concentrated urine |
| B. | Distal convoluted tubule | ii. | Filtration of blood |
| C. | Henle's loop | iii. | Reabsorption of 70-80% of electrolytes |
| D. | Counter-current mechanism | iv. | Ionic balance maintenance of |
| E. | Renal corpuscle | v. | concentration gradient in medulla |
- a. A-iii, B-v, C-iii, D-ii, E-i
 b. A-iii, B-iv, C-i, D-v, E-ii
 c. A-i, B-iii, C-ii, D-v, E-iv
 d. A-iii, B-i, C-iv, D-v, E-ii

15. Match the abnormal conditions given in Column A with their explanations given in Column B and Choose the correct option

- | Column A | Column B |
|-------------------------|---|
| A. Glycosurea | i. Accumulation of uric acid in joints |
| B. Renal calculi | ii. Inflammation in glomeruli |
| C. Glomerular nephritis | iii. Mass of crystallised salts within the kidney |
| | iv. presence of glucose in urine |

- 17 We can produce a concentrated/ dilute urine. This is facilitated by a special mechanism. Identify the mechanism.
- Reabsorption from PCT
 - Reabsorption from Collecting Duct
 - Reabsorption/ Secretion in DCT
 - Counter current mechanism in Henle's loop/ Vasa recta
- 18 Dialysing unit (artificial kidney) contains a fluid which is almost same as plasma except that it has
- High glucose
 - High urea
 - No urea
 - High uric acid

VERY SHORT ANSWER TYPE QUESTIONS

- Where does the selective reabsorption of Glomerular filtrate take place?
- What is the excretory product from kidneys of reptiles?
- What is the composition of sweat produced by sweat glands?
- Identify the glands that perform the excretory function in prawns.
- What is the excretory structure in amoeba?
- The following abbreviations are used in the context of excretory functions, what do they stand for?
 - ANF
 - ADH
- GFR
- DCT
- Differentiate Glycosuria from Ketonuria.
- What is the role of sebaceous glands?
- Name two actively transported substances in Glomerular filtrate.
- Mention any two metabolic disorders, which can be diagnosed by analysis of urine.
- What are the main processes of urine formation?

- 11 Sort the following into actively or passively transported substances during reabsorption of GFR.
glucose, aminoacids, nitrogenous wastes, Na⁺, water

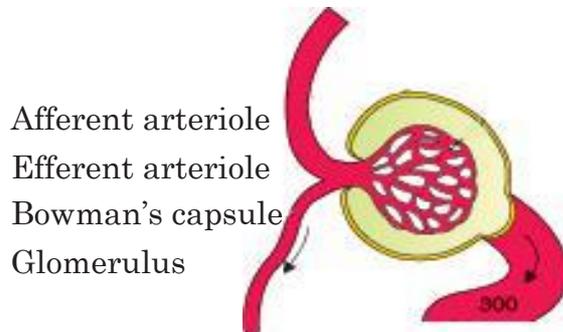
- 5 Complete the following:
a urinary excretion = tubular reabsorption + tubular secretion –
b Dialysis fluid = Plasma–
- 6 Mention the substances that exit from the tubules in order to maintain a concentration gradient in the medullary interstitium.
- 7 Fill in the blanks appropriately

Organ	Excretory wastes
a. Kidneys	_____
b. Lungs	_____
c. Liver	_____
d. Skin	_____

SHORT ANSWER TYPE QUESTIONS

16. Show the structure of a renal corpuscle with the help of a diagram.
17. What is the role played by Renin-Angiotensin in the regulation of kidney function?
18. Aquatic animals generally are ammonotelic in nature where as terrestual forms are not. Comment.
19. The composition of glomerular filtrate and urine is not same. Comment.
20. What is the procedure advised for the correction of extreme renal failure? Give a brief account of it.
21. How have the terrestrial organisms adapted themselves for conservation of water?

16. Label the parts in the following diagram.



10. Explain, why a haemodialysing unit called artificial kidney?

11. Comment upon the hormonal regulation of selective reabsorption.

LONG ANSWER TYPE QUESTIONS

- e. Explain the mechanism of formation of concentrated urine in mammals.
- f. Draw a labelled diagram showing reabsorption and secretion of major substances at different parts of the nephron.
- g. Explain briefly, micturition and disorders of the excretory system.
- h. How does tubular secretion help in maintaining ionic and acid-base balance in body fluids?
- i. The glomerular filtrate in the loop of Henle gets concentrated in the descending and then gets diluted in the ascending limbs. Explain.
- j. Describe the structure of a human kidney with the help of a labelled diagram.

CHAPTER 20

LOCOMOTION AND MOVEMENT

MULTIPLE CHOICE QUESTIONS

17. Match the following and mark the correct option

Column I

Column II

- | | |
|-----------------------|--------------------------------|
| A. Fast muscle fibres | i. Myoglobin |
| B. Slow muscle fibres | ii. Lactic acid
Contractile |
| C. Actin filament | iii. unit |
| D. Sarcomere | iv. I-band |

Options:

A-i, B-ii, C-iv, D-iii

A-ii, B-i, C-iii, D-iv

A-ii, B-i, C-iv, D-iii

A-iii, B-ii, C-iv, D-i

- h. Ribs are attached to
- Scapula
 - Sternum
 - Clavicle
 - Ilium
- i. What is the type of movable joint present between the atlas and axis?
- Pivot
 - Saddle
 - Hinge
 - Gliding
- j. ATPase of the muscle is located in
- Actinin
 - Troponin
 - Myosin
 - Actin

xvi. Intervertebral disc is found in the vertebral column of

- Birds
- Reptiles
- Mammals
- Amphibians

xvii. Which one of the following is showing the correct sequential order of vertebrae in the vertebral column of human beings?

- Cervical — lumbar — thoracic — sacral — coccygeal
- Cervical — thoracic — sacral — lumbar — coccygeal
- Cervical — sacral — thoracic — lumbar — coccygeal
- Cervical — thoracic — lumbar — sacral — coccygeal

xviii. Which one of the following options is incorrect?

Hinge joint – between Humerus and Pectoral girdle

Pivot joint – between atlas, axis and occipital condyle

Gliding joint – between the carpals

Saddle joint – between carpel and metacarpals of thumb

xix. Knee joint and elbow joints are examples of

Saddle joint

Ball and socket joint

Pivot joint

Hinge joint

xx. Macrophages and leucocytes exhibit

Ciliary movement

Flagellar movement

Amoeboid movement

Gliding movement

10. Which one of the following is not a disorder of bone?

Arthritis

Osteoporosis

Rickets

Atherosclerosis

11. Which one of the following statement is incorrect?

Heart muscles are striated and involuntary

The muscles of hands and legs are striated and voluntary

The muscles located in the inner walls of alimentary canal are striated and involuntary

a. Muscles located in the reproductive tracts are unstriated and involuntary

16. Which one of the following statements is true:

a Head of humerus bone articulates with acetabulum of pectoral girdle.

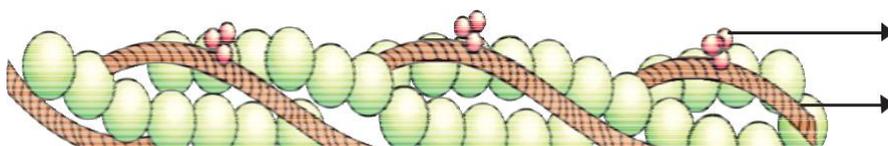
b Head of humerus bone articulates with glenoid cavity of pectoral girdle.

- c Head of humerus bone articulates with a cavity called acetabulum of pelvic girdle.
 - d Head of humerus bone articulates with a glenoid cavity of pelvic girdle.
17. Muscles with characteristic striations and involuntary are
- a Muscles in the wall of alimentary canal
 - b Muscles of the heart
 - c Muscles assisting locomotion
 - d Muscles of the eyelids
18. Match the followings and mark the correct option
- | Column I | Column II |
|-------------------------|----------------|
| A. Sternum | i. fluid |
| B. Glenoid Cavity | ii. Vertebrae |
| C. Freely movable joint | iii. girdle |
| D. Cartilagenous joint | iv. Flat bones |
- Options:
- 19 A-ii, B-i, C-iii, D-iv
 - 20 A-iv, B-iii, C-i, D-ii
 - 21 A-ii, B-i, C-iv, D-iii
 - 22 A-iv, B-i, C-ii, D-iv

VERY SHORT ANSWER TYPE QUESTIONS

22. Name the cells/tissues in human body which
- a. exhibit ameboid movement
 - b. exhibit ciliary movement
23. Locomotion requires a perfect coordinated activity of muscular, _____, _____ systems

- 12 Sarcolemma, sarcoplasm and sarcoplasmic reticulum refer to a particular type of cell in our body. Which is this cell and to what parts of that cell do these names refer to?
- 13 Label the different components of actin filament in the diagram given below.



