



## THE COLLEGES OF MEDICINE OF SOUTH AFRICA

Incorporated Association not for gain  
Reg No 1955/000003/08

### Part I Examination for the Fellowship of the College of Pathologists of South Africa – Haematology



30 January 2020

Paper 1

(3 hours)

*All questions are to be answered.*

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**Please answer question 1 in one booklet.**

- 1 Outline the characteristics and mechanisms of function of natural killer cells. [25]

**Please answer questions 2, 3 and 4 in one booklet.**

- 2 Discuss complement activation during pathogen infection. [20]
- 3 Discuss the mechanisms of neutrophil extracellular trap (NET) formation. [15]
- 4 Compare antibody-based to DNA-based blood group antigen typing. [10]

**Please answer question 5 in one booklet.**

- 5 Write short notes on the origins, structure, and function of nanobodies. Briefly highlight how they differ from conventional monoclonal antibodies, as well as their potential advantages over conventional monoclonal antibodies. [10]

**Please answer question 6 in one booklet.**

- 6 Write short notes on
- a) The stages of T cell differentiation and selection in the thymus. (10)
  - b) CAR T cells. (10)
- [20]



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31 January 2020

Paper 2

(3 hours)

*All questions are to be answered.*

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**Please answer question 1 in one booklet.**

- 1 “Thrombin is the central component of haemostasis.” Critically discuss this statement. [25]

**Please answer question 2 in one booklet.**

- 2 Discuss the structure and function of normal adult haemoglobin. [25]

**Please answer questions 3 and 4 in one booklet.**

- 3 Write short notes on the structure, absorption, and transport of folate. [10]
- 4 The Aurora kinase inhibitors have recently garnered interest as potential novel therapies for haematological malignancies. Write short notes on the functions of the Aurora kinases in the cell cycle and cell division. [10]

**Please answer question 5 in one booklet.**

- 5 Write Short notes on
- a) Matriptase02 (TMPRSS3). (10)
  - b) Erythrocyte deformability. (10)
  - c) Glucose 6 Phosphate Dehydrogenase (G6PD). (10)
- [30]