Master copy

Master copy

POSTGRADUATE INSTITUTE OF MEDICINE
UNIVERSITY OF COLOMBO

MD (PAEDIATRICS) EXAMINATION – JANUARY 2020

Date: 21st January 2020 **Time:** 9.00 a.m. – 12.00 noon

PAPER I
(STRUCTURED ESSAY QUESTIONS)

Answer **all five** questions.
Answer each question in a **separate book**.

1.

1.1. (a) Define shock. (5 marks)

(b) Describe the progression of shock. (10 marks)

1.2. List five (05) main categories of shock and give two examples each. (20marks)

1.3. Briefly outline the pathophysiology of septic shock. (20 marks)

1.4. Briefly explain Systemic Inflammatory Response Syndrome (SIRS). (20 marks)

1.5. List the main goals of therapy in the treatment of shock. (25 marks)

2.

2.1. Outline the pathophysiological basis of anaemia in hereditary spherocytosis. (20 marks)

2.2. (a) Mention five (05) clinical presentations of hereditary spherocytosis in children. (20 marks)

(b) Explain the pathophysiological basis for the differences in the clinical spectrum. (10 marks)

2.3. Briefly outline the management plan of hereditary spherocytosis. (30 marks)

2.4. Briefly explain the genetic information you would focus on during the counselling of a newly diagnosed child with hereditary spherocytosis. (20 marks)

Contd……./2-

3.

3.1. Define

(a) Nosocomial multi-drug resistant infections. (15 marks)

(b) Ventilator Associated Pneumonia (VAP). (10 marks)

3.2. Mention two (02) organisms responsible for each category mention in 3.1. (10 marks)

3.3. What is antibiotic stewardship? (10 marks)

3.4. List ten (10) important steps a paediatrician should follow for prevention of emergence of antibiotic resistance. (30 marks)

3.5. Three-year old boy presented with recurrent Extended Spectrum of Beta Lactamase producing organisms (ESBL) positive urinary tract infections.

(a) Mention three (03) risk factors for recurrent ESBL infections. (9 marks)

(b) List three (03) ESBL producing organisms. (6 marks)

(c) List four (04) groups of antimicrobials used in the treatment of ESBL infection. (10 marks)

4.

4.1. Define cerebral palsy. (10 marks)

4.2. Outline the factors responsible for the spectrum of clinical manifestations seen in cerebral palsy. Mention two examples for each factor. (40 marks)

4.3. Describe the pathophysiological basis of Duchenne Muscular Dystrophy. (25 marks)

4.4. Discuss the news heading titled "Recent therapeutic options for Duchenne Muscular Dystrophy: a ray of hope". (25 marks)

Contd...../3-

5.

5.1. (a) Describe a standard scoring system used for the assessment of severity of respiratory distress in a preterm baby. (25 marks)

(b) List six (06) benefits of applying continuous positive airway pressure (CPAP) to a preterm baby with respiratory distress. (30 marks)

(c) Mention four (04) contraindications for the use of CPAP in a neonate. (20 marks)

5.2 Briefly outline how to set up Humidified High Flow Nasal Cannula (HHFNC) in a one-year old child (Weight 10 kg) with respiratory distress. (25 marks)

Master copy

POSTGRADUATE INSTITUTE OF MEDICINE
UNIVERSITY OF COLOMBO

MD (PAEDIATRICS) EXAMINATION – JANUARY 2020

Date: 22nd January 2020 **Time:** 9.00 a.m. – 12.00 noon

PAPER II – CASE HISTORIES

Answer all **five (05)** questions.
Answer each question in a separate book.

1. A 30-year-old primigravid mother gives birth to a 2.5 kg baby boy by normal vaginal delivery at 37 weeks of gestation. There was rupture of membranes 12 hours prior to delivery and maternal fever of 38° C during delivery. The mother is being treated for bronchopneumonia with intravenous antibiotics. Her BMI is 15.5kg/m^2

   The baby did not need resuscitation at birth. He was started on intravenous antibiotics after the septic work up. The baby remained asymptomatic during the neonatal unit stay.
   The reports of investigations are as follows:

WBC	$15x10^9$/L	(10-26)
	N - 10% L- 90%	
Hb	16 g/dL	(14-22)
Platelets	$120x10^9$/L	(150-400)
CRP after 24 hours	<6mg/L	(<6)

   Blood culture is negative after 48 hours
   Lumbar puncture report is normal
   The baby was discharged after two days of intravenous antibiotics.