- 8 The three tiny bones present in middle ear are called ear ossicles. Write them in correct sequence beginning from ear drum.
- 9 What is the difference between the matrix of bones and cartilage?
- 10 Which tissue is afflicted by Myasthenia gravis? What is the underlying cause?
- 11 How do our bone joints function without grinding noise and pain?
- 12 Give the location of a ball and socket joint in a human body
22. Our fore arm is made of three different bones. Comment.

SHORT ANSWER TYPE QUESTIONS

17. With respect to rib cage, explain the following:
 - a. Bicephalic ribs
 - b. True ribs
 - c. Floating ribs
18. In old age, people often suffer from stiff and inflamed joints. What is this condition called? What are the possible reasons for these symptoms?
19. Exchange of calcium between bone and extracellular fluid takes place under the influence of certain hormones
 - a. What will happen if more of Ca^{++} is in extracellular fluid?
 - b. What will happen if very less amount of Ca^{++} is in the extracellular fluid?

Name atleast two hormones which result in fluctuation of Ca^{++} level.

12. Rahul exercises regularly by visiting a gymnasium. Of late he is gaining weight. What could be the reason? Choose the correct answer and elaborate.

Rahul has gained weight due to accumulation of fats in body.

Rahul has gained weight due to increased muscle and less of fat.

Rahul has gained weight because his muscle shape has improved.

Rahul has gained weight because he is accumulating water in the body.

13. Radha was running on a treadmill at a great speed for 15 minutes continuously. She stopped the treadmill and abruptly came out. For the next few minutes, she was breathing heavily/fast. Answer the following questions.

What happened to her muscles when she did strenuously exercised?

How did her breathing rate change?

14. Write a few lines about Gout.
15. What is the source of energy for muscle contraction?
16. What are the points for articulation of Pelvic and Pectoral girdles?

LONG ANSWER TYPE QUESTIONS

k. Calcium ion concentration in blood affects muscle contraction. Does it lead to tetany in certain cases? How will you correlate fluctuation in blood calcium with tetany?

l. An elderly woman slipped in the bathroom and had severe pain in her lower back. After X-ray examination doctors told her it is due to a slipped disc. What does that mean? How does it affect our health?

m. Explain sliding filament theory of muscle contraction with neat sketches.

n. How does a muscle shorten during its contraction and return to its original form during relaxation?

o. Discuss the role of Ca^{2+} ions in muscle contraction. Draw neat sketches to illustrate your answer.

p. Differentiate between Pectoral and Pelvic girdle.

CHAPTER 21

NEURAL CONTROL AND COORDINATION

MULTIPLE CHOICE QUESTIONS

18. Chemicals which are released at the synaptic junction are called

- a. Hormones
- b. Neurotransmitters
- c. Cerebrospinal fluid
- d. Lymph

19. Potential difference across resting membrane is negatively charged. This is due to differential distribution of the following ions

- a. Na^+ and K^+ ions
- b. CO_3^{3-} and Cl^- ions
- c. Ca^{++} and Mg^{++} ions
- d. Ca^{+4} and Cl^- ions

20. Resting membrane potential is maintained by

- a. Hormones
- b. Neurotransmitters
- c. Ion pumps
- d. None of the above

21. The function of our visceral organs is controlled by

- a. Sympathetic and somatic neural system
- b. Sympathetic and para sympathetic neural system
- c. Central and somatic nervous system
- d. None of the above

22. Which of the following is not involved in Knee-jerk reflex?

- a. Muscle spindle
- b. Motor neuron
- c. Brain

d. Inter neurons

- P. An area in the brain which is associated with strong emotions is
- Cerebral cortex
 - Cerebellum
 - Limbic system
 - Medulla
- Q. Mark the vitamin present in Rhodopsin
- Vit A
 - Vit B
 - Vit C
 - Vit D
- R. Human eyeball consists of three layers and it encloses
- Lens, iris, optic nerve
 - Lens, aqueous humor and vitreous humor
 - Cornea, lens, iris
 - Cornea, lens, optic nerve
- S. Wax gland present in the ear canal is called
- Sweat gland
 - Prostate gland
 - Cowper's gland
 - Sebaceous gland/ ceruminous gland
- T. The part of internal ear responsible for hearing is
- Cochlea
 - Semicircular canal
 - Utriculus
 - Sacculus
- U. The organ of corti is a structure present in
- External ear
 - Middle ear
 - Semi circular canal
 - Cochlea

VERY SHORT ANSWER TYPE QUESTIONS

- k. Rearrange the following in the correct order of involvement in electrical impulse movement-
Synaptic knob, dendrites, cell body, Axon terminal, Axon

xxi. Comment upon the role of ear in maintaining the balance of the body and posture.

xxii. Which cells of the retina enable us to see coloured objects around us?

xxiii. Arrange the following in the order of reception and transmission of sound wave from the ear drum:

Cochlear nerve, external auditory canal, ear drum, stapes, incus, malleus, cochlea.

xxiv. During resting potential, the axonal membrane is polarised, indicate the movement of +ve and -ve ions leading to polarisation diagrammatically.

xxv. Name the structures involved in the protection of the brain.

xxvi. Our reaction like aggressive behaviour, use of abusive words, restlessness etc. are regulated by brain, name the parts involved.

xxvii. What do grey and white matter in the brain represent?

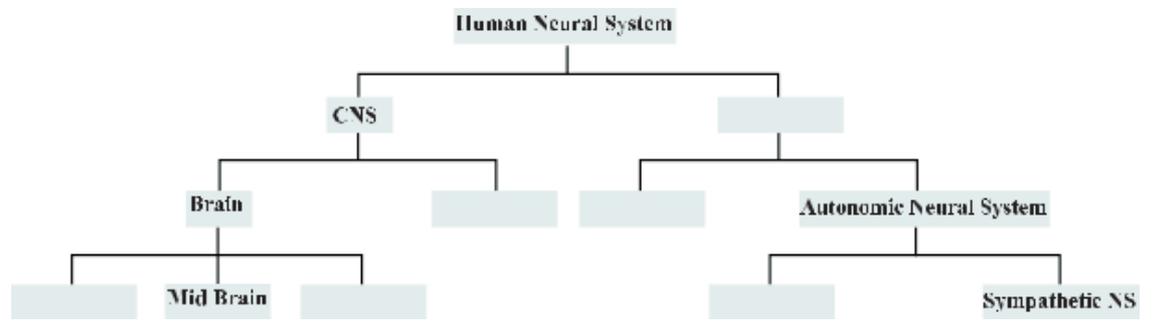
xxviii. Where is the hunger centre located in human brain?

12. Which sensory organ is involved in vertigo (sensation of oneself or objects spinning around)?
13. While travelling at a higher altitude, a person complains of dizziness and vomiting sensation. Which part of the inner ear is disturbed during the journey?
14. Complete the statement by choosing appropriate match among the following -
- | | |
|----------------------|--|
| a. Resting potential | i. chemicals involved in the transmission of impulses at synapses. |
| b. Nerve impulse | ii. gap between the pre synaptic and post |

- c. Synaptic cleft synaptic neurons
 electrical potential difference
 iii. across the
 resting neural membrane
 an electrical wave like response
d. Neurotransmitters iv. of
 a neuron to a stimulation.

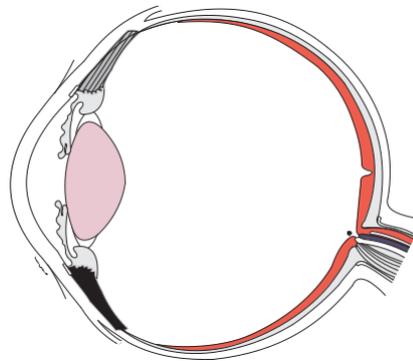
SHORT ANSWER TYPE QUESTIONS

- 8 The major parts of the human neural system is depicted below.
Fill in the empty boxes with appropriate words.



19. What is the difference between electrical transmission and chemical transmission?
20. Neural system and computers share certain common features. Comment in five lines. (Hint: CPU, input-output devices).
21. If someone receives a blow on the back of neck, what would be the effect on the person's CNS?
22. What is the function ascribed to Eustachian tube?
23. Label the following parts in the given diagram using arrow.

- a. Aqueous chamber
- 23 Cornea
- 24 Lens
- 25 Retina
- e. Vitreous chamber
24. Blind spot



LONG ANSWER TYPE QUESTIONS

- 14 Explain the process of the transport and release of a neurotransmitter with the help of a labelled diagram showing a complete neuron, axon terminal and synapse.
- 15 Name the parts of human forebrain indicating their respective functions.

- 16 Explain the structure of middle and internal ear with the help of diagram.

