

Please check whether you have got the right question paper.

- N.B:
1. All questions are compulsory.
  2. Answer all sub questions together.
  3. Draw neat labeled diagram wherever necessary.

Q.1 a) Answer the following.

12

- i) Give functions of blood.
- ii) Write down types of hypersensitivity reaction.
- iii) Write functions of connective tissue with one example.
- iv) Explain up-hill process of transport.
- v) Explain role of histamine in inflammation.
- vi) What is polycythemia Vera?

b) Answer the following.

03

- i) Deficiency of \_\_\_\_\_ vitamin causes pernicious anemia.
- ii) \_\_\_\_\_ hormone increases the rate of production of red blood cells.
- iii) Kleakness in the voluntary skeletal muscles is a main symptom of \_\_\_\_\_.

Q.2 a) Answer any Two of the following:

08

- i) Explain the process of erythropoiesis.
- ii) Write down the functions of platelets and discuss the clinical significance of thrombocytopenia.
- iii) Write a note on Leukocytopenia.

b) Answer any ONE of the following:

03

- i) Write the process of Hemostasis.
- ii) Write a note on: Hypersensitivity reactions.

Q.3 a) Answer any TWO of the following.

08

- i) Compare & contrast between Cardiac muscle & skeletal muscle.
- ii) Explain organization of skeletal muscle fiber with a suitable diagram.
- iii) Write a note on: Smooth muscle.

b) Answer any ONE of the following.

03

- i) Explain what are the sources of energy for skeletal muscle contraction
- ii) Write a note on: Properties of Cardiac muscle.

Q.4 a) Answer any TWO of the following

08

- i) Enlist organs of Lymphatic system, add a note on Lymph formation and lymph nodes.
- ii) Draw a neat labeled diagrams of spleen and write its functions
- iii) Write a note on Rheumatic arthritis

b) Answer any ONE of the following:

- i) Write a note on autoimmune diseases
- ii) State location, functions of simple Cuboids epithelium and support you answer with well labeled diagram

03

Q.5 a) Answer any TWO of the following:

- i) Draw fluid mosaic design of plasma membrane. Explain the functions & transport across the plasma membrane.
- ii) Write a note on:  $\text{Na}^+$  -  $\text{K}^+$  ATPase pump.
- iii) Discuss the process of chronic inflammation.

08

b) Answer any ONE of the following:

- i) Explain the process of cell mediated immunity.
- ii) Explain the steps of coagulation of blood

03

Q.6 a) Answer any TWO of the following:

- i) Explain hemolytic disease of the new born.
- ii) Explain various mechanism of diffusion.
- iii) Differentiate between white fibers & yellow fibers of connective tissue.

08

b) Answer any ONE of the following.

- i) Write a note on Tissue repair
- ii) Write a note on inflammatory mediators.

03

## SLL - PP - I

Q.P. Code :00582

[Time: Three Hours]

[Marks:70]

Please check whether you have got the right question paper.

- N.B:
1. All questions are compulsory.
  2. Draw neat labelled diagrams whenever necessary.

- Q.1
- a) Give the structure, Properties and significance of liquid Crystals. (03)
  - b) Define Specific rotation and give its application in pharmacy. (02)
  - c) What is the freezing point of a solution containing 3.42gm of sucrose and 500gm of water? The molecular weight of sucrose is 342. In this relatively dilute solution, value of  $K_f = 1.86$  (03)
  - d) Define the following: (04)
    - i) Isothermal process
    - ii) Adiabatic Process
    - iii) Isobaric Process
    - iv) Isochoric Process
  - e) Discuss the variation of equivalent conductance with dilution. (03)
- Q.2
- a) Explain the principle and method of liquefaction of gases by Claude's method. (04)
- OR
- Explain the Principle behind liquefaction of gases and write a note on aerosols.
- b) Define dipole moment. How can it be used in elucidation of molecular Structure? (03)
  - c) i) State and explain Kirchoff's equation. (04)
  - ii) Write a short note on-Bond Energy.
- Q.3
- a) Justify – 'Relative lowering of vapor pressure is a colligative property'. (04)
  - b) Define entropy and write its significance. Calculate the increase in entropy when one gram molecular weight of ice at  $0^\circ\text{C}$  melts to form water. Latent heat of fusion of ice = 80 calories. (04)
- OR
- Give the various statements of second law of thermodynamics and discuss efficiency of heat engine.
- c) What is the effect of dilution of a weak electrolyte on specific and equivalent conductance? (03)
- Q.4
- a) Discuss critical Phenomenon and define various critical constants. (04)
  - b) Define molar refraction. Discuss applications of Abbe's refractometer. (03)
  - c) Describe any one method to determine depression in freezing point as a colligative property. (04)
- OR
- Explain a method to determine the molecular weight of a solute by elevation in boiling point.

- Q.5 a) Write a short note on polymorphism. (04)
- b) What is osmosis? Explain Berkley and Hartley's method for measurement of osmotic pressure. (04)
- c) Define : Heat of fusion (03)  
Heat of combustion  
Heat of solution

OR

Explain Hess's law of constant heat summation.

- Q.6. a) Calculate the pressure of 1 mole of  $\text{CO}_2$  gas in a container of 2 liter capacity at  $27^\circ\text{C}$  using the ideal gas equation and Van der Waal's equation. (03)
- $a = 3.608 \text{ lit}^2 \text{ atm/mole}^2$   
 $b = 0.0428 \text{ lit/mole}$   
 $R = 0.0821 \text{ lit atm/K mole}$
- b) Write a note on Azeotropic distillation. (03)
- c) Write a note on Gibb's free energy (03)
- d) State the postulates of Arrhenius theory of electrolytic dissociation. (02)