

**M.D. DEGREE EXAMINATION**

**BRANCH XXI – IMMUNOHAEMATOLOGY AND BLOOD TRANSFUSION**

**PAPER I – BASIC APPLIED ASPECTS RELATED TO  
IMMUNOHAEMATOLOGY AND BLOOD TRANSFUSION**

*Q.P. Code: 202097*

**Time: Three Hours**

**Maximum: 100 Marks**

**I. Essay Questions:**

**(2 x 15 = 30)**

1. Pathophysiology of acute blood loss.
2. Process of setting up an in house 3-cell panel for antibody screening in your blood bank.

**II. Short notes:**

**(10 x 5 = 50)**

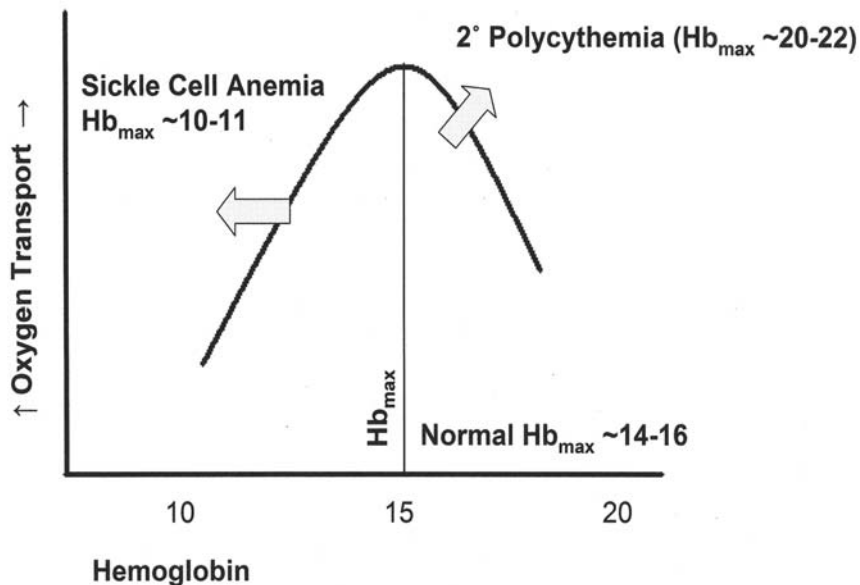
1. Functional differences between Naive and memory B cells.
2. Heparin analogues and implication for a blood bank.
3. Drugs that interfere with compatibility testing.
4. Cryopreservation of blood cells.
5. Enzyme linked immunosorbent assay in the blood bank.
6. Platelet crossmatch.
7. Pathogen inactivation system for platelets.
8. National plasma policy.
9. List the essential records for a blood bank and discuss the principles of document control.
10. Solution to avoid blood transfusion in a patient who professes to being a Jehovah's witness.

(2)

### III. Reasoning Out:

(4 x 5 = 20)

1. A 50 year old male patient, smoker was admitted with community acquired pneumonia. He was moved to ICU for ventilator support. On day 2 he continued to be febrile and peripheral blood showed moderate leucocytosis and left shift with thrombocytopenia. Haemoglobin remained at 10g/dL.
  - a) What is the likely reasons for new onset thrombocytopenia?
  - b) What additional tests would you like to do to confirm and what are the expected results?
  - c) What blood products will you recommend?
2. See the Oxygen dissociation curve below: Oxygen transport increases with increasing haemoglobin until viscosity effects reduce flow and transport. Transfusing normal red blood cells to patients with sickle cell disease increases the viscosity. As the haemoglobin increases there is an initial increase in oxygen transport, but as viscosity effects take hold, transport decreases.



- a) How would you manage transfusion in patient with sickle cell crisis?
- b) How do we perform adult manual red cell exchange in a sickle cell patient?

(3)

3. Informed consent for transfusion means a conversation has occurred between the patient and the doctor. The significant risks benefits and alternatives to transfusion must be discussed. Blood products must be prescribed by doctor and every transfusion must be documented.
  - a) List 5 items that must be included in the medical order for blood transfusion?
  
4. Twenty days after receiving an autologous transplant for non-Hodgkin's lymphoma, a 46-year old male has a platelet count of 13,000/cumm. He requires drainage of pleural effusion; hospital transfusion guideline mandates that the platelet count should be at least 50,000 /cumm before the procedure. He is transfused a unit of pooled, ABO-matched platelets; an hour after the transfusion, the platelet count is 21,000/cumm.
  - a) What may be the reasons for the modest platelet increment in this case?
  - b) Assuming a body surface area of  $2.0 \text{ m}^2$  and an average content of  $5.5 \times 10^{10}$  platelets per donor in a pool of platelets, what is the 1-h corrected count increment (CCI)?
  - c) In a hypothetical alloimmunized patient who continues to bleed, and no matched platelets are available, what other strategies may be attempted?

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