CHAPTER 22

CHEMICAL COORDINATION AND INTEGRATION

MULTIPLE CHOICE QUESTIONS

23. Select the right match of endocrine gland and their hormones among the options given below

- | | |
|--------------------|-----------------------------------|
| A. Pineal | i. Epinephrine |
| B. Thyroid | ii. Melatonin |
| C. Ovary | iii. Estrogen
Tetraiodothyroni |
| D. Adrenal medulla | iv. ne |

Options:

A-iv, B-ii, C-iii, D-i

A-ii, B-iv, C-i, D-iii

A-iv, B-ii, C-i, D-iii

A-ii, B-iv, C-iii, D-i

1. Listed below are the hormones of anterior pituitary origin. Tick the wrong entry.

Growth hormone

Follicle stimulating hormone

Oxytocin

Adrenocorticotrophic hormone

- m. Mary is about to face an interview. But during the first five minutes before the interview she experiences sweating, increased rate of heart beat, respiration etc. Which hormone is responsible for her restlessness?

Estrogen and progesterone

Oxytocin and vasopressin

Adrenaline and noradrenaline

Insulin and glucagon

xxix. The steroid responsible for balance of water and electrolytes in our body is

- Insulin
- Melatonin
- Testosterone
- Aldosterone

xxx. Thymosin is responsible for

- Raising the blood sugar level
- Raising the blood calcium level
- Increased production of T lymphocytes
- Decrease in blood RBC

xxxi. In the mechanism of action of a protein hormone, one of the second messengers is

- Cyclic AMP
- Insulin
- T₃
- Gastrin

xxxii. Leydig cells produce a group of hormones called

- Androgens
- Estrogens
- Aldosterone
- Gonadotropins

xxxiii. Corpus luteum secretes a hormone called

- Prolactin
- Progesterone
- Aldosterone
- Testosterone

xxxiv. Cortisol is secreted from

- Pancreas
- Thyroid
- Adrenal
- Thymus

xxxv. A hormone responsible for normal sleep-wake cycle is

- Epinephrine
- Gastrin
- Melatonin

Insulin

15. Hormones are called chemical signals that stimulate specific target tissues. Their specificity is due to the presence of signal receiving 'receptors' only in the respective target tissues. Where are these receptors present in case of hormones of protein nature?

Extra cellular matrix

Blood

Plasma membrane

Nucleus

16. Choose the correct answer among the following options

A.	Epinephrin	i. Increase in muscle growth
B.	Testosteron	ii. Decrease in blood pressure
C.	Glucagon	iii. Decrease in liver glycogen content
D.	Atrial natriuretic factor	iv. Increase heart beat

Options:

- a. -ii, B-i, C-iii, D-i
b. A-iv, B-i, C-iii, D-ii
c. A-i, B-ii, C-iii, D-iv
a. A-i, B-iv, C-ii, D-iii
24. Blood calcium level is a resultant of how much dietary calcium is absorbed, how much calcium is lost in the urine, how much bone dissolves releasing calcium into the blood and how much calcium from blood enters tissues. A number of factors play an important role in these processes. Mark the one which has no role.

- a Vitamin D
b Parathyroid hormone
c Thyrocalcitonin
d Thymosin

25. All the following tissues in mammals except one consists of a central 'medullary' region surrounded by a cortical region. Mark the wrong entry

- a Ovary
- b Adrenal
- c Liver
- d Kidney

26. One of the following conditions is not linked to deficiency of thyroid hormones

- 26 Cretinism
- 27 Goitre
- 28 Myxedema
- 29 Exophthalmosis

VERY SHORT ANSWER TYPE QUESTIONS

- 25. There are many endocrine glands in human body. Name the glands which is absent in male and the one absent in female.
- 26. Which of the two adrenocortical layers, zona glomerulosa and zona reticularis lies outside enveloping the other?
- 27. What is erythropoiesis? Which hormone stimulate it?
- 28. Name the only hormone secreted by pars intermedia of the pituitary gland.
- 29. Name the endocrine gland that produces calcitonin and mention the role played by this hormone.
- 30. Name the hormone that helps in cell - mediated immunity.
- 31. What is the role of second messenger in the mechanism of protein hormone action?
- 32. State whether true or false:
 - a. Gastrointestinal tract, kidney and heart also produce hormones.
 - b. Pars distalis produces six trophic hormones.

- c. B-lymphocytes provide cell-mediated immunity.
 - d. Insulin resistance results in a disease called diabetes mellitus.
33. A patient complains of constant thirst, excessive passing of urine and low blood pressure. When the doctor checked the patients' blood glucose and blood insulin level, the level were normal or slightly low. The doctor diagnosed the condition as diabetes insipidus. But he decided to measure one more hormone in patients blood. Which hormone does the doctor intend to measure?
34. Correct the following statements by replacing the term underlined.
- a. Insulin is a steroid hormone.
 - b. TSH is secreted from the corpus luteum
 - c. Tetraiodothyronine is an emergency hormone.
 - d. The pineal gland is located on the anterior part of the kidney.
- 17 Rearrange the following hormones in Column I so as to match with their chemical nature in Column II.
- | Column I | Column II | |
|-------------------|---------------|-----|
| | Aminoacid | |
| a. Oxytocin | i. derivative | () |
| b. Epinephrine | ii. Steroid | () |
| c. Progesterone | iii. Protein | () |
| d. Growth hormone | iv. Peptide | () |

SHORT ANSWER TYPE QUESTIONS

- 13 What is the role-played by luteinizing hormones in males and females respectively?
- 14 What is the role of second messenger in hormone action?
- 15 On an educational trip to Uttaranchal, Ketki and her friends observe that many local people were having swollen necks. Please help Ketki and her friends to find out the solutions to the following questions.
- a Which probable disease are these people suffering from?

b How is it caused?

c What effect does this condition have on pregnancy?

- 16 George comes on a vacation to India from US. The long journey disturbs his biological system and he suffers from jet lag. What is the cause of his discomfort?
- 17 Inflammatory responses can be controlled by a certain steroid. Name the steroid, its source and also its other important functions.
- 18 Old people have weak immune system. What could be the reason?
- 19 What are the effects of hypothyroidism (observed during pregnancy) on the development and maturation of a growing baby?
- 20 Mention the difference between hypothyroidism and hyperthyroidism.
- 21 You have learnt that a characteristic feature of endocrine system is the presence of feed back loops. By this what is meant if hormone A stimulates gland 'X' to secrete hormone B, the production of 'A' could be modified when the level of B changes in our blood. An example is the relation between hormones LH and estrogen (E_2). An old woman exhibits the following features. High levels of LH in blood but low levels of E_2 in the blood. Another woman exhibits high level of LH in blood and also high level of E_2 in the blood. Where is the defect in both these women? Provide suitable diagram to support this answer.

LONG ANSWER TYPE QUESTIONS

23. A milkman is very upset one morning as his cow refuses to give any milk. The milkman's wife gets the calf from the shed. On fondling by the calf, the cow gave sufficient milk. Describe the role of endocrine gland and pathway associated with this response?
24. A sample of urine was diagnosed to contain high content of glucose and ketone bodies. Based on this observation, answer the following:
- Which endocrine gland and hormone is related to this condition?
 - Name the cells on which this hormone acts.
 - What is the condition called and how can it be rectified?
25. Calcium plays a very important role in the formation of bones. Write on the role of endocrine glands and hormones responsible for maintaining Calcium homeostasis.
26. Illustrate the differences between the mechanism of action of a protein and a steroid hormone.
27. Hypothalamus is a super master endocrine gland. Elaborate.

MATHS

Chapter#12. Introduction to Three Dimensional Geometry

Q.1 Using section formula, prove that the three points $(-2, 3, 5)$, $(1, 2, 3)$ and $(7, 0, -1)$ are collinear.

Q.2 A point is on the x-axis. What is its y-coordinate and z-coordinate?

Q.3 Write the coordinates of the mid-point of the line segment joining two points $P(x_1, y_1, z_1)$ and $Q(x_2, y_2, z_2)$.

Q.4 Find the equation of set of points P such that $PA^2 + PB^2 = 2k^2$, where A and B are the points $(1, 2, 3)$ and $(1, 0, 0)$, respectively.

Q.5 Prove that the points $P(1, 2, 3)$, $Q(-1, -1, -1)$ and $R(3, 5, 7)$ are collinear.

Q.6 Find the image of $(-2, 3, 4)$ in the yz- plane.

Q.7 Three vertices of a parallelogram ABCD are $A(4, 0, 3)$, $B(3, 4, -2)$ and $C(-2, 0, 1)$. Find the

coordinates of the fourth vertex.

Q.8 Find the point in XY-plane which is equidistant from three points A(2,0,3), B(0,3,2) and C(0,0,1).

Q.9 Find the ratio in which the line joining the points (1, 2, 3) and (- 3, 4, - 5) is divided by the xyplane. Also, find the coordinates of the point of division.

Q.10 A point P is at a distance of 6 units from the origin on the Z axis. Write the coordinates of P.

