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**UNIVERSITI MALAYSIA SARAWAK**  
**Faculty of Medicine and Health Sciences**

**FIRST PROFESSIONAL EXAMINATION**  
**MD Degree**

**Session 2004/2005**

**OBJECTIVE STRUCTURED PRACTICAL EXAMINATION**  
**(OSPE)**

**April 2005**

**Time: 1 hour 40 minutes**

**Date : Tuesday, 19 April, 2005**  
**Time : 9:00 a.m. – 10:40 a.m.**  
**Venue : FPSK, UNIMAS, Lot 77, Kuching**

**NO PAPER OF ANY KIND MAY BE BROUGHT INTO THE EXAMINATION ROOM**

**INSTRUCTIONS:**

- 1. There are TWENTY (20) Stations.**
- 2. The time to be spent at each station is FIVE (5) minutes.**
- 3. Write your answer clearly in the space provided. DO NOT write outside the space.**  
**Write your Student No. on every page.**  
**No part of this examination booklet should be taken away from the examination room.**  
**Please fill in your attendance sheet.**

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Medicine Programme Session 2004/2005 Year 2  
First Professional Examination  
Tue. 19/04/2005 [9:00 a.m. – 10:40 a.m.]

**OSPE**

Student No.: \_\_\_\_\_

Station No.: 1

Study the bone (Humerus) provided

1.1 Identify the structures marked X, Y and Z. (3 marks)

X \_\_\_\_\_  
Y \_\_\_\_\_  
Z \_\_\_\_\_

1.2 Name the nerve related to the structures marked X, Y and Z. (3 marks)

X \_\_\_\_\_  
Y \_\_\_\_\_  
Z \_\_\_\_\_

1.3 State the result of lesion of the nerve related to the structures marked X, Y and Z respectively. (3 marks)

X \_\_\_\_\_  
Y \_\_\_\_\_  
Z \_\_\_\_\_

1.4 State ONE clinical importance of the structure marked X. (1 mark)

\_\_\_\_\_

**OSPE**

Student No.: \_\_\_\_\_

Station No.: 2

**Study the slide of the respiratory organ under the microscope**

2.1 Identify the type of the lining epithelium.

(2 marks)

\_\_\_\_\_

2.2 State **TWO** histological features of the above-mentioned epithelium.

(2 marks)

(i) \_\_\_\_\_

(ii) \_\_\_\_\_

2.3 State **TWO** functions of the above-mentioned epithelium.

(2 marks)

(i) \_\_\_\_\_

(ii) \_\_\_\_\_

2.4 Name the most prominent type of connective tissue seen beneath the submucosa.

(2 marks)

\_\_\_\_\_

2.5 State the extent and location of the above respiratory organ in a living body.

(2 marks)

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

**OSPE**

Student No.: \_\_\_\_\_

Station No.: 3

**Study the cerebrum model**

3.1 Identify the gyrus marked X.

(2 marks)

\_\_\_\_\_

3.2 Name the function performed by the area marked X.

(2 marks)

\_\_\_\_\_

3.3 Name **TWO** tracts that originate in the area marked X.

(2 marks)

(i) \_\_\_\_\_

(ii) \_\_\_\_\_

3.4 Name the artery supplying the area marked X.

(2 marks)

\_\_\_\_\_

3.5 State **TWO** effects of loss of blood supply to the area marked X.

(2 marks)

(i) \_\_\_\_\_

(ii) \_\_\_\_\_

**OSPE**

Student No.: \_\_\_\_\_

Station No.: 4

Study the normal hysterosalpingogram provided

4.1 Identify the structures marked 1, 2, 3, and 4 respectively.

(4 marks)

- 1 \_\_\_\_\_  
2 \_\_\_\_\_  
3 \_\_\_\_\_  
4 \_\_\_\_\_

4.2 State ONE indication for doing a hysterosalpingogram.

(2 marks)

\_\_\_\_\_

4.3 State ONE artery that supplies the structure marked 2.

(2 marks)

\_\_\_\_\_

4.4 State the embryonic origin of the structure marked 1.

(2 marks)

\_\_\_\_\_

**OSPE**

Student No.: \_\_\_\_\_

Station No.: 5

**Compare Pictures 1 and 2**

5.1 State the possible reason for more weighing of rat in **Picture 2**.

(2 marks)

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5.2 State **TWO** centres of hypothalamus regulating appetite.

