M.Sc. 2nd Semester Examination, 2013

BIO-MEDICAL LABORATORY SCIENCE AND MANAGEMENT

PAPER—BMLSM - 201(Unit - 10)

Full Marks : 40

Time : 2 hours

Answer **all** questions

The figures in the right-hand margin indicate marks

Candidates are required to give their answers in their own words as far as practicable

Illustrate the answers wherever necessary

MODULE – I

1. Answer any *five* questions of the following : 1 × 5

(*a*) A young red cell that has just extruded its nucleus, when seen on a wright stained peripheral blood film is referred to as a

(*i*) Wormoblact

(*ii*) Orthochromatic cell

(*iii*) Polychromatophilic cell.

(*b*) The anticoagulant of choice for a complete blood count (CBC) is

(*i*) EDTA

(*ii*) Heparin

(*iii*) Sodium citrate.

(*c*) Which one is the anticoagulant of choice for routine co-agulation assays

(*i*) Heparin

(*ii*) Sodium oxalate

(*iii*) Sodium citrate.

(*d*) Which peripheral blood cell is involved in hemostasis

(*i*) Thrombocytes

(*ii*) Lymphocytes

(*iii*) Erythrocytes.

(*e*) Which kind of leukemia is mostly associated with children ages 2 to 10 years

(*i*) Acute lymphocytic

(*ii*) Chronic lymphocytic

(*iii*) Chronic myelogenous.

(*f*) Which of the following stains are classified as Romanowsky stains

(*i*) Brilliant-cresyl blue

(*ii*) New methylene blue

(*iii*) Wright's stain.

(*g*) Complete saturation of oxygenation is found in

(*i*) T-form

(*ii*) R-form

(*iii*) H-form.

(*h*) G-6-PD deficiency co-relates with

(*i*) Antimalerial drug

(*ii*) Antitubercular drug

(*iii*) Antityphoidal drug.

2. (*a*) Describe the porphyrin ring structure of haemoglobin.

(*b*) What is the role of 2, 3, -DPG in oxygen saturation of haemoglobin ?

(*c*) Describe the transition of Haemoglobin variants from embryonic stage to adult life with diagram. 3 + 1 + 4

Or

Describe with the indicating of the following abnormal appearance of cells with clean diagram : 4 × 2

(*a*) Hinz body

(*b*) Eryptocytes

(*c*) Papenheimer bodies

(*d*) Target cells.

3. (*a*) Describe how sickling occurs in red cells of a sickle cell anaemic patient.

(*b*) Describe the genotypic features of L and P -thalassaemia. 3 + (2 + 2)

Or

(*a*) State the pathway of erythropoesis with characteristic features of each stages.

(*b*) How erythropoetin regulates this pathway ?

5 + 2

MODULE – II

4. Answer any *five* of the following questions : 1 × 5

(*a*) What do you mean by floating calibrator ?

(*b*) What is the loci of the gene associated with sideroblastic anaemia ?

(*c*) Write the full form of KB test.

(*d*) What is the importance of mitochondrial genome in haematology ?

(*e*) What is PPB staining in haematology ?

(*f*) What is the use of Tris-EDTA-borate buffer in haematology ?

(*g*) Write the full form of CCC.

(*h*) What is INR ?

5. (*a*) Enumerate the principle of HbA_{IC} detection.

(*b*) Mention the possible indicators related to PNH detection.

(*c*) Describe the biomolecular basis of PNH disorder. 2 + 2 + 4

Or

(*a*) **Describe the working principle of a coulter counting chamber with diagrammatic representation.**

(*b*) **Mention the dilution of blood cells required for RBC and WBC in automated blood cell counter.**

(*c*) **What is co-incidence phenomenon in automated blood cell counter ?** 3 + 2 + 3

6. (*a*) How do you detect the volume of fetomaternal blood loss haematogically ?

(*b*) Describe the different salient haematological features of anaemia from the angle of morphology of red cells. 3 + 4

Or

(*a*) What is Aqueth index ?

(*b*) Describe different co-agulation test with its clinical significance. 2 + 5