Q.11 Find centroid of a triangle, mid-points of whose sides are (1, 2, - 3), (2, 0, 1) and (- 1, 1, -4).

Chapter#15. Statistics

Q.1 The mean and standard deviation of a group of 100 observations were found to be 20 and 3,

respectively. Later on it was found that three observations were incorrect, which were recorded as

21, 21 and 18. Find the mean and standard deviation if the incorrect observations are omitted.

Q.2 Variance of 48 data is 37.45, find its standard deviation.

Q.3 Find the mean deviation about the mean for the following data

Marks Obtained	0-10	10-20	20-30	30-40	40-50	50-60
Number of students	6	8	14	16	4	2

Q.4 From the data given below state which group is more variable, A or B?

Marks	10-20	20-30	30-40	40-50	50-60	60-70	70-80
Group A	9	17	32	33	40	10	9
Group B	10	20	30	25	43	15	7

Q.5 The mean and standard deviation of marks obtained by 50 students of a class in three subjects,

Mathematics, Physics and Chemistry are given below:

Subject	Mathematics	Physics	Chemistry
Mean	42	32	40.9
Standard deviation	12	15	20

Which of the three subjects shows the highest variability in marks and which shows the

lowest?

Q.6 Find the mean and variance for the data 6, 7, 10, 12, 13, 4, 8, 12.

Q.7 Find the mean deviation about the mean for the data.

xi	10	30	50	70	90
fi	4	24	28	16	8

Q.8 Find the mean and variance for the data

xi	6	10	14	18	24	28	30
f i	2	4	7	12	8	4	3

Q.9 An analysis of monthly wages paid to workers in two firms A and B, belonging to the same

industry, gives the following results:

	Firm A	Firm B
No. of wage earners	586	648
Mean of monthly wages	Rs 5253	Rs 5253
Variance of the distribution of wages	100	121

(i) Which firm A or B pays larger amount as monthly wages?

(ii) Which firm, A or B, shows greater variability in individual wages?

Q.10 The mean and standard deviation of six observations are 8 and 4, respectively. If each

observation is multiplied by 3, find the new mean and new standard deviation of the resulting observations.

Chapter#3 : Trigonometric Functions

Q.1 Evaluate : $\sin(40^\circ+\theta)\cos(10^\circ+\theta) - \cos(40^\circ+\theta)\sin(10^\circ+\theta)$

Q.2 Find the value of $\sin 150^\circ + \cos 300^\circ$.

Q.3 If in two circles, arcs of the same length subtend angles 75° and 120° at the centre, find the ratio of their radii.

Q.4 If in two circles, arcs of same length, subtend angles 120° and 150° at the centre, find the ratio of their radii.

Q.5 Write the value of $\tan 15^\circ$.

Q.6 Find the value of $\cos 55^\circ + \cos 125^\circ + \cos 300^\circ$.

Q.7 Find the value of $\sin 15^\circ$.

Q.8 Prove that: $(\sin 3x + \sin x) \sin x + (\cos 3x - \cos x) \cos x = 0$

Q.9 A wheel makes 360 revolutions in one minute. Through how many radians does it turn in one second?

Q.10 If $\cot 2A = \tan(n - 2)A$, then what is A?

BIOTECHNOLOGY

PART A

Q1: Differentiate between paracentric and pericentric inversions.

Q2: Explain all the events that takes place in Nucleotide excision repair.

Q3: Who discovered DNA as the genetic material? Explain the experiment using self explanatory diagrams.

Q4: Explain any one method of genetic recombination in bacteria.

Q5: Give a brief account on T-T dimer repair by photo activation.

Q6: Explain Griffiths experiment to prove the transforming principle.

Q7: Discuss Genome, chromosomal and gene mutation in detail.

PART B

From the newspaper & science magazines, find out the latest research published on the subject related to biotechnology. Read the article carefully and write the synopsis for at least 5 researches.

PART C

Read the Unit “**Biotechnology within your reach**” and answer the following questions:

Q1: List few applications of Biotechnology in the field of Health, Agriculture & Chemical.

Q2: Explain with the help of graph “Effect of substrate concentration on growth”

Q3: Give a short note on the pattern of growth of microorganisms with the help of graph.

Q4: What are the ethical issues associated with using Biotechnology in Agriculture and Health care field.

Q5: What do you understand by IP. Give various types of IPR and their importance.

Q6: Give 3 types of microorganisms depending on their optimum temperature.

CHEMISTRY

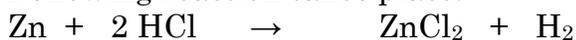
Chapter 1

1. Calculate the mass of sodium acetate required to make 500 ml of 0.375 molar aqueous solution . Molar mass of sodium acetate is 82.0245g/mol.

2. 1 M solution of NaNO_3 has density 1.25 g/cm^3 . Calculate its molality.

3. Conc. HCl is 38% by mass. What is the molarity of this solution? Density of the solution is 1.19 g/cm^3 . What volume of conc. HCl is required to make 1 L of 0.10 M HCl?

4. Hydrogen gas in lab is prepared by reacting dilute HCl with granulated zinc. Following reaction takes place.



Calculate the volume of hydrogen gas liberated at STP when 32.65 g of Zinc reacts with HCl. atomic mass of zinc is 65.3 u.

5. A vessel contains 1.6 g of dioxygen gas at STP. The gas is transferred to another vessel at constant temperature where pressure becomes half of the original pressure. Calculate

(i) volume of the new vessel

(ii) number of molecules of dioxygen

6. If 4 g of NaOH dissolves in 36 g of water, calculate the mole fraction of each component in the solution. also determine the molarity of the solution. Specific gravity of the solution is 1g/ml.

7. Which one of the following will have the largest number of atoms?

(i) 1g of Au(s) (ii) 1g of Na(s)

(iii) 1g of Li(s) (iv) 1g of Cl₂(g) (At. masses of Au = 197, Na = 23, Li =

7, Cl = 35.5)

8. BaCl₂ solution has a density of 1.279 g/ml and the percent of solute is 26%. Calculate the molality of the solution. (mol. wt. of BaCl₂ = 208)

Q9. Calculate the molality of 1 M NaOH solution having density 1.2g/ml.

Q10. State the law of multiple proportions and explain it by taking an example.

SOLVE ALL NCERT QUESTIONS OF THIS CHAPTER IN THE REGISTER.

Chapter 2

1. Explain Drawback of Rutherford's model of atom..

2. What is Zeeman effect and Stark effect?

3. Write electronic configurations, of Cr, Cu, Zn?

4. Define Aufbau's Principle. Which of the following orbitals are possible. 1 s, 1 p, 2 s, 3 d, 3 f

5. Explain Hund's rule of maximum multiplicity by taking an example of phosphorous.

6. Why are Bohr's orbits called Stationary States?

7. What is the difference between atomic mass and mass number?

8. Explain why the uncertainty principle is significant only for the microscopic particles and not for the macroscopic particles?

9. Why half-filled and fully filled orbitals are extra stable?

10. Why config of 'Cr' is 3d⁵ 4s¹ and not 3d⁴ 4s² and 'Cu' is 3d¹⁰ 4s¹ and not 3d⁹ 4s² ?

11. Give differences between orbit and orbital.

12. What is photoelectric effect? What is the effect of frequency and intensity on photoelectric effect?

13. Why large no. of lines appear in the spectrum of hydrogen although it contains only one electron?

14. Derive de Broglie relationship and give its significance.

15. Give important postulates of Bohr's model of an atom.

16. Discuss Planck's Quantum theory of Radiation.

17. Using the s, p, d, f, notations describe the following quantum no. (a) n=1, l=0 (c) n=4; l=3 (d) n=4; l=2 (b) n=3, l=2 (d) n=5; l=4 (e) n=6; l=4

18. Discuss important facts about photoelectric effect

19. Discuss black body radiation. Also explain its reason.

20. What are emission and absorption spectra? Why dark lines appear in the absorption spectra?
 21. What is the frequency and wavelength of a photon emitted during a transition from $n=5$ state to $n=2$ state in the hydrogen atom.
 22. Discuss drawbacks of Rutherford's Model.
 23. Explain Heisenberg's uncertainty Principle.
 24. What do you understand by an atomic orbital? Briefly describe the shapes of s, p & 'd' orbitals?
 25. State and explain Aufbau's principle, Pauli's exclusion principle.
 26. Explain the properties of cathode rays.
 27. How are anode rays produced?
 28. Which of the following orbitals are not possible?
1p, 2s, 2p, 3f, 3d, 4f, 4d
- Assignment no 2

1. Why are Bohr's orbits called stationary states?
 2. Show that the circumference of Bohr orbit for the hydrogen atom is an integral multiple of the Broglie wavelength associated with the electron revolving around the nucleus.
 3. Why is the uncertainty principle not applicable to macroscopic particles?
 4. Calculate the uncertainty in the position of a particle when the uncertainty in the momentum is (a) 1×10^{-2} (b) zero.
 5. What is the significance of the statement "Product of uncertainty in position and momentum is always constant if measured simultaneously"?
 6. Why is the uncertainty principle not applicable to macroscopic particles?
 7. What physical meaning is attributed to the square of the absolute value of wave function $|\Psi|^2$?
 8. Write electronic configuration of Cr^{3+} ion.
 9. State Pauli's exclusion principle.
 10. How many nodes are there in 3s orbital?
 11. What is the value of orbital angular momentum of 6s orbital?
 12. What is meant by degenerate orbitals? Illustrate with the help of an example.
- SOLVE ALL NCERT QUESTIONS OF THIS CHAPTER IN YOUR NOTEBOOK.**

****NOTE-** Read CH 9 (HYDROGEN) and CH 14(ENVIRONMENTAL CHEMISTRY) – INFORMATIVE CHAPTERS for PT1 from the book. Study material will also be shared in your class groups.