(2 marks)

- (i) \_\_\_\_\_
- (ii) \_\_\_\_\_

5.3 List any **THREE** regulatory functions of hypothalamus other than appetite regulation.

(3 marks)

- (i) \_\_\_\_\_
- (ii) \_\_\_\_\_
- (iii) \_\_\_\_\_

5.4 Name the receptors present on the nuclear group mentioned in 5.1, **and** how these control the feeding centre.

(3 marks)

Name of receptors: \_\_\_\_\_

Mechanism of function: \_\_\_\_\_  
\_\_\_\_\_

**OSPE**

Student No.: \_\_\_\_\_

Station No.: 6

The exhibit shows a spirogram of a healthy man

6.1 Name the volumes labelled A and B, and calculate their values.

(4 marks)

Label	Name	Values
A		
B		

6.2 Name the capacities labelled C and D, and calculate their values.

(4 marks)

Label	Name	Values
C		
D		

6.3 State TWO physiological conditions affecting capacity C.

(1 mark)

(i) \_\_\_\_\_

(ii) \_\_\_\_\_

6.4 State ONE physiological condition in which functional residual capacity (FRC) is increased.

(1 mark)

\_\_\_\_\_

**OSPE**

Student No.: \_\_\_\_\_

Station No.: 7

The exhibit shows a normal electrocardiogram (ECG)

7.1 Identify the intervals labelled 1 and 2, and calculate their duration.

(4 marks)

Intervals	Name	Duration
1		
2		

7.2 Mention the events taking place during intervals 1 and 2.

(2 marks)

Intervals	Events
1	
2	

7.3 State the events taking place during P wave and QRS complex.

(2 marks)

	Events
P	
QRS	

7.4 Name ONE common condition in which duration of interval 1 is prolonged.

(2 marks)

\_\_\_\_\_



**OSPE**

Student No.: \_\_\_\_\_

Station No.: 8

**Diagrams 1 and 2 show the peripheral divisions of autonomic nervous system**

8.1 State the type of receptors present at **A** and **B** positions in the Diagrams 1 and 2.

(2 marks)

Receptors	Diagram 1	Diagram 2
A		
B		

8.2 State the pre-condition of neurotransmitter's action before stimulation of the effector organ.

(2 marks)

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8.3 State the effect of sympathetic and parasympathetic stimulations on the following target organs.

(4 marks)

	Sympathetic stimulation	Parasympathetic stimulation
Eye pupil		
Sweat glands		
Blood vessels (systemic)		
Bronchi		

8.4 State **TWO** cardiovascular autonomic reflexes.

(2 marks)

(i) \_\_\_\_\_

(ii) \_\_\_\_\_

**OSPE**

Student No.: \_\_\_\_\_

Station No.: 9

A 32-year-old gentleman came to the Sarawak General Hospital for medical check-up. A chest X-ray (CXR) was taken as shown.

9.1 State the view of the X-ray.

(2 marks)

\_\_\_\_\_

9.2 Identify the structures labelled A, B, C and D.

(4 marks)

A \_\_\_\_\_

B \_\_\_\_\_

C \_\_\_\_\_

D \_\_\_\_\_

9.3 Give TWO other views that can be taken for a CXR.

(2 marks)

(i) \_\_\_\_\_

(ii) \_\_\_\_\_

9.4 Name TWO diseases that can be detected in this CXR.

(2 marks)

(i) \_\_\_\_\_

(ii) \_\_\_\_\_

**OSPE**

Student No.: \_\_\_\_\_

Station No.: 10

Study the names of the drugs on the packaging

10.1 State the **TWO** drugs used in this preparation.

(2 marks)

(i) \_\_\_\_\_

(ii) \_\_\_\_\_

10.2 Name **ONE** condition in which this drug combination is used for.

(2 marks)

\_\_\_\_\_

10.3 For each drug stated in 10.1, give the reason why it is useful for treatment of the condition named in 10.2.

(4 marks)

(i) \_\_\_\_\_

\_\_\_\_\_

(ii) \_\_\_\_\_

\_\_\_\_\_

10.4 State **ONE** side effect of long-term use of these drugs.

(2 marks)

\_\_\_\_\_

**OSPE**

Student No.: \_\_\_\_\_

**Station No.: 11**

Study Figures A and B carefully

11.1 Name **TWO** drugs that are used in the therapy of the ulcer shown in **Figure A**.  
(4 marks)

(i) \_\_\_\_\_

(ii) \_\_\_\_\_

11.2 Name **ONE** drug, each acting on sites **a**, **b** and **c** in **Figure B**, and give **ONE** side effect of each.

