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RF-3573-74
M. Sc. (Part - II) Examination
April / May - 2010
Physical Chemistry : Paper - II

Time : 3 Hours]

[Total Marks : 70

RF-3573

Instructions :

(1)

नीचे दशावलि निशानीवाणी विगतो उत्तरवडी पर अवश्य लपवी. Fillup strictly the details of signs on your answer book.	Seat No. :
Name of the Examination :	<input type="text"/>
<input type="text" value="M. Sc. (Part - 2)"/>	<input type="text"/>
Name of the Subject :	<input type="text"/>
<input type="text" value="Physical Chemistry : Paper - 2"/>	<input type="text"/>
Subject Code No. : <input type="text" value="3"/> <input type="text" value="5"/> <input type="text" value="7"/> <input type="text" value="3"/>	Section No. (1, 2,.....) : <input type="text" value="1"/>
Student's Signature	

- (2) Attempt all the six questions.
(3) Figures to the **right** indicate full marks.

- 1 (a) Making the use of Fick's laws and Faraday law derive the Ilkovic equation for the mean current. (4)
(b) Describe the polarographic indicators used in amperometric titrations. (4)
(c) Write a note on simple A.C. Polarography. Mention its drawbacks ? (4)

OR

- 1 (a) Explain single sweep and multisweep methods (4)
(b) What is the basic principle of amperometric titrations? Discuss the various titrations using dropping mercury electrode as cathode. (4)
(c) Discuss the polarographic method for the determination of stability constant of a complex compound. (4)
2 (a) Describe the construction and working of TCD used in GC. (4)
(b) Describe the features of the carrier gas used in GC. (4)
(c) Compare LSC and GSC. (4)

OR

- 2 (a) Describe van Deemter equation. Describe the constant A, B and C used in the equation in brief. (4)
(b) Discuss UV and refractive index detectors used in LC. (4)
(c) Explain successive elution and gradient elution technique used in LC. (4)
3. (a) Give properties and application of block copolymer nanoaggregates. (4)
(b) Give brief idea about photon electron spectroscopy (PES). (3)
(c) What is nanotechnology? Write its applications. (4)

OR

3. (a) Give brief idea about auger electron spectroscopy (AES). (4)
(b) Describe about the characterization of block copolymer nanoaggregates. (4)
(c) Write a note on crown ethers. (3)

RF-3574

Instructions :

(1)

नीचे दशांश लिखें निशानीवाणी विगतो उत्तरवही पर अवश्य लिखी. Fillup strictly the details of signs on your answer book.	Seat No. :
Name of the Examination :	<input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>
<input type="text" value="M. Sc. (Part - 2)"/>	<input type="text" value="Student's Signature"/>
Name of the Subject :	
<input type="text" value="Physical Chemistry : Paper - 2"/>	
Subject Code No. : <input type="text" value="3"/> <input type="text" value="5"/> <input type="text" value="7"/> <input type="text" value="4"/>	Section No. (1, 2,.....) : <input type="text" value="2"/>

(2) Attempt all the six questions.

(3) Figures to the **right** indicate full marks.

- 4 (a) What is selectivity constant of an ISE? Describe in brief methods of evaluating selectivities of an ion-selective electrodes (4)
(b) What is meant by ion selective electrode? Classify them. Describe calcium ion selective electrode. (4)
(c) Describe the acid and alkali error in glass electrode. (4)

OR

- 4 (a) Show how does the structure of glass affect the selectivity of glass electrode. (4)
(b) Describe the construction and working of silver sulphide based ion selective electrode. (4)
(c) How urea and glucose can be determined in blood by using enzyme electrode. (4)
- 5 (a) Describe the basic principle and instrument used in AAS (4)
(b) Describe salient features of the emission spectrograph. (4)
(c) Give the basic principle of FES. (4)

OR

- 5 (a) Describe the various interferences in AAS. (4)
(b) What are the two principal types of burners used in flame photometry? Describe their working with neat diagram. (4)
(c) Describe and illustrate two types of sample holders for liquid samples used in emission spectroscopy. (4)
- 6 (a) Explain terms:
Glassy state, glass formers and glass modifiers (3)
(b) Compare smectic and nematic liquid crystals. (4)
(c) Give applications of liquid crystals. (4)

OR

- 6 (a) Describe thermotropic liquid crystals. (4)
(b) Give applications of Langmuir-Blodgett (LB) films. (3)
(c) Write a short note on cholesteric liquid crystals. (4)