COMPUTER SCIENCE

Q1 Convert the following Decimal No. to Binary

214.125 , 73.0625 , 54.5 , 154.246

Q2. Convert the following Binary No. to Decimal No.

111010.101 , 110011.111 , 101011.1101 , 101111.11001

Q3. Convert the following Decimal No. to Octal No.

243.126 , 111.25 , 93.125 , 145.112

Q4. Convert the following Octal No. to Decimal No.

472,24 , 125.76 , 351.26 , 672.155

Q5. Convert the following Decimal No. to Hexa –decimal No.

102.125, 57.225 , 99.0625, 157.112

Q6. Convert the following Hexa –decimal No. to Decimal No.

7CD.26 , 5AF.2C , 94.234 , ABF.CD

Q7. Do the Following Operation

1110111 + 10111

10100000 - 101111

10101 X 1011

10100110 / 101

Q8. WAP to take amount in RS. Calculate and print Minimum No. of Notes 500, 100 , 50 , 20 , 10 .

Q9. WAP to take a No. check and print No. is prime or not.

Q10. WAP to take no. of terms and print Fibonacci series upto required no. of terms.

ACCOUNTANCY

Instruction: Assignment must be submitted in NOTEBOOK

ACCOUNTING EQUATIONS

Q1. Show the Accounting equation on the basis of following transactions and prepare a Balance Sheet of Vishal Khanna on the basis of the last equation 1 Vishal Khanna started a business with cash ₹ 1,00,000 2 Purchase goods for cash ₹ 44,000 3 Sold goods to Ram on credit (costing ₹ 10,000) ₹ 15,000 4 Purchased furniture from Mehta Decorators ₹ 4,000 5 Paid salaries 4,000 6 Withdrew for private use ₹ 2,000 7 Goods sold for cash (costing ₹ 8,000) ₹ 10,000 8 Outstanding Salaries ₹ 3,000

Q2. Prepare accounting equation from the following: (a) Started a business with cash ₹ 1,00,000 and goods worth ₹ 20,000 (b) Sold 50% of above goods at a profit of ₹ 2,000 on credit to Ram (c) Rent paid ₹ 5,000 (d) Ram paid 50% of his balance in cash

Q3. Prepare the accounting equation on the basis of the following transactions: (a) Started a business with cash ₹ 50,000 and an inventory ₹ 20,000 (b) Bought goods for cash ₹ 15,000 and on credit ₹ 10,000 (c) Goods costing ₹ 24,000 sold at a profit of 33 1/3% Half the payment was received in cash. (d) Purchases furniture for office use ₹ 6,000 and household use ₹ 4,000

Q4. Show the accounting equation on the basis of the following transactions and prepare Balance Sheet for the final equation: ₹ 1 Udit started business with: (a) Cash (b) Goods 5,00,000 1,00,000 2 Purchased building for cash 2,00,000 3 Purchases goods for Arora 50,000 4 Insurance Premium Paid in Advance 6,000 5 Rent Outstanding 5,000 6 Depreciation on building @ 4% 8,000 7 Cash withdrawn for personal use 20,000 8 Rent received in advance 5,000

Q5. Prepare 'Accounting Equation' from the following: (a) Started business with cash ₹ 1,00,000 (b) Purchased goods for cash ₹ 20,000 and on credit ₹ 30,000 (c) Sold goods for cash costing ₹ 10,000 and on credit costing ₹ 15,000 both at a profit of 20%.

Q6. Using following balances and transactions show accounting equation: Cash ₹ 6,000, Bank Balance ₹ 1,500, debtors ₹ 3,000, Goods ₹ 45,00, Furniture ₹ 3,000, Creditors ₹ 5,250 and Capital ₹ 12,750. ₹ 1 Purchased goods for cash 1,500 2 Purchased goods from Ram Saran 1,500 3 Returned goods to Ram Saran 300 4 Bad Debts 750 5 Goods lost by fire 750 6 Amount received by cheque from debtors 1,500 7 Goods costing ₹ 3,000 sold at 20% profit, half the amount received in cash 8 Purchased goods for cash ₹ 2,250 and on credit for ₹ 1,500 9 Paid to Creditors by cheque ₹ 1,500 10 Interest allowed on capital ₹ 750

Q7. Prepare 'Accounting Equation' from the following (a) Started business with cash ₹ 50,000 (b) Purchased goods for cash ₹ 10,000 and on credit ₹ 15,000. (c) Sold goods for cash costing ₹ 5,000 and on credit costing ₹ 7,500 both at a profit of 20%. Ans: Assets ₹ 67,500, Liabilities (Creditors) ₹ 15,000, Capital ₹ 52,500

Q8. Prepare an accounting equation from the following: (a) Start business with cash ₹ 90,000 and goods ₹ 60,000 (b) ¼ th of the above goods sold at a profit of 10% on cost and half of the payment is received in cash. (c) Paid rent ₹ 8,000 including ₹ 3,000 in advance.

Ans: Asset = Cash ₹ 90,250, Stock ₹ 45,000, Debtors ₹ 8,250, Prepaid Rent ₹ 3,000, Liabilities + Capital ₹ 1,46,500.

Q9. Show the accounting equation on the basis of following transactions and prepare a Balance sheet on the basis of last equation: ₹ 1 Opening Balance: Cash ₹ 20,000;

Bank ₹ 5,000; Creditors ₹ 5,000; Capital ₹ 50,000; Stock ₹ 20,000; Debtors ₹ 10,000. 2 Purchased goods for cash ₹ 7,500 and on credit for ₹ 5,000 3 Goods costing ₹ 10,000 sold at 20% profit, half of the amount received in cash 4 Bad debts 1,000 5 Cash stolen away 3,500 6 Amount received by cheque from debtors 5,000 7 Paid to creditors by cheque 5,000 8 Goods sold on credit (Cost price ₹ 4,000) 5,000 9 Goods withdrawn for personal use 1,000 10 Interest allowed on capital 2,500 11 Received commission 2,500

Q10. Show the accounting equation from the following transactions and prepare a Balance Sheet on the basis of last equation:

Q11. Give an example for each of the following transactions on the basis of accounting equations: (a) Increase in one asset, decrease in another asset (b) Increase in assets as well as liability simultaneously (c) Increase in asset as well as capital simultaneously (d) Decrease in asset and decrease in liability (e) Decrease and increase in capital only.

Q12. Give an example for the following transactions on the basis of accounting equations: (a) Increase in asset and increase in capital. (b) Increase in one asset and decrease in another asset. (c) Increase in asset and increase in liability.

Q13. Solve the following: (a) If capital of the business is ₹ 1,25,000 and outside liabilities are ₹ 25,000. Calculate total equity of business. (b) If the total assets of the business are ₹ 2,50,000 and net worth (capital) is ₹ 1,75,000. Calculate creditor's equity. (c) If total assets of the business are ₹ 2,25,000 and outside liabilities are ₹ 1,00,000. Calculate owner's equity.

Q14. Jagat started a business on 1st April, 2017 with a capital of ₹ 4,00,000. On 31st March, 2018 his assets were worth ₹ 9,60,000 and liabilities ₹ 3,20,000. Find out his closing capital and profit earned during the year:

Q15. On 31st March 2018, the total assets and outside liabilities were ₹ 3,00,000 and ₹ 1,40,000 respectively. During the year, the owner had introduced additionally worth ₹ 30,000 and withdrawn ₹ 60,000 for personal use. He made a profit of ₹ 40,000 during the year. Find out his opening capital.

Q16. Tamanna Khurana started a boutique on 1st April, 2017 by investing ₹ 4,50,000 in cash and took a loan of ₹ 1,50,000 from the bank. On 31st March 2018, her assets were ₹ 9,00,000 and trade creditors were ₹ 30,000 (other than bank loan). Find out her capital on 31st March, 2018 and profit earned during the year.