(6 marks)

Site	Drug	Side-effect
a		
b		
c		

**OSPE**

Student No.: \_\_\_\_\_

Station No.: 12

**Study the diagram**

12.1 (a) Name the protein in the diagram. (1 mark)

12.1 (b) State TWO structures in the body where the above protein is found. (1 mark)

(i) \_\_\_\_\_

(ii) \_\_\_\_\_

12.2 Name the aminoacids X and Y in the sequence of Gly-X-Y in forming this protein. (3 marks)

X \_\_\_\_\_

Y \_\_\_\_\_

12.3 Name the type of bonds formed between those polypeptides chains. (2 marks)

\_\_\_\_\_

12.4 State the difference between the helical structure of this protein from that of the globular proteins. (3 marks)

\_\_\_\_\_

**OSPE**

Student No.: \_\_\_\_\_

**Station No.: 13**

A 7-year-old boy had fever for one month with multiple large mildly painful neck swellings. His mother stated that he was not eating well and losing weight. The boy was suspected to have tuberculosis. The photomicrograph provided is the biopsy of his lymph node.

13.1 Name the characteristic lesion seen in the photomicrograph.

(1 mark)

\_\_\_\_\_

13.2 List any **THREE** components of the lesion named in 13.1.

(3 marks)

(i) \_\_\_\_\_

(ii) \_\_\_\_\_

(iii) \_\_\_\_\_

13.3 List **FOUR** types of necrosis.

(4 marks)

(i) \_\_\_\_\_

(ii) \_\_\_\_\_

(iii) \_\_\_\_\_

(iv) \_\_\_\_\_

13.4 State **ONE** other disease with similar lesion.

(1 mark)

\_\_\_\_\_

13.5 List **ONE** other type of giant cells.

(1 mark)

\_\_\_\_\_

**OSPE**

Student No.: \_\_\_\_\_

**Station No.: 14**

A 65-year-old male died of congestive heart failure with ventricular aneurysm. At autopsy, his left kidney on sectioning grossly reveals the presence of a tan to white, wedge-shaped lesion with base towards the capsule. The photograph of the kidney is provided.

14.1 Name the pathological process seen in this kidney.

(2 marks)

\_\_\_\_\_

14.2 State the most likely causative factor for this pathological process.

(2 marks)

\_\_\_\_\_

14.3 State the usual outcome of this pathological process.

(2 marks)

\_\_\_\_\_

14.4 Give **FOUR** microscopic changes during cell death.

(4 marks)

(i) \_\_\_\_\_

(ii) \_\_\_\_\_

(iii) \_\_\_\_\_

(iv) \_\_\_\_\_

**OSPE**

Student No.: \_\_\_\_\_

**Station No.: 15**

**The picture shows one of the routine anthropometry measurements being performed.**

15.1 Name the measurement being performed.

(1 mark)

\_\_\_\_\_

15.2 State **TWO** anatomical landmarks used to locate the point for measurement.

(2 marks)

(i) \_\_\_\_\_

(ii) \_\_\_\_\_

15.3 State the position of the arm during measurement.

(1 mark)

\_\_\_\_\_

15.4 Name **TWO** types of tissues that can be assessed by this measurement.

(2 marks)

(i) \_\_\_\_\_

(ii) \_\_\_\_\_

15.5 List **FOUR** other anthropometry measurements that are used to assess nutritional status.

(4 marks)

(i) \_\_\_\_\_

(ii) \_\_\_\_\_

(iii) \_\_\_\_\_

(iv) \_\_\_\_\_



**OSPE**

Student No.: \_\_\_\_\_

Station No.: 16

The packet of food provided was purchased from a local store. The food did not follow the Food Quality Control Act.

