BPH101A12

B.Pharmacy (I Semester) Examinations - February, 2016

(Regulation 2012-13)

Regular / Supplementary

Paper-I: Mathematics (Bridge Course)

Time : Three Hours | Maximum Marks: 70

Answer all the questions. All the questions carry equal marks.

1. a) The first and the last term of an A.P. are -4 and 146 and the sum of the A.P. is 7171. Find the number of terms in the A.P. and the common difference.
   b) What is the coefficient of $x^{12}\ y^{13}$ in the expansion of $(2x-3y)^{25}$?

   (OR)

   c) Show that $\begin{vmatrix} bc & b+c & 1 \\ ca & c+a & 1 \\ ab & a+b & 1 \end{vmatrix} = (a-b)(b-c)(c-a)$
   d) Solve the equations 2x+y-z=1, x-y+z=2,5x+5y-4z=3 by Cramer's rule.

2. a) Show that points (-1,7), (3,-5), (4,-8) are collinear.
   b) Find the equation of the locus of a point which is at a distance of 5 units from (4, -3).

   (OR)

   c) Transform the equation 5x-2y-7=0 into i) intercept form and ii) normal form
   d) Find the value of k, if the angle between the straight lines 4x-y+7=0 and kx-5y-9=0 is 45^0.

3. a) If f(x) = sin(logx) (x>0) find $f^1(x)$.
   b) If $x^3+y^3=3axy$, find $\frac{\partial y}{\partial x}$

   (OR)

   c) If $y=e^t+\cos t$, $x=\log^t+\sin t$ then find $\frac{\partial y}{\partial x}$
   d) If $y=x^x (x>0)$ then find $\frac{\partial y}{\partial x}$

4. a) Is the function f, defined by $\int(x) = \begin{Bmatrix} x^2 & if\ x \le 1 \\ x & if\ x > 1 \end{Bmatrix}$
   b) Compute $\lim_{x \to \bowtie} \sqrt{x+1} - \sqrt{x}$

   (OR)

   c) Check whether the following function is differentiable at zero
   $\int(x) = \begin{Bmatrix} 3+x & if\ x \ge 0 \\ 3-x & if\ x < 0 \end{Bmatrix}$
   d) Find the minimum value of $f(x)=4x^2-4x+11$, for any x in IR.

5. a) Evaluate $\int e^x \sqrt{1+e^x}\ dx$
   b) Evaluate $\int \frac{2x+5}{x^2+5x+6}\ dx$

   (OR)

   c) Find the order and degree of the differential equation $\frac{d^2y}{dx^2} = \left[y + \left(\frac{\partial y}{\partial x}\right)^6\right]^{1/4}$
   d) Define Laplace transformation and write its uses.

BPH101B12

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Regular / Supplementary

Paper-I: Biology (Bridge Course)

Time : Three Hours | Maximum Marks: 70

Answer all the questions. All the questions carry equal marks.

1. Discuss about various phases of mitosis.
   (OR)
   Mitosis ?

2. Describe the structure and life history of bacteria.
   (OR)
   Yeast ?

3. Discuss about taxonomic features and medicinal importance of Family Solanaceae.
   (OR)
   Family umbelliferae?

4. Discuss in detail about inflorescence.
   (OR)
   Write about different types of fruits with suitable examples.

5. Describe the structure and physiology of Amoeba and Entamoeba.
   (OR)
   Ascaris and Paramecium ?

BPH10212

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Regular / Supplementary

Paper-II: Pharmaceutical Chemistry-I (Organic-I)

Time : Three Hours Maximum Marks: 70

Answer all questions. All questions carry equal marks (5x14=70)

1. What do you know of inductive effect? Write its importance with examples in organic chemistry.

   (or)

   Give an account of mesomeric effect and its importance.

2. What are 1,2 and 1,4 – addition reactions? Discuss the mechanism and add a note on the stability of conjugated dienes.

   (or)

   What is Markovnikov's rule? Discuss the mechanism with an example. What is peroxide effect? Explain with an example, the mechanism of this effect.

3. How are alcohols prepared in the laboratory?

   (or)

   Discuss the important reactions of alcohols.

4. Write the mechanism and uses of a) Aldol condensation
   b) Perkin reaction

   (or)

   c) Cannizaro reaction
   d) Benzoin condensation

5. What is Claisen condensation? Write its applications in organic synthesis.

   (or)

   What do you know of a) H-V-Z reaction
   b) Williamson's synthesis
   c) Cyanohydrin formation
   d) Reformatsky reaction.

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BPH10412

B.Pharmacy (I Semester) Examinations - February,2016

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Regular / Supplementary

Paper-III: Physical Pharmacy-I

Time : Three Hours | Maximum Marks: 70

1 a) Write about the intermolecular forces of attraction.
b) Explain the postulates of kinetic molecular theory.

Or

2. a) Define phase rule and explain the terms.
b) Explain the two component system with the help of a suitable example.

3. Define first law of thermodynamics and explain its transformation under different thermodynamic conditions.

Or

4. a) Write about free energy functions. 6
b) Define and explain the pharmaceutical applications of optical rotation and optical rotary dispersion. 8

5. a) Define molarity, molality and mole fraction. Mention their applications and limitations. 8
b) An aqueous solution of glycerin 7% by weight is prepared and its solution density is 1.0149 gms./ cc at 20°C. The molecular weight of glycerin is 92.0473 and density is 1.2609 *gms./cc* at 20° C. Calculate the i) molarity b) molality c) percent by volume of glycerin. 6

Or

6. a) Explain the Arrhenius theory of electrolytic dissociation and mention its drawbacks. 8
b) Write about the coefficients for expressing colligative properties. 6

7. a) Write about the modern theories of acids and bases. 8
b) Write about Sorensen's pH scale. 4
c) The hydrogen ion concentration of a fruit juice is 3.3×10^{-2}M. What is the pH of the juice? Is it acidic or basic? 2

Or

8. a) Define buffer and buffer capacity and derive the buffer equation for weak base. 8
b) Write about the biological buffers with suitable examples. 6

9. a) Explain the working of an electro chemical cell. 7
b) Define surface tension and mention its pharmaceutical applications. 7

Or

10. Define viscosity and explain the Poisseullis formula. Explain the experimental determination of viscosity using Ostwald viscometer. What are its limitations? Compare the different viscosities.

BPH10612

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Regular / Supplementary

Paper-IV: Computer Applications and Statistical Methods

Time : Three Hours Maximum Marks: 70

ANSWER ALL QUESTIONS. ALL CARRIES EQUAL MARKS

1. (a) With a suitable block diagram explain the architecture of the computer.

   OR

   (b) Define BASIC and program structure of the BASIC language with an example.

2. (a) Write a short note on
   i) Interpreter
   ii) Expressions
   iii) Constants in BASIC

   OR

   (b) Write a BASIC program to explain the function of WHILE-WEND and FOR-NEXT.

3. (a) What is a conditional and unconditional control structures and explain with an example?

   OR

   (b) Write a C language program to find the prime number.

4. (a) Define analysis and how the analysis plays important role in the Pharmaceutical application?
   (b) What is measurement of central tendency and explain with suitable example?

   OR

   (c) Write a detailed note on accuracy measurement errors.

5. (a) Explain the advantages and disadvantages of Binomial & Sampling distributions.
   (b) Write a detailed note on standard errors.

   OR

   (c) What is regression analysis and regression coefficient and explain with one application?
   (d) With an example explain the Method of least Squares.

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