Q17. Gaurav Started a business on 1st April, 2016 by investing ₹ 75,000 and took a loan from bank of ₹ 75,000. On 1st Oct., 2016, he introduced additional capital of ₹

75,000 and had withdrawn ₹ 45,000 during the year for domestic purpose. On 31st March, 2017, his assets were ₹ 3,75,000. Find out her capital on 31st March, 2017 and profit earned during the year.

Q18. You are required to fill in the blanks in the following table:

Case	Opening Capital (₹)	Additional Capital introduced during the year (₹)	Drawings made during the year (₹)	Profit or loss during the year (₹)	Closing Capital (₹)
1	50,000	10,000	8,000	30,000	?
2	90,000	22,500	18,000	?	1,20,000
3	1,60,000	40,000	?	24,000	1,74,000
4	1,75,000	?	50,000	20,000	1,82,500
5	?	30,000	45,000	(18,000)	1,62,000

Q19. On 31st March, 2018, the total assets and outside liabilities were ₹ 45,000 and ₹ 21,000 respectively. During the year, the owner had introduced additional capital of ₹ 4,500 and withdrawn ₹ 9,000 for personal use. He made a profit of ₹ 6,000 during the year. find out his opening capital.

Q20. Calculate total equity if: (a) Owner's equity in the beginning is ₹ 24,000 (b) Creditor's equity at the end is ₹ 20,000 (c) Revenue (income) during the period is ₹ 28,000. (d) Expenses during the same period are ₹ 26,000 Also calculate owner's equity at the end

Ans: Owner's equity (Closing capital) ₹ 26,000; Total equity ₹ 46,000.

Q21. Activity : Tick (ü) the appropriate one:

Items	Current Assets	Non-Current Assets	Current Liabilities	Non-Current Liabilities
Machinery				
Sundry Creditors				
Cash at Bank				
Goodwill				

Bills Payable				
Land & Building				
Furniture				
Computer Software				
Motor Vehicles				
Inventory				
Investments				
Loan from Bank				
Sundry Debtors				
Patents				
Air-Conditioners				
Loose tools				

Q22. Mr. Sunrise started a business for buying and selling of stationery with Rs. 5,00,000 as an initial investment. Of which he paid Rs.1,00,000 for furniture, Rs. 2,00,000 for buying stationery items. He employed a sales person and clerk. At the end of the month he paid Rs.5,000 as their salaries. Out of the stationery bought he sold some stationery for Rs.1,50,000 for cash and some other stationery for Rs.1,00,000 on credit basis to Mr.Ravi. Subsequently, he bought stationery items of Rs.1,50,000 from Mr. Peace. In the first week of next month there was a fire accident and he lost Rs. 30,000 worth of stationery. A part of the machinery, which cost Rs. 40,000, was sold for Rs. 45,000.

From the above, answer the following :

1. What is the amount of capital with which Mr. Sunrise started business.
2. What are the fixed assets he bought?
3. What is the value of the goods purchased?
4. Who is the creditor and state the amount payable to him?
5. What are the expenses?
6. What is the gain he earned?

7. What is the loss he incurred?
8. Who is the debtor? What is the amount receivable from him?
9. What is the total amount of expenses and losses incurred?
10. Determine if the following are assets, liabilities, revenues, expenses or none of the these: sales, debtors, creditors, salary to manager, discount to debtors, drawings by the owner.

Q23. Short Answers

- Define accounting.
- State the end product of financial accounting.
- Enumerate main objectives of accounting.
- Who are the users of accounting information.
- State the nature of accounting information required by long-term lenders.
- Who are the external users of information?
- Enumerate information needs of management.
- Give any three examples of revenues.
- Distinguish between debtors and creditors; profit and gain
- 'Accounting information should be comparable'. Do you agree with this statement. Give two reasons.

Q24.

- 'The accounting concepts and accounting standards are generally referred to as the essence of financial accounting'. Comment.
- Why is it important to adopt a consistent basis for the preparation of financial statements? Explain.
- Discuss the concept-based on the premise 'do not anticipate profits but provide for all losses'.
- What is matching concept? Why should a business concern follow this concept? Discuss.
- What is the money measurement concept? Which one factor can make it difficult to compare the monetary values of one year with the monetary values of another year?

Q25. ACTIVITY BASED

Activity 1

Ruchica's father is the sole proprietor of 'Friends Gifts', a firm engaged in the sale of gift items. In the process of preparing financial statements, the accountant of the firm Mr. Goyal fell ill and had to proceed on leave. Ruchica's father was urgently in need of the statements as these had to be submitted to the bank, in pursuance of a loan of Rs. 5 lakh applied for the expansion of the business of the firm. Ruchica who is studying

Accounting in her school, volunteered to complete the work. On scrutinising the accounts, the banker found that the value of building bought a few years back for Rs. 7 lakh has been shown in the books at Rs. 20 lakh, which is its present market value. Similarly, as compared to the last year, the method of valuation of stock was changed, resulting in value of goods to be about 15 per cent higher. Also, the whole amount of Rs. 70,000 spent on purchase of personal computer (expected life 5 years) during the year had been charged to the profits of the current year. The banker did not rely on the financial data provided by Ruchica. **Advise Ruchica for the mistakes** committed by her in the preparation of financial statements in the context of basic concepts in accounting.

Activity 2

A customer has filed a suit against a trader who has supplied poor quality goods to him. It is known that the court judgment will be in favour of the customer and the trader will be required to pay the damages. However, the amount of legal damages is not known with certainty. The accounting year has already been ended and the books are now finalised to ascertain true profit or loss. The accountant of the trader has advised him not to consider the expected loss on account of payment of legal damages because the amount is not certain and the final judgment of the court is not yet out. **Do you think the accountant is right in his approach.**

Q26. Power point presentation

Prepare a ppt. on scope of Accountancy (at least 10 slides). Submit it in a CD/DVD.

Q27. Educational Excursion and Project

Visit any Commercial Bank during the vacation. Make a report realm of Accountancy & types of work which you observed there. Make a report file with contents not more than 7-8 pages. The content should be informative and interesting. You will be pasting the pictures of your visit to the Bank in your project file.

BUSINESS STUDIES

- _ Project Work:

Students you are required to collect the information on any one topic out of the following for the 'Project Work'.

- 1) "Find out from local sample business units the various objectives they pursue".
- 2) "Problems of setting up and Running business units".
- 3) "Survey of popularity of credit cards issued by different banks".
- 4) "Study of profile of a Sole Trader/Partnership.
- 5) Visit to an Industry (Field Study)

Students are required to collect the following information:

- a) Nature of the business organization.
 - b) Determinants for location of business unit.
 - c) Form of business enterprise: Sole Proprietorship, Partnership or Company
 - d) Different stages of production.
 - e) Auxiliaries involved in the process.
 - f) Workers employed method of wage payment, training programmes and facilities available.
 - g) Social responsibilities discharged towards workers, investors, society, environment and government.
 - h) Levels of management.
 - i) Code of conduct for employers and employees.
 - j) Capital structure employed- borrowed v/s owned.
 - k) Subsidies available/availed.
 - l) Safety measures employed.
 - m) Storage of raw material and finished goods.
 - n) Waste Management.
 - o) Any other observation.
- 6) Visit to a Mall (Field Study)
- a) Number of floors, shops occupied and unoccupied.
 - b) Nature of shops, their ownership status.
 - c) Nature of goods dealt in: local brands, international brands.
 - d) Service business shops- Spas, gym, saloons etc.
 - e) Rented spaces, owned spaces.
 - f) Different types of promotional schemes.
 - g) Special attractions of the Mall- Food court, Gaming zone or cinema etc.
 - h) Innovative facilities

- i) Parking facilities.
- j) Any other information.

8) Visit to a Wholesale market: vegetables/ fruits/ flowers/ grains / garments etc (Field Study)

Students are required to observe the following:

- a) Sources of merchandise.
- b) Local market practices.
- c) Any linked-up businesses like transporters, packagers, moneylenders, agents etc.
- d) Nature of goods dealt in.
- e) Types of buyers and sellers.
- f) Mode of the goods dispersed, minimum quantity sold, types of packaging employed.
- g) Factors determining the price fluctuations.
- h) Seasonal factors (if any) affecting the business.

9) Visit to a Handicraft Unit (Field Study)

Students are required to observe the following:

- a) The raw material and the processes used in the business: People/ Parties/ Firma from which they obtain their raw material.
- b) The market, the buyers, the middlemen, and the areas covered.
- c) The countries to which the exports are made.
- d) Mode of payment to workers , purchasers etc.
- e) Working conditions.
- f) Modernization of the process over a period of time.
- g) Facilities, security and training for the staff and the workers.
- h) Subsidies available / availed.

i) Any other aspect which deems fit.

10) Project can be on types of insurance and insurance policies available.

