MANIPAL UNIVERSITY

FIRST YEAR PHARM D. DEGREE EXAMINATION – APRIL/MAY 2013

SUBJECT: PD 1.1: HUMAN ANATOMY AND PHYSIOLOGY

Tuesday, April 30, 2013

Time: 10:00 – 13:00 Hrs.   Max. Marks: 70

✍ Answer all the questions.

✍ Long essays:

1. Define hemostasis and discuss the role of platelets. Explain the intrinsic and extrinsic pathways of blood coagulation.

(3+2+5 = 10 marks)

2. Outline the major events of each phase of uterine cycle, and correlate them with the events of ovarian cycle

(10 marks)

3. Discuss any four functions of hypothalamus. Compare and contrast sympathetic and parasympathetic nervous system.

(4+6 = 10 marks)

4. Short essays:

4A. Explain baroreceptor and chemoreceptor mechanisms of blood pressure regulation.

(5 marks)

4B. Discuss the neural regulations of respiration.

(5 marks)

4C. Explain the absorption of lipids, electrolytes, vitamins, and water by small intestine.

(2+1+1+1 = 5 marks)

4D. Discuss any three functions of kidney. Enumerate the mechanisms of reabsorption and secretion in renal tubules.

(3+2 = 5 marks)

4E. With a flow chart explain the organization of nervous system.

(5 marks)

4F. Describe the functions of glucocorticoids.

(5 marks)

5. Short answers:

5A. What is the function of erythropoietin? Where is it produced?

5B. Define phagocytosis. What are the steps of phagocytosis?

5C. Define neuromuscular junction (NMJ). Which is the neurotransmitter at NMJ?

5D. How lactic acid is generated during the exercise? How it is removed from the muscles and body?

5E. Mention a function each for neutrophil, basophil, astrocytes and lymph.

(2×5 = 10 marks)

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FIRST YEAR PHARM D. DEGREE EXAMINATION – APRIL/MAY 2013

SUBJECT: PD 1.2: PHARMACEUTICS

Friday, May 03, 2013

Time: 10:00 – 13:00 Hrs.   Max. Marks: 70

✍ **Answer all the questions.**

✍ **Long Essay:**

1. With the help of a neat labeled diagram explain Soxhlet apparatus and the process of extraction through it.

2. Explain in detail about the various methods of sterilization of catgut.

3. Define Prescription. Explain various parts and handling of prescription.

(10×3 = 30 marks)

4. **Short Essay:**

4A. Write a note on BP and USP.

4B. Explain Eutectic powder and Explosive powder.

4C. Define syrup. Give the principle involved in the preparation of Simple Syrup IP.

4D. Explain the phenomenon of creaming and cracking of emulsions.

4E. Discuss chemical incompatibility with examples.

4F. What are the advantages and disadvantages of cocoa butter as suppository base?

(5×6 = 30 marks)

5. **Short Answer:**

5A. Define the terms suture and ligature.

5B. Define the term "reserved percolation".

5C. List out various flavoring agents used in liquid oral preparations.

5D. What is the difference between Flocculated and Deflocculated suspensions?

5E. In what proportions should alcohols of 95% and 50% strengths be added to make 70% alcohol?

(2×5 = 10 marks)

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FIRST YEAR PHARM D. DEGREE EXAMINATION – APRIL/MAY 2013

SUBJECT: PD 1.3: MEDICINAL BIOCHEMISTRY

Monday, May 06, 2013

Time: 10:00 – 13:00 Hrs.   Max. Marks: 70

✍ **Answer ALL questions.**

✍ **Long Essays:**

1. Explain the aerobic oxidation of glucose in cytosol. Add a note on its energetics.

2. Explain how the synthesis of hnRNA takes places in a prokaryotic cell. Add a note on post-transcriptional modifications.

3. Explain in detail the following:
    a) Atherosclerosis   b) Obesity

(10×3 = 30 marks)

4. **Short Essays:**

4A. Explain with the help of a graph, the effect of following on enzyme activity:
    i)   Substrate concentration   ii)   Temperature
4B. Give the composition of electrolytes in body fluids. Add a note on osmolality of plasma.
4C. Enlist various kidney function tests. Add a note on Creatinine Clearance Test.
4D. Differentiate active transport from facilitated diffusion.
4E. Explain the various reactions in Krebs-Henseleit cycle.
4F. Classify ELISA techniques. Explain the principle involved in Sandwich ELISA.