   After 20 days, the mother and baby were readmitted. The baby is said to be feeding poorly. On examination, weight is 2.3Kg, he is less active and febrile. The respiratory rate is 70/min and coarse crackles are heard over both lung fields. Oxygen saturation in the right upper limb is 92% in air. The cardiac examination did not reveal a murmur. On abdominal examination, the liver was palpable 2 cm below the costal margin.
   Mother is being treated for a recurrence of bronchopneumonia.

Contd……..2-/

The investigations of the neonate are as follows:

Haemoglobin	11g/dL	(14-22)
WBC	$6x10^9$/L	(6-14.5)
	N -20% L- 80%	
Platelets	$80x10^9$/L	(150-400)
CRP	120mg/L	(<6)
UFR	normal	
CXR	bilateral diffuse opacities	
CSF full report	100 cells/mm^3	(0-32)
	N - 40%, L - 60%	
Protein	250mg/dL	(20-150)
Glucose	35mg/dL	
Blood sugar	125mg/dL	

1.1. List three (03) differential diagnoses. (30 marks)

1.2. Give three (03) investigations that would be helpful in arriving at each diagnosis. (45 marks)

1.3. Outline the management of the most likely diagnosis. (25 marks)

Contd……..3-/

2. A 12-year-old previously healthy girl presents with a history of increasing fatigue for two (02) weeks and arthralgia for one week. On admission, she is tachypneic with a respiratory rate of 46 /min. The oxygen saturation is 95% in room air. The blood pressure is 130/ 60 mmHg. She is febrile with a temperature of 38^0 C. There was no lymphadenopathy or hepatosplenomegaly.

Her initial investigations are as follows:

Hb	10.4 g /dL	(11-15)
Platelets	100 x 10^9/L	(150- 450)
WBC	16x10^9/L	(4-11)
	N- 65% L- 25%	
ESR	72mm 1st hour	(< 20)
CRP	121 mg/L	(< 6)
APTT	48 seconds(control 24)	
INR	1.1	
UFR	2-3 pus cells/hpf	
	20 -25 red cells/hpf	

Echocardiogram- pericardial effusion with ejection fraction > 60 %
Doppler examination -thrombosis of superior vena cava and internal jugular veins

2.1. State the complete diagnosis. (10 marks)

2.2. How would you manage this child during the next 48 hours? (50 marks)

Two hours after admission, she suddenly deteriorated with increasing respiratory rate and intercostal recessions.
The Oxygen saturation is 78% in room air.

2.3. List two (02) possible causes for the sudden deterioration. (20marks)

2.4. List two (02) clinical features that would be helpful in the diagnosis of each condition mentioned in 2.3. (20 marks)

Contd……..4-/

3. A 3-year-old child was admitted with severe abdominal pain for one day.

He was the 3rd child from an upper middle-class family. His parents and siblings were healthy.
He was born by normal vaginal delivery with a weight of 3.1 kg. He was exclusively breast fed for six months and breast feeding was continued for two (02) years. His complementary feeding during the first year was adequate in calories and had adequate animal products such as meat and fish.

Around 1 year of age, there was concern about poor weight gain and pallor. He was investigated and started on iron, folic acid and vitamin C. He had decreased appetite, poor weight gain, constipation and intermittent faecal soiling. He also had sleep disturbances due to abdominal pain. Regular laxatives and nutritional supplements were added to the treatment. However, his symptoms did not improve despite good compliance. He continued to have low haemoglobin.

On examination the growth parameters are as follows:

Weight 9.5 kg (below -3SD)
Height 84 cm (between -2SD to -3SD)
Weight for height at -2SD
Head circumference 48cm (between median to -1SD)

The child remained irritable and in pain. He looked pale. The abdomen was distended with generalized tenderness. No organomegaly was found. Digital examination of the rectum revealed hard stools.

Following investigations results were available.

