Shahjalal University of Science & Technology, Sylhet

Department of Biochemistry and Molecular Biology

3rd Year 2nd Semester B. Sc. (Hons) Final Examination, **2013**

Course No. : **BMB 330** Course Title: **Clinical Biochemistry**

Credit: **3.0** Total Marks: **70** Time: **3** Hours

Instructions:

- *Number in the right side indicates the marks of the question.*
- *Marks for each question are same.*
- ***Answer any two (2) questions from each Part (A and B).***

Part A

1. a) What is disease? Write down the cause of disease. 2+1=3.0
   b) Discuss briefly the precautions one should take to reduce the problem of infection in a diagnostic laboratory. 3.0
   c) Describe about the quality control, control specimens, hazard and reference value of a diagnostic test. 8.0
   d) Write down the name and use of some commonly used anticoagulants. 3.5

2. a) Give the name and specific use of some preservatives used for biochemical assay of blood and urine. 3.0
   b) Write down the source of following specimens- 0.5×4=2.0
   i) CSF, ii) amniotic fluid, iii) synovial fluid, iv) pleural fluid.
   c) Describe the assay principles and clinical significance of the following enzymes- 2.5×3=7.5
   i) Alanine Aminotransferase (ALT) ; ii)Alkaline Phosphatase (ALP);
   iii) Lactate Dehydrogenase (LDH)
   d) Discuss the reference values, usual rise, time for maximum rise and time for return to normal level of the enzymes involved in the diagnosis of myocardial infarction with an appropriate graph. 5.0

3. a) What is gene mutation and how do mutations occur? What kinds of gene mutations are possible? 2+3=5.0
   b) Define the following terms in the context of chromosomal abnormality- 1×4=4.0
   i) Aneuploidy; ii) Trisomy; iii) Monosomy; iv) Chromosomal mosaicism
   c) Write down the genetic feature and clinical symptoms of Turner syndrome and Down syndrome. 3×2=6.0
   d) What does it mean to have a genetic predisposition to a disease? 2.5

Part B

4.	a)	What are the ketone bodies? Define ketosis, ketonuria and ketonemia.	1.5+3=4.5
	b)	What is the source of creatinine and how does it formed? Describe the creatinine clearance test for renal function assay.	3+4=7.0
	c)	What is Gout? Write down the symptoms, cause, diagnosis and prevention of Gout.	1+5=6.0
5.	a)	Define both the Autosomal dominant and autosomal recessive disorder with appropriate figure.	4.0
	b)	Cousin marriage increase the incidence of autosomal recessive disorder – explain.	3.0
	c)	What is the basic difference between sickle cell anemia and thalassemia?	3.0
	d)	Describe the conjugation process of bilirubin. What clinical disorder may occur due to genetic defects in the conjugation process?	2+2=4.0
	e)	Describe the causes and symptoms of physiologic jaundice and hemolytic disease of the newborn baby?	3.5
6.	a)	Write down the difference between type 1 and type 2 diabetes mellitus.	3.0
	b)	Life style and genetics are the main factors of type 2 diabetes – justify the statement.	2.5
	c)	Write down the enzymatic methods for the determination of blood glucose concentration.	4.0
	d)	Write short notes on the following (any two): i) Glycogen storage disease; ii) Obesity; iii) Phenylketonuria (PKU)	4×2=8.0