(5×6 = 30 marks)

5. **Short answers:**

5A. Give the structures of any two purine bases. Add a note on nucleotide analogs of therapeutic importance.
5B. Aerobic glycolysis yields 8 ATPs, whereas the net ATP generated in anaerobic one is only 2. Justify.
5C. Give the enzyme defect and diagnosis for Phenylketonuria.
5D. Differentiate apoptosis from necrosis.
5E. Enlist the role of chylomicron and VLDL.

(2×5 = 10 marks)

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FIRST YEAR PHARM D. DEGREE EXAMINATION – APRIL/MAY 2013

SUBJECT: PD 1.4: PHARMACEUTICAL ORGANIC CHEMISTRY

Wednesday, May 08, 2013

Time: 10:00 – 13:00 Hrs.   Max. Marks: 70

✍   Answer all questions.

✍   Long Essays:

1A.   Explain the mechanism and kinetics involved in SN_2 reaction.

1B.   What are carbocations? Explain their stability.

1C.   Write a note on phase transfer catalysis.

(4+3+3 = 10 marks)

2.   Explain in detail about electrophilic addition and free radical addition to conjugated dienes.

(6+4 = 10 marks)

3.   Explain the mechanism involved in a)   Kolbe's reaction   b)   Reimer Teimann reaction

(5+5 = 10 marks)

4.   **Short essays:**

4A.   Explain the mechanism of friedel craft alkylation reaction with suitable example.

4B.   Write a note on acidity constant and effects of substituents on acidity.

4C.   Compare elimination Vs substitution reaction.

4D.   Explain the mechanism of Benzoin condensation.

4E.   Explain the basicity of aliphatic and aromatic amines.

4F.   Explain the mechanism of reduction of ketones by Sodium borohydride.

(5×6 = 30 marks)

5.   **Short answers:**

5A.   What are intermolecular forces? Write about hydrogen bonding.

5B.   How will you assay Salicylic acid?

5C.   Give the structure of i)   1- Butene   ii)   tertiary butyl alcohol

5D.   Why peroxide initiated free radical addition is possible only with HBr?

5E.   Give the chemical formula and uses of the following official compounds.

   i)   Dimethyl phthalate   ii)   Ethyl benzoate

   iii)   Methyl salicylate   iv)   Lactic acid

(2×5 = 10 marks)

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FIRST YEAR PHARM D. DEGREE EXAMINATION – APRIL/MAY 2013

SUBJECT: PD 1.5: PHARMACEUTICAL INORGANIC CHEMISTRY

Friday, May 10, 2013

Time: 10:00 – 13:00 Hrs.   Max. Marks: 70

✎   **Answer ALL the questions.**

✎   **Long essay:**

1A.   What are limit tests? Explain the principle involved in the limit test for heavy metals and give the reaction equation.

1B.   Define essential and trace ions. Give the preparation and assay of sodium iodide.

$$((1+4)+(1+4) = 10 \text{ marks})$$

2A.   Define respiratory stimulants. Give the preparation of ammonium carbonate.

2B.   Define and classify antidotes.

2C.   Give the method of preparation, assay and use of Magnesium carbonate.

$$((1+2)+2+(2+2+1) = 10 \text{ marks})$$

3A.   Write a note on hazards and precautions to be taken during the handling of radio pharmaceuticals.

3B.   Give method of preparation and principle involved in the assay of Nitrous Oxide.

$$((2+2)+(2+4) = 10 \text{ marks})$$

4.   Short Essay:

4A.   Give the importance of physiological acid base balance. Explain the preparation and uses of sodium bicarbonate.

$$(2+2+1 = 5 \text{ marks})$$

4B.   Give the preparation, assay and category of calcium chloride.

$$(2+2+1 = 5 \text{ marks})$$

4C.   Define emetics. Give the preparation and assay of copper sulphate.

$$(1+2+2 = 5 \text{ marks})$$

4D.   What are antacids? Write a note on acid neutralizing capacity. Enlist the drawbacks of commonly used antacids.

$$(1+2+2 = 5 \text{ marks})$$

4E.   Explain the ionic theory of acid-base indicators with an example.

$$(5 \text{ marks})$$

4F.   Give the principle and uses of acid base titration. Mention two primary standards and indicators used in acid base titrations.

$$(2+1+2 = 5 \text{ marks})$$

5.   Short Answers:

5A.   What is barium sulphate reagent? Give its importance.

5B.   What is the purpose of adding iron free ammonia solution in the limit test for iron?

5C.   What is magaldrate? Write its advantages.