Hb	6.8 g/dL	(11-15)
WBC	8.3 x 10^9/L	(4 - 11)
	N-35%, L 60%, M 2% E 3%	
Platelets	275 x 10^9/L	(150- 450)
Red cell count	3.1 x10^9	(4.5 x 10^9)
MCV	64 fl	(78 -90)
MCH	24 pg	(27-30)
MCHC	27 g/dL	(32-35)

Blood picture - Red cells are microcytic, hypochromic with poikilocytosis.
WBC and platelets are normal

Contd……..5-/

CRP	5 mg/L	(<6)
ESR	28 mm/1st hour	(<20)
UFR	normal	
Urine culture	no growth	
Random blood sugar	82mg/dL	(60-110)
Serum Sodium	135mmol/L	(135 -145)
Serum Potassium	4.1 mmol/L	(3.5 - 6)
Blood urea	3.8 mmol/L	(3.5 -6)
Serum albumin	36 g/L	(35 -50)
Serum ferritin	8 pg/L	(20 -220)
AST	38 IU/L	(<40)
ALT	36 IU/L	(<40)
Stools for occult blood	negative	

3.1. What is the most likely diagnosis? (30 marks)

3.2. Mention two (02) tests, with the expected results that should be performed to confirm the diagnosis. (30 marks)

3.3. Outline the management of the condition. (40 marks)

Contd……..6-/

4. A 4-year-old girl was brought to the clinic by her parents as they were concerned about her vision.

She was the second child of non-consanguineous parents and was born at term with a birth weight of 2.9 kg. She was exclusively breastfed and weighed 4.2 kg at 5 months. The mother felt that her stools were bulky and frequent. However, she was repeatedly reassured that it was the normal breast milk stool.
Weaning diet was introduced at the age of 5 months. However, her stool consistency remained bulky and frothy throughout. She was just 8.0 kg at the age of 3 years. Her appetite was average. She was not the usual cheerful child of 4 years.
Her elder sister is 7 years and healthy.

On examination:

Weight 8.0 kg (< -3SD)
Height 85 cm (< -3SD)
Heart rate is 110/min and the blood pressure is 85/55 mm Hg. The abdomen is protuberant but soft. There is no organomegaly.

Hb %	9.8 g/dL	(11-15)
Total White Cell count	8.9 x 10^9 /L	(4-11)
	L - 45% N - 51%	E- 4%
Platelet count	330 x 10^9 /L	(150 -450)
Serum Creatinine	100 µmol/L	(44 -110)
Serum Sodium	138 mmol/L	(135- 145)
Serum Potassium	4.5 mmol/L	(3.5- 4.5)
RBS	78 mg/dL	
UFR	normal microscopy	
Urine culture	no growth	

4.1. What is the diagnosis? (20 marks)

4.2. List four (04) other tests you would perform to confirm the diagnosis and briefly describe the expected results. (20 marks)

4.3. Mention the likely finding of the eye examination. (10 marks)

4.4. If the child is left untreated, mention four (04) complications you would anticipate in her early teens. (20 marks)

4.5. Outline the long-term management. (30 marks)

Contd.....7-/

5. A 4-year-old boy was brought to the hospital due to poor growth. He was born to non-consanguineous parents at term with a birth weight of 3.2 kg. He was kept in the hospital for 3 days due to hypoglycaemia and discharged after establishing breast feeding. The neonatal screening for hypothyroidism was normal.
Parents became concerned when he started preschool as he was smaller compared to his peers. He was otherwise healthy and did not have any chronic illness. Recently mother has noticed that the child draws the chair near the television to watch his favorite programs.
On examination, his height is 85cm (<-3SD), weight is 10 kg (< -3SD). He has a small café- au- lait spot at the back.

Urine Full report	Pus cells-1-2/hpf Red cells- 2-3/hpf	
WBC	8.9 x10^9/L (N - 52% L- 46 %)	(4-11)
Hb	11.9 g/dL	(12-15)
Platelet	195 x 10^9/L	(150-400)
FT4	0.7 ng/dL	(0.9-2.2)
TSH	2.1 miu/L	(0.4-4.5)
Serum creatinine	38 µmol/dL	(45-80)
AST	28 IU/L	(<40)
ALT	13 IU/L	(<40)

5.1. What would be the most likely complete diagnosis? (20 marks)

5.2. Mention the investigations you would perform giving the expected results. (30marks)

5.3. Discuss the management of this child. (50 marks)