11) Import / Export procedure in detail.

Presentation and submission of the Project Report

- Following essentials are required to be fulfilled for its preparation and submission.
 - 1) The total project will be in a file format.
 - 2) The project will be handwritten.
 - 3) The project will be presented in a neat folder.
 - 4) The project report will be developed in the following sequence-
 - Cover page should project the title, student information, school and year.
 - List of contents.
 - Acknowledgements and certificate.
 - Introduction.
 - Topic with suitable heading
 - Planning and activities done during the project if any.
 - Observations and findings while conducting the project.
 - Conclusions
 - Appendix (if needed).

Note:

You are all required to complete the regular assignments given in class.

SOCIOLOGY

Activity 1

Prepare a brief report and describe the family structure of the Khasi tribe.

Activity 2

Make a Power Point presentation and show how “space” of the urban area plays

An important role in the functioning of the Lockdown.

HISTORY

PROJECT WORK IN HISTORY FOR CLASSES XI

History is one of the most important disciplines in school education. It is the study of the past, which helps us to understand our present and shape our future. It promotes the acquisition and understanding of historical knowledge in breadth and in depth across cultures. The course of history in senior secondary classes is to enable to students to know that history is a critical discipline, a process of enquiry, a way of knowing about the past rather than just a collection of facts. The syllabus helps them to understand the process, through which a historian collects, chooses, scrutinizes and assembles different types of evidences to write history. The syllabus in class-XI is organized around some major themes in world history.

CBSE has decided to introduce project work in history for classes XI and XII in 2013-14 as a part of regular studies in classroom, as project work gives students an opportunity to develop higher cognitive skills. It takes students to a life beyond text books and provides them a platform to refer materials, gather information, analyse it further to obtain relevant information and decide what matter to keep and hence understand how history is constructed.

OBJECTIVES: - Project work will help students:-

To develop skills to gather data from a variety of sources investigate diverse viewpoints and arrive at logical deductions.

To develop skills to comprehend, analyse, interpret, evaluate historical evidence and understand the limitations of historical evidence.

- To develop 21st century managerial skills of co-ordination, self-direction and time management.
- To give a multidisciplinary approach to topics.
- To learn to work on diverse cultures, races, religions and lifestyles.
- To learn through constructivism a theory based on observation and scientific study.
- To inculcate a spirit of inquiry and research.

- To communicate data in the most appropriate form using a variety of techniques.
- To provide greater opportunity for interaction and exploration.
- To understand contemporary issues in context to our past.

THEMES IN WORLD HISTORY

Topics:

- The Legacy of Mesopotamia civilization with special reference town planning, Script and Writing system, Mathematics, Astronomy, Science and their calendar.
- The Roman Empire with special reference to Architecture, government and society.
- The Islamic Land with special focus on religion, politics and their contribution to the world.
- Role of Genghis Khan in establishing nomadic empire.

NOTE:

- ❖ The project work is to be done individually.
- ❖ Each child to select one topic.
- ❖ Each student to have a separate project file.
- ❖ The project should be minimum of 40-50 pages each.
- ❖ Use colourful sheets for the work and spiral binding.
- ❖ Each group has to prepare Power point presentation related to their topic.
- ❖ The groups can present role play, drama, songs, bulletin board, poem related to the topic.
- ❖ The project should be totally research based and should be referenced.
- ❖ The project must be neat and well-presented and must be completely handwritten.
- ❖ The topic must be first approved by the teacher.
- ❖ The project should be done on inter leaf A-4 sized sheets.

- ❖ Students have to preserve the initial draft of the project as well as any research papers that they may have used. (To be attached at the end of the project)

Revise and write all the assignments of the chapters done in the class.

FINAL PRESENTATION/LAYOUT OF THE PROJECT

Section 1: History Project (Title of the Project)

Name: School: Year: Roll no.:

Section 2: Certificate of authenticity (To be pasted)

Teacher's Signature

Section 3: Index

Section 4: Acknowledgement (Acknowledging the institution , the place visited and the person who has helped.)

Section 5: Preface: Problem Statement/Objective of the project

Section 6: Introduction: (Objective/learning outcomes of the project. Introduce the selected topic by giving some historical background)

Section 7: Summary of the topic Activities done during the project

Section 8: Observations and Analysis

Section 9: Conclusion Summarized suggestions of findings/Future scope of study

Section 10: Appendix Person consulted, Bibliography, Books, Websites, Films/ Television referred.

Section 11: Values and Life skills learned through the project

Section 12: Draft Thank you.

ECONOMICS

1. Explain the difference and relation between marginal utility and total utility.
2. Explain the conditions of consumer's equilibrium in case of a single commodity. Use utility approach.
3. A consumer has only two goods. Explain his equilibrium with the help of utility approach.

4. A consumer consumes only two goods. For a consumer to be in equilibrium why must marginal rate of substitution be equal to the ratio of prices of these two goods? Is it enough to ensure equilibrium?

OR

Why is the consumer in equilibrium when he buys only that combination of the two goods that is shown at the point of tangency of the budget line with an indifference curve?

OR

Define consumer's equilibrium. Explain its conditions under indifference curve analysis.

5. Define a budget line. Explain why it is a straight line.
6. Explain the concepts of (i) marginal rate of substitution and (ii) budget line equation with the help of numerical examples.
7. What are monotonic preferences? Explain why is an indifference curve
 - (i) downward sloping from left to the right and
 - (ii) convex.
8. Explain the three properties of indifference curves.
9. Giving reasons state whether the following statements are true or false?
 - (i) Marginal utility can never be negative.
 - (ii) A budget set is the collection of all bundles of goods that consumer wants to buy.
10. Explain the concept of Marginal Rate of Substitution and its behaviour in the Indifference Curve analysis. Use schedule.
11. Answer the following:
 - (i) Meaning and equation of budget line.
 - (ii) Meaning and equation of budget set.
 - (ii) Meaning of indifference map.
12. Explain the factors that affect the market demand for a commodity.
13. Distinguish between demand by an individual consumer and market demand of a good. Also state the factors leading to fall in demand by an individual consumer.
14. State and explain the law of demand with the help of a demand schedule and a curve.
15. Explain the inverse relationship between the price of a commodity and its demand.
16. Explain how the market demand curve is derived from the individual demand curves.
17. Explain the effect of the following on the demand for a good
 - (i) Rise in the income
 - (ii) Rise in the prices of related goods.
18. Explain with the help of diagrams the effect of the following changes on the demand of a commodity:
 - (i) Fall in the price of substitute good

- (ii) Fall in income of its buyers.
19. Explain with the help of diagrams the effect of the following changes on the demand of a commodity:
- (i) An unfavourable change in taste of the buyer for the commodity.
 - (ii) A fall in the income of its buyer, if the commodity is inferior.
20. Explain With the help of diagrams the effect of the following changes on the demand of a commodity.
- (i) Arise in the price of complementary goods.
 - (ii) A rise in the price of substitute goods.
21. What is the impact of the following on the demand curve for good X? Give reasons:
- (a) Consumer's income falls and good X is a normal good.
 - (b) Consumer's income falls and good X is an inferior good.
 - (c) Price of complementary good Y rises.

PSYCHOLOGY

1. Prepare the project on '**Research Methods in Psychology**'.
2. Complete the written work of Chapter -2 including the extra questions (already given).
3. Prepare a file collecting all the articles and news related to Psychology. (PPT also can be prepared)
4. Prepare a file writing the contribution of different Psychologists along with their theories and pictures.(PPT also can be prepared)
5. Complete the Scholastic activities given for each chapter.
6. Write a report on your summer Internship. (Typed)

ASSIGNMENTS

CHAPTER – 1 WHAT IS PSYCHOLOGY?

Assignment 01

1. Define psychology and explain different fields or scope of Psychology.
2. What is behaviour? Give examples of overt and covert behaviour?
3. Give a brief account of the evolution of Psychology.
4. Differentiate between (a) a psychiatrist and a psychologist (b) a counsellor and a clinical psychologist.
5. What is introspective method?
6. What is Gestalt Psychology?
7. Explain main fields of specialization in psychology.
8. Is psychology a natural or social science?

9. 'Psychology refers to the scientific study of human behaviour.' Explain the nature of Psychology by giving examples.
10. How does the working of the brain affect the behaviour of a person? Justify by giving examples.
11. Differentiate between: (a) functionalism and structuralism (b) behaviourism and Gestaltist .
12. Explaining the important features of behaviourism describe the changes that were brought about because of this school of Psychology in the discipline.
13. What role does Humanistic view play in the development of an individual's self and why?
14. How does Developmental Psychology play an integral role in the various stages of life of an individual?
15. Differentiate between clinical and counselling Psychology?
16. How is Psychology becoming an integral part of various other fields and disciplines? Explain with the help of any 3 examples.
17. What similarities do health and community psychologists share in the development and betterment of society?
18. What are the various opportunities that a person from the Psychology background has to build up his career?

