

**M.Sc.**

**2015**

**2nd Semester Examination**

**BIOMEDICAL LABORATORY SCIENCE AND MANAGEMENT**

**PAPER—BLM-202**

*Full Marks : 40*

*Time : 2 Hours*

*The figures in the right-hand margin indicate full marks.*

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

*Illustrate the answers wherever necessary.*

*Answer question no.1 and any three from the rest.*

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

*Choose the right one :*

5×2

(a) The precursor of all lines of blood cells is the :

- (i) myeloblast ;
- (ii) hemocytoblast ;
- (iii) procrythroblast.

*(Turn Over)*

- (b) Following component(s) is/are required for DNA synthesis of blood cells :
- (i) iron;
  - (ii) Vitamin B<sub>12</sub> and Folic acid ;
  - (iii) Calcium.
- (c) The type of WBC that often arrives at the site of infection first:
- (i) neutrophil ;
  - (ii) eosinophil ;
  - (iii) basophil.
- (d) An acute infection would show up in a blood count as :
- (i) leukopenia ;
  - (ii) thrombocytopenia ;
  - (iii) leukocytosis.
- (e) Choose the correct steps of hemostasis :
- (i) blood coagulation, platelet plug formation, blood vessel spasm ;
  - (ii) blood vessel spasm, blood coagulation, platelet plug formation ;
  - (iii) blood vessel spasm, platelet plug formation, blood coagulation.
- (f) Which clotting factor is released from damaged tissue, and initiates a chain of clotting events :
- (i) tissue thromboplastin ;

- (ii) thrombin ;
  - (iii) prothrombin.
- (g) Which of the following cell types should not be grouped with the others :
- (i) neutrophil ;
  - (ii) lymphocyte ;
  - (iii) eosinophil.
- [h] Sodium flouride is used as :
- [i] anticoagulant ;
  - [ii] inhibitor of red cell lysis ;
  - [iii] to prevent glycolysis in red cells.

2. (a) What is meant for electrical impedance ?
- (b) Discuss the working principle of a coulter counting chamber.
- [c] State the co-incidence phenomenon.
- [d] Diagrammatically describe the architecture of a blood cell counter.

2+2+2+4

3. (a) Describe the cellular and molecular basis of PNH with diagram and special reference to decay accelerating factor.
- (b) How do you diagnose PNH ?

7+3

4. (a) Mention the genetic factors that responsible for sickle cell anaemia.
- (b) How the sickling of blood cells take place ?
- (c) How  $\beta$ -genes are influencing through their basis of synthetic ability in  $\beta$  thalassemia — mention with genotype combination.
- [d] State haematological features of  $\beta$  thalassemia with red cell abnormalities. 2+2+3+3
5. (a) Classify different types of acute leukaemia along with its specific features of WBC.
- (b) What is hemophilia ?
- (c) What is the significance of CT & BT determination ? 5+3+2
6. Write short notes on (any two) : 5×2
- (a)  $HbA_{1C}$  ;
- (b) G-6-PD deficiency anamia.
- (c) Electrophoretic interpretation of different haemoglobins in the pathogenesis of haemoglobinopathies with principle of the technique.
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