5D.   Complete and balance the following equations

$Mg(OH)_2 + HCl \longrightarrow$

$BaCl_2 + H_2SO_4 \longrightarrow$

5E.   What is cerimetry? Why $KMnO_4$ cannot be used as a primary standard?

$$(2 \times 5 = 10 \text{ marks})$$

Manipal College of Pharmaceutical Sciences
Manipal University, Manipal

First year PharmD Annual Examinations-April 2013
Subject: PD 1.6.Remedial Mathematics

Date: 26-04-2013
Time: 10.00 am – 1.00 pm   Max Marks: 70

Answer **ALL** the questions

I. Long Essays. (3×10=30 marks)

1A.   Find the centre and radius of the circle $3x^2+3y^2-6x+27y-2=0$. (2 Marks)

1B.   Find the derivative of $\log x$ with respect to x from first principle. (4 Marks)

1C.   Evaluate (i) $\int \tan^4 x\,dx$ (ii) $\int \sqrt{1+\cos x}\,dx$. (4 Marks)

2A.   A circle has its centre on the x-axis and passes through (5,1) and (3,4). Find its equation.
                                                                (3 Marks)

2B.   Solve the equation using matrix method $\begin{aligned} x-y-2z &= 3 \\ 2x+y+z &= 5 \\ 4x-y-2z &= 1 \end{aligned}$. (7 Marks)

3A.   Solve the integral by substitution method, $\int \sqrt{a^2-x^2}\,dx$. (4 Marks)

3B.   If $A=\begin{bmatrix} 2 & 3 & 2 \\ 1 & 0 & 0 \\ 2 & 0 & 2 \end{bmatrix}$ and $B=\begin{bmatrix} -1 & 2 & 1 \\ 2 & 3 & 4 \\ 1 & -2 & 3 \end{bmatrix}$, Find AB. (6 Marks)

(P.T.O)

II.Short Essays (6×5=30 marks)

4. Find the equation of the circle passing through the points (0,1),(2,3) and(-2,5).

5. If $A = \begin{bmatrix} 1 & 1 & 1 \\ 1 & 1 & 1 \\ 1 & 1 & 1 \end{bmatrix}$, Show that $A^2 = 3A$.

6. Prove that the tangents from (0,5) to the circles $x^2 + y^2 + 2x - 4 = 0$ and $x^2 + y^2 - y + 1 = 0$ are equal.

7. Find $\dfrac{dy}{dx}$ where $y = \sqrt{\dfrac{a^2 - x^2}{a^2 + x^2}}$.

8. Evaluate: (i) $\lim_{x \to 5} \dfrac{\sqrt[3]{x} - \sqrt[3]{5}}{\sqrt{x} - \sqrt{5}}$ (ii) $\lim_{x \to 0} \dfrac{3^x - 1}{\sqrt{x+1} - 1}$.

9. Integrate: $\displaystyle\int \dfrac{dx}{x\sqrt{x^2 - a^2}}$.

III. Short Answers (5×2=10 marks)

10. Give the equation of the straight line passing through two points (X_1, Y_1) and (X_2, Y_2).

11. Find the equation of the circle with centre (0,7) and radius 5.

12. If $A = \begin{bmatrix} 1 & 2 \\ 3 & 4 \end{bmatrix}$ and $B = \begin{bmatrix} -1 & 0 \\ 2 & 3 \end{bmatrix}$ find C=A+B.

13. Define a matrix and its order with an example.

14. Define Composite function and implicit function and give example?

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MANIPAL UNIVERSITY

FIRST YEAR PHARM D DEGREE EXAMINATION – APRIL – MAY, 2013
SUBJECT CODE: P.D 1.6: REMEDIAL BIOLOGY
Friday April 26, 2013

Time: 10.00 -13.00 hours   Max. Marks: 70

Answer ALL the questions with neat labeled <u>DIAGRAMS</u> wherever necessary

I Long Essays: 3x10= 30 Marks

1. A) Draw, label and write different functions of Parts of Plant Cell.

    B) What are ergastic substances? Name them.   8+2=10

2. A) Describe the Central Nervous System of frog.

    B) Draw a neat labeled diagram of Neuron.   8+2=10

3. A) Differentiate Monocotyledons from dicotyledons.

    B) Write the differences between meristematic and permanent tissues.   5+5=10

II Short Essays: 6x5=30 Marks

4. Write any eight general characters of class mammalia.

5. Mention different types of respiration and explain the physiology of cutaneous respiration in the frog.

6. Define, Classify and write the functions of a stem.

7. Write short note on Buccal Cavity of frog.

8. Define ascent of sap and explain different theories.

9. Write the characters of the class Aves.

III Short Answers: 5x2=10 Marks

10. Define floral formula and mention any two symbols with meaning.

11. Name different parts of ear of frog.

12. Drupe.

13. Morula and Blastula

14. Draw and label different parts of a flower.

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