17222

21314

3 Hours/100 Marks

Seat No. | | | | | | | | |

Instructions : *(1)* ***All*** *questions are* ***compulsory****.*
(2) Answer ***each*** *next main question on a* ***new*** *page.*
(3) Figures to the ***right*** *indicate* ***full*** *marks.*
(4) ***Assume*** *suitable data, if* ***necessary****.*

MARKS

1. Answer **any five** : **(5×4=20)**
   a) Explain with an example, Lewis theory of acids.
   b) i) State value of acidity/basicity of :
      1) Caustic soda 2) Nitric acid
      3) Potassium carbonate 4) Sulphuric acid
      ii) Define Semipermeable membrane. Give two examples.
   c) Describe concept of saturated solution.
   d) Explain role of surfactants in textile wet processing.
   e) Compare/distinguish : oxidation and reduction reaction. Give an example of each.
   f) Explain heat of neutralisation. Give an example and write the reaction involved.
   g) State and explain second law of thermodynamics.

2. Answer **any two** : **(2×8=16)**
   a) i) Distinguish between acids and basis. Give examples.
      ii) Explain calculation to prepare 0.5 N, half litre sulphuric acid. (A.W. H = 1, 'O' = 16, S = 32)
   b) Distinguish between emulsifying agents and dispersing agents. Give examples.
   c) i) Explain use of hydrogen peroxide in textile wet processing.
      ii) Define heat of reaction. State the applications of heat of reactions in textiles.

3. Answer **any two** : **(2×8=16)**
   a) i) Explain with examples, classification of salts.
      ii) Describe use of salts in textile processing.
   b) Describe factors affecting rate of :
      i) diazotisation ii) reactive dyeing of textiles.
   c) i) Explain polyester dyeing at high temperature. **2**
      ii) Describe use of sodium-m-nitro benzene sulphonate as oxidising agent to control hydrolysis of reactive dyes. **6**

P.T.O.

MARKS

4. Answer **any two** : **(2×8=16)**

   a) i) Define pH. Represent a pH scale. **2**

   ii) Explain importance of pH in textile wet processing. **6**

   b) i) Explain with examples, classification of colloids.

   ii) Describe two types of emulsions. Give an example of each.

   c) i) State and explain distribution law. **5**

   ii) Explain any two applications of distribution law. **3**

5. Answer **any two** : **(2×8=16)**

   a) i) Explain factors affecting viscosity.

   ii) State the use of Ostwald's instrument. What are the precautions to be taken in using it ?

   b) i) State and explain law of mass action.

   ii) Explain meaning of the terms :

   1) Rate constant 2) Equilibrium constant

   c) Explain with an example, use of :

   i) Potassium dichromate

   ii) Sodium hypochlorite-in textile wet processing.

6. Answer **any four** : **(4×4=16)**

   a) i) Explain the meaning of adhesive force.

   ii) An aqueous solution has $[H^+] = 10^{-2.5}$. Calculate its p^{OH}. Is the solution acidic or basic ?

   b) Describe principle of reverse osmosis.

   c) Write a reversible reaction. Explain ways, which will favour the reaction in forward direction.

   d) Explain surface tension in relation to angle of contact and spreading.

   e) Explain with an example : Heat of combustion. Write the corresponding reaction.

   f) Explain theory of extraction.
