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Total No. of printed pages = 4

PY 132709 (E1)

Roll No. of candidate

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2019

B.Pharm. 7th Semester End-Term Examination  
ADVANCED PHARMACEUTICAL ANALYSIS

Elective

Full Marks – 100

Time – Three hours

The figures in the margin indicate full marks  
for the questions.

Answer the following questions. Question no 1 is  
compulsory and write any *six* from the rest.

1. (A) Fill in the blanks: (5 × 1 = 5)
- (i) The technique that couples a dynamic light scattering instrument for measurement of proteins and macromolecules is \_\_\_\_\_.
- (ii) \_\_\_\_\_ is commonly used as super critical fluid in super critical fluid chromatography.
- (iii) The exchange capacity of an anion exchanger generally \_\_\_\_\_ with an increase in the pH of the solution.

[Turn over



- (iv) Ampoules are the example of \_\_\_\_\_ packaging materials.
- (v) The equilibrium between the ion exchanger and the solution obeys \_\_\_\_\_ law.

(B) Multiple choice questions: (5 × 1 = 5)

(i) Which of the following statements are correct?

(a) The pH effect on the ion exchange process depend on the chemical composition of the exchanger and the type of exchanger

(b) The exchange capacity of a cation exchanger is generally increased with increasing pH of the solution

(c) The exchange capacity of an anion exchanger decreases with increase in pH of the solution

(d) All are correct

(ii) Which of the following statement is correct?

(a) Increasing the column length will decrease the resolution of size exclusion chromatography

(b) In FPLC the buffer flow rate is controlled by a positive pump and is normally kept constant

(c) In electrophoresis the rate of travel of the particle does not depend upon the nature of the suspended medium

(d) All the above



- (iii) What is the pH range in which strongly basic anion exchanger can be used?
- (a) 1-14                      (b) 1-9  
(c) 1-6                        (d) 7-14
- (iv) When amino acid are separated on ion exchange resins, the following variables are taken in to consideration?
- (a) Choice of ion exchanger  
(b) Type of side chain on the amino acid  
(c) Concentration ionic species in the eluting agent  
(d) All the above
- (v) Cation exchangers with mixed functional groups in occur in the combinations.
- (a) Sulpho acid and hydroxyphenolic  
(b) Sulpho acid and carboxylic  
(c) Carboxylic and hydroxyphenolic  
(d) All are correct

2. (a) Write the principle, instrumentation and application of super critical fluid chromatography? (2 + 4 + 3 = 9)

(b) Write the principle, procedure and application of Kjeldahl method with suitable diagram. (1 + 3 + 2 = 6)

3. (a) Write the principle and instrumentation and application of Differential Scanning Calorimetry? (2 + 3 + 2 = 7)

(b) Classify packaging material with suitable example. Describe finished product reject and recovered materials. (3 + 5 = 8)



4. (a) Write down the concept of GLP. Describe about the laboratory hygiene and safety. (10)
- (b) Write a note on oxygen flask combustion gasometry. (5)
5. (a) Write the principle, instrumentation and application of Size exclusion chromatography. (2 + 4 + 3 = 9)
- (b) Write a note on gel electrophoresis. (6)
6. (a) Write the principle, instrumentation and application of ion exchange chromatography. (2 + 4 + 2 = 8)
- (b) Write notes on (3.5 + 3.5 = 7)
- (i) WHO guide lines for personal hygiene and health.
- (ii) Intermediate and bulk product.
7. Write details about sampling of materials, sampling risk and sampling plans. (15)
8. (a) Write down the principle, instrumentation and application of fast protein liquid chromatography. (10)
- (b) Write a note on diazotisation titration. (5)
9. (a) What are the IPQC tests? Discuss the IPQC problems in pharmaceutical industries. (8)
- (b) Discuss the principle, instrumentation and application of differential thermal analysis. (7)