

**M.Sc.**

**2016**

**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 : 5×2

*(Choose the right answer)*

(a) 2, 3, DPG binds with Hb at :

(i)  $\alpha$  - Chain ;

(ii)  $\beta$  - Chain ;

(iii)  $\gamma$  - Chain ;

(iv) Both i and ii.

*(Turn Over)*

- (b) Folic acid requires for
- (i) DNA synthesis of blood cells ;
  - (ii) RNA synthesis of blood cells ;
  - (iii) Protein synthesis of blood cells ;
  - (v) None.
- (c) EDTA interferes the results with
- (i) Bleeding time ;
  - (ii) Cloting time ;
  - (iii) Prothrombin time ;
  - (iv) all of the above.
- (d) Pancytopenia is a medical condition associated with :
- (i) Anaemia ;
  - (ii) Thrombocytopenia and Anaemia ;
  - (iii) Anaemia and Leukopenia ;
  - (iv) All of the above.
- (e) Moleculas weight Haemoglobin is
- (i) 63.4 KD;
  - (ii) 64.5 KD;
  - (iii) 65.6 KD ;
  - (iv) 66.7 KD ;
- (f) HbA first appears in blood by the
- (i) 14th week of fetal life ;
  - (ii) 21st week of fetal life ;
  - (iii) 9th week of fetal life ;
  - (iv) 11 to week of fetal life.

- (g) Hydroxyurea treatment increases
- (i) HbA ;
  - (ii) HbA<sub>1</sub> ;
  - (iii) HbF ;
  - (ii) HbS.
- (h) Codocytes are also known as
- (i) Ring body cell and Mexican hat cells ;
  - (ii) Pluripotent cells & target cells ;
  - (iii) target cells and Mexican hat cells ;
  - (iv) None.
2. (a) Describe primary, secondary, tertiary and quaternary structure of haemoglobin molecule.
- (b) What is meant by mean corpuscular haemoglobin and mention its clinical significance.

8+2

3. (a) What is P<sub>50</sub> value ?
- (b) Justify the cause of comparatively high O<sub>2</sub> saturation of HbF rather than HbA.
- (c) What do you mean by tactoid formation and crises ?

2+4+(2+2)

4. (a) Enumerate the clinical significance of osmotic fragility with graphical representation.
- (b) How do you sort the blood cells with extremely updated technique ?
- (c) What is floating calibrator ?
5. (a) How red cell morphology changes in spherocytosis, G-6-PD deficiency ? Thalassemia and Sickle cell anaemia — discuss separately with figure.
- (b) How do you electrophoretically separate haemoglobin and interpret the result of this separation ?

5+5

6. Write short notes on (any two):

5+5

- (a) PNH;
- (b) Leukaemia.
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