LESSON- WHAT IS PSYCHOLOGY?

CH-1

HOME ASSIGNMENT 02

Q1- Define the term 'psychology'. (1) Q2-

Explain the term 'psychology'. (3)

Q3- What are the two kinds of behaviours? Explain with the help of examples. (2)

Q4- Discuss the status of psychology as a discipline. (3) Q5- Answer

these:

(i) What is hypothetico-deductive model? (1)

(ii) What is a 'theory'? (2)

Q6- Explain briefly how psychology is viewed as a social science. (2)

Q7- Define the term 'psychoneuroimmunology'. (1) Q8- Write

short notes on the following: (3 marks each)

- (i) Structuralism
- (ii) Functionalism
- (iii) Gestalt psychology
- (iv) Behaviourism
- (v) Cognitive psychology

Q9- Briefly explain the terms: (1 or 2 marks)

- (i) Psychoanalysis
- (ii) Humanistic psychology
- (iii) Constructivism

Q10- Write short notes on the following: (3 marks each)

- (i) Cognitive psychology
- (ii) Biological psychology
- (iii) Developmental psychology
- (iv) Industrial psychology
- (v) Educational psychology

Q11- Briefly explain the following branches of psychology: (2 marks each)

- (i) Social psychology
- (ii) Cross-cultural and cultural psychology
- (iii) Environmental psychology
- (iv) Health psychology
- (v) Educational psychology
- (vi) Sports psychology

Q12- Differentiate between the two: (2 marks each)

- (i) Psychiatrist and clinical psychologist
- (ii) Clinical psychologist and counselor

Q13- Explain the following statements: (3 marks each)

- (i) Psychology like other sciences attempts to develop principles of behaviour and mental processes.
- (ii) Human behaviour is a function of attributes of persons and environment.
- (iii) Human behaviour is caused.

Q14- Fill in the blanks:

- (i) In studying brain and behaviour, psychology shares its knowledge with _____, _____, _____, _____ and _____.
- (ii) In studying human behaviour, in a socio-cultural context, psychology shares its knowledge with _____, _____, _____, _____.

Q15- How is psychology related to economics, political science and sociology? (3)

Q16- How is psychology related to law and criminology? (2) Q17-How is psychology related to medicine? (2)

Q18- Give the roles of the following: (3 marks each)

- (i) Clinical psychologist
 - (ii) Counselling psychologist
 - (iii) Community psychologist
 - (iv) School psychologist
- Organisational psychologist

LESSON – METHODS OF ENQUIRY IN PSYCHOLOGY

CHAPTER -2

HOME ASSIGNMENT

Q1- A researcher is studying the relationship between speed of cycling and the presence of people. Formulate a relevant hypothesis and identify the independent and dependent variables. (2 MARKS)

Q2 – Define the following terms: (1 marks each) **(IMPORTANT)**

- (i) Hypothesis
- (ii) Observation
- (iii) Experiment
- (iv) Correlation
- (v) Interview
- (vi) Questionnaire
- (vii) Survey
- (viii) Variable
- (ix) Psychological test
- (x) Case study

Q3 – Describe the goals of psychological enquiry. (6 marks) (NCERT)

Q4 – What are the two characteristics of scientific research? Explain. (2marks)

Q5 – What are the steps involved in conducting scientific research? Explain. (4 marks)

(NCERT)

Q6 – What are the different types of psychological data? (4 marks) (NCERT)

Q7 – What is observational method for conducting a research in psychology?

How is scientific observation different from day-to-day observation? Explain.
(4marks)

Q8 – What is the difference between non-participant and participant observation? Explain with the help of examples. (3 marks)

Q10 – Give one advantage and three disadvantages of observation method. (2 marks)

Q11 – Answer these:

- (i) What is experimental method? (2 marks)
- (ii) What is an experimental group? How is it different from control group? Explain with the help of examples. (3 marks)
- (iii) What is dependent variable? Give example. (2 marks)
- (iv) What is independent variable? Give example. (2 marks)
- (v) What are the three variables, apart from independent variable, that influences the dependent variable? Give examples of each. (3 marks)
- (vi) Name any two control techniques that researchers use. (2 marks)
- (vii) What are the three limitations of experimental method? (3 marks)
- (viii) Differentiate between field experiments and quasi experiments. Give suitable examples. (4 marks)

Q12 – Identify the independent and dependent variable from the given hypothesis: (2 marks)

- (a) As the amount of caffeine intake increases the attentional capacities decrease.
- (b) Level of anxiety will increase as the competition increases.

Q13 – What is a correlational research? What are the different types of correlation coefficient? (4 marks)

Q14 – Survey research uses different techniques for collecting information. The techniques are _____, _____, _____ and _____. (2marks)

Q15 – What is an interview? Explain the two types of interviews. (3marks) Q16 –

What are the different interview situations? (2 marks)

Q17 – How is survey done using a questionnaire? (3marks)

Q18 – Give two advantages and six limitations of telephone survey. (3marks) Q19 –

Give at least four uses of psychological tests. (2marks)

Q20 - Differentiate between questionnaire and interview. (2marks) (NCERT)

Q21 – Explain the characteristics of standardized test. (4 marks) (NCERT)
(IMPORTANT)

Q22 – Differentiate between the following:

- (i) Verbal, non-verbal and performance tests (3 marks)
- (ii) Individual and group tests (3 marks)
- (iii) Speed and power tests (2 marks)

Q23 – What is a case study? (3 marks) Q25

– What is informed consent? (1 mark)

Q24- Identify the most appropriate method of enquiry for the following research problems. (5 marks)

- (i) Does noise influence the problem solving ability of the people?
- (ii) Should there be a dress code for college students?
- (iii) Studying the attitude of students, teachers and parents towards homework.
- (iv) Tracing the major life events of your favourite leader.
- (v) Assessing the anxiety level of class XI students of your school.

ASSIGNMENT NUMBER – 2

CHAPTER – 2 METHODS OF ENQUIRY IN PSYCHOLOGY

Q1. What are the goals of Scientific enquiry?

Q2. Describe the various steps involved in conducting a scientific enquiry.

Q3. Explain the nature of psychological data.

Q4. How do experimental and control group differ? Explain with the help of an example.

Q5. Discuss the strengths and weaknesses of experimental method as a method of enquiry.

Q6. Describe the limitations of psychological enquiry.

Q7. Define case study. What are the characteristics of case study method?

Q8. Give four techniques to control extraneous variables.

Q9. Define Reliability. What are its two types ?Explain in brief.

Q10. Give difference between field experiment and quasi experiment.

11. What are the goals of psychological enquiry? Give examples.

12. With the help of a diagram explain the steps of a scientific research.

13. Define the following terms: (a) objectivity (b) sample (c) data (d) population (e) hypothesis
14. Explain the steps and procedure of a scientific research.
15. What are the various types of data or information that is collected in psychological enquiry?
16. Differentiate between: (a) naturalistic and controlled observation (b) participant and non participant observation (c) control and experimental group
(i) Give examples in support of your answer (ii) Write the advantages and disadvantages of the above
17. Explain the cause and effect relationship that occurs between the variables in experimental method.
18. What are the various designs the experimental psychologists use while performing a research?
19. Explain the important aspects of co relational research defined the characteristic in detail.
20. Differentiate between a survey and interview

FASHION STUDIES

1. Give a brief Introduction, U.S.P. and Labels of following Indian designers:

- | | |
|------------------------------|-------------------------|
| 1. Abu Jani & Sandeep Khosla | 2. Anamika Khanna |
| 3. Anita Dongre | 4. Ashish Soni |
| 5. Gauri & Nainika Karan | 6. Jatin Kochhar |
| 7. J.J. Valaya | 8. Manish Arora |
| 9. Manish Malhotra | 10. Manoviraj Khosla |
| 11. Mandira Wirk | 12. Monapali |
| 13. Namrata Joshipura | 14. Niki Mahajan |
| 15. Pooja Nair | 16. Raghuvendra Rathore |
| 17. Ranna Gill | 18. Rina Dhaka |
| 19. Ritu Beri | 20. Ritu Kumar |
| 21. Rocky S. | 22. Rohit Bal |

23. Sabyasachi Mukherjee

24. Satya Paul

25. Tarun Tahilani

Give a detailed profile of any two designers. Supplement your report with pictures of designer's collection.

2. Prepare a Learning Diary on any creative theme. The diary should have following boards on A3 size.

- Mood Board
- Inspiration Board
- Design Board
- Swatch Board
- Colour Board
- Silhouettes

3. Show your skills in making a figurative Kalamkari painting on A3 size. Give a brief description about the art also.

PHYSICAL EDUCATION

1. Complete notes in the notebook upto lesson 4.

2. Make chart of anyone of the sports awards taught to you.

3. Make chart on Olympics.