16.1 State **THREE** regulations the food producer did not follow as per Food Quality Control Act.

(3 marks)

(i) \_\_\_\_\_

(ii) \_\_\_\_\_

(iii) \_\_\_\_\_

16.2 List **ONE** infectious disease a person may suffer from eating the contaminated food.

(1 mark)

\_\_\_\_\_

16.3 Name **TWO** non-communicable diseases a person may suffer from taking this food.

(2 marks)

(i) \_\_\_\_\_

(ii) \_\_\_\_\_

16.4 List **FOUR** functions of Food Quality Control Programme of the Ministry of Health, Malaysia.

(2 marks)

(i) \_\_\_\_\_

(ii) \_\_\_\_\_

(iii) \_\_\_\_\_

(iv) \_\_\_\_\_

**OSPE**

Student No.: \_\_\_\_\_

**Station No.: 17**

**Observe the microorganism under the microscope carefully.  
The microorganism shows a  $\beta$ -haemolytic reaction on blood agar.**

17.1 State the Gram-stain reaction of the microorganism.

(1 mark)

\_\_\_\_\_

17.2 Identify the morphology and cell arrangement of the microorganism.

(2 marks)

**Morphology** : \_\_\_\_\_

**Cell arrangement** : \_\_\_\_\_

17.3 Identify this microorganism.

(1 mark)

\_\_\_\_\_

17.4 Differentiate  $\alpha$ -haemolytic and  $\beta$ -haemolytic reactions on blood agar.

(4 marks)

	Reactions on blood agar
$\alpha$ -haemolytic :	
$\beta$ -haemolytic :	

17.5 Give ONE example of an  $\alpha$ -haemolytic microorganism.

(1 mark)

\_\_\_\_\_

17.5 State another method that can be used to identify this microorganism.

(1 mark)

\_\_\_\_\_

**OSPE**

Student No.: \_\_\_\_\_

**Station No.: 18**

**Examine the culture plate provided.  
This bacteria is associated with a type of epidemic and pandemic diarrhoea.**

18.1 Describe its colonial morphology.

(1 mark)

\_\_\_\_\_

18.2 Name the most likely culture media used.

(1 mark)

\_\_\_\_\_

18.3 Identify this bacteria.

(1 mark)

\_\_\_\_\_

18.4 State the most likely microscopic morphology of this bacteria under Gram-staining.

(1 mark)

\_\_\_\_\_

18.5 List **TWO** major clinical features of the diarrhoea associated with this bacteria.

(2 marks)

(i) \_\_\_\_\_

(ii) \_\_\_\_\_

18.6 Name **TWO** laboratory procedures for the identification of this bacteria from stool specimen.

(2 marks)

(i) \_\_\_\_\_

(ii) \_\_\_\_\_

18.7 Name **TWO** epidemic O-serogroups of this bacteria.

(2 marks)

(i) \_\_\_\_\_

(ii) \_\_\_\_\_

**OSPE**

Student No.: \_\_\_\_\_

**Station No.: 19**

Photomicrograph A shows a normal peripheral blood smear, whereas Photomicrograph B contains some abnormalities. Compare the photomicrographs provided.

19.1 Comment on the appearance of the red blood cells in Photomicrograph B. (3 marks)

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19.2 List TWO causes for the above appearance. (2 marks)

(i) \_\_\_\_\_

(ii) \_\_\_\_\_

19.3 List TWO laboratory parameters that can be used to support your observation in 19.1. (2 marks)

(i) \_\_\_\_\_

(ii) \_\_\_\_\_

19.4 Define the parameters that you have listed in 19.3. (3 marks)

(i) \_\_\_\_\_

(ii) \_\_\_\_\_

**OSPE**

Student No.: \_\_\_\_\_

**Station No.: 20**

The parasites 'A', 'B' and 'C', shown under the microscopes labelled 'A', 'B' and 'C' respectively, were found in blood samples taken from three patients.

20.1 Identify the parasites shown in:

(3 marks)

A \_\_\_\_\_  
B \_\_\_\_\_  
C \_\_\_\_\_

20.2 State the developmental stages of the parasites that are shown in:

(3 marks)

A \_\_\_\_\_  
B \_\_\_\_\_  
C \_\_\_\_\_

20.3 State ONE reason why late developmental stages of parasite A are not normally seen in the peripheral blood.

(1 mark)

\_\_\_\_\_

20.4 State ONE method for the control of infection with parasite B.

(1 mark)

\_\_\_\_\_

20.5 State ONE reason why blood screening for parasite B is usually conducted at night.

(1 mark)

\_\_\_\_\_

20.6 Name the developmental stage of parasite C that is responsible for the pathological changes in the infected host.

(1 mark)

\_\_\_\_\_