(University of Choice)

MASINDE MULIRO UNIVERSITY OF SCIENCE AND TECHNOLOGY
(MMUST)

MAIN CAMPUS

UNIVERSITY EXAMINATIONS
2015/2016 ACADEMIC YEAR

FIRST YEAR, FIRST TREMESTER EXAMINATIONS

FOR THE DEGREE
OF
BACHELOR OF HEALTH PROFESSION EDUCATION

COURSE CODE: NDR 105

COURSE TITLE: MEDICAL PHYSIOLOGY I

DATE: 10TH December, 2015 TIME: 9:00 am to 12:00 Noon

Instructions to Candidates
Answer All Questions
Section A: Multiple Choice Questions (MCQ) 20 Marks.
Section B: Short Answer Questions (SAQ) 40 Marks.
Section C: Long Answer Question (LAQ) 40 Marks

TIME: 3 Hours

MMUST observes ZERO tolerance to examination cheating

This Paper Consists of 4 Printed Pages. Please Turn Over.

Section A: Multiple Choice Questions (MCQ) 20 Marks

1. In the colon
   A. A greater volume of water is absorbed than in the small intestine.
   B. Mucus is secreted to lubricate the faecal contents.
   C. Faecal transit time is normally about 7 days.
   D. Bacteria normally account for about three quarters of the faecal weight.
2. Gastric juice
   A. Is secreted when the vagus nerves are stimulated.
   B. Is secreted in vagotomized animals when food is chewed but not swallowed.
   C. Activates the digestive enzymes secreted with saliva.
   D. It digest the gastric mucosa because it is protected by a pepsin inactivator.
3. An increase in body fat increases the
   A. Percentage of water in the body.
   B. Survival time during fasting.
   C. Survival time in hot water.
   D. Specific gravity of urine
5. Thyroid hormones, when secreted in excess, may cause an increase in the
   A. Peripheral resistance.
   B. Frequency of defecation.
   C. Energy expenditure required for a given workload.
   D. Heart rate when cardiac adrenergic and cholinergic receptors are blocked.
6. Aldosterone secretion is increased by an increase in plasma
   A. Volume.
   B. Osmoregulation.
   C. Renin II concentration
   D. ACTH concentration.
7. Glucocorticoid injections lead to increases in
   A. Lymph gland size decrease.
   B. Fibroblastic activity.
   C. Canabolic activity in muscle.
   D. Membrane stability in mast cell and lysosomes.
8. An intravenous infusion of noradrenaline differs from one of adrenaline in that it
   A. Acts on alpha adrenoceptors.
   B. Does not act on beta adrenoceptors.
   C. Raises total peripheral resistance.
   D. Increases cardiac output.
8. Growth hormone
   A. Stimulates the liver to secrete somatomedins which regulate bone and cartilage growth.
   B. Secretion is under thalamus control.
   C. Levels in the blood are higher in adults than in children
   D. Secretion increases during sleep.
9. The plasma level of adrenocorticotrophic hormone (ACTH)
   A. Is normally maximal around midday.
   B. Is regulated mainly by the blood cortisol level.
   C. Shows diminished circadian fluctuations with an adrenal tumour.
   D. Is diminished in the presence of complete adrenal failure
10. Possible consequences of hypothyroidism include having
   A. A normal body core temperature.
   B. A tendency of insomnia

C. Decreased body hair (hirsutism).
D. Moist hands and feet
11. Sudden complete loss of parathyroid function
A. Leads to smooth muscle spasms.
B. May be fatal if treatment is not given to raise the blood level of ionized potassium.
C. Causes haemorrhagic disease due to lack of calcium for haemostasis.
D. May be treated in the long-term by regular doses of vitamin C.
12. When a patient with diabetes insipidus is treated successfully with antidiuretic hormone the
A. Urinary flow rate should fall by about 90 per cent.
B. Urinary output should be reduced to around 15 ml/minute
C. Urinary osmolality should rise to between 20 and 30mosmol/litre.
D. Salt intake should be carefully regulated
12. In the normal menstrual cycle
A. Blood loss during menstruation averages around 30 ml.
B. The proliferative phase depends on progesterone secretion.
C. Cervical mucus becomes more fluid around the time of ovulation.
D. Ovulation is followed by a increase in blood luteinizing hormone level.
13. Fertilization of the human ovum normally
A. Occurs in the cervix.
B. Allows further spermatozoa from entering the ovum.
C. Occurs 2–5 days after ovulation.
D. Occurs 8–10 days before implantation.
E. Leads to the secretion of human chorionic gonadotrophin (HCG) within two weeks.
14. Human spermatozoa
A. Contain 46 chromosomes.
B. Have enzymes in their body which aid penetration of the ovum.
C. Are produced faster at 30 than at 32oC.
D. Are stored mainly in the vasdeference vesicles.
15. After a baby is born, there is normally a fall in
A. Its systemic vascular resistance.
B. Its pulmonary resistance.
C. Indirect flow from pulmonary artery to aorta.
D. Indirect flow from right to left atrium.
16. Secretion of testosterone
A. Increases pituitary secretion of LH.
B. Causes the epiphyses of long bones to reduce fusion
C. May lead to a negative nitrogen balance.
D. Stimulates growth of scalp hair.
17. Secretion of androgens in the adult female
A. Is abnormal.
B. In large amounts can cause enlargement of the hips.
C. Does not affect the voice.
D. May lead to growth of scalp hair.
18. Failure to ovulate in a given cycle is likely if
A. Pregnanedioldoes not appears in the urine in the second half of the cycle.
B. Basal body temperature is constant throughout the cycle.
C. Lateral abdominal pain is experienced at mid-cycle.
D. Cervical mucus showed evidence of unopposed progesterone action in the second half of the cycle.
20. Features indicating poor physical condition in the newborn include

A. A pale rather than a bluecolor.
B. A steadily heart rate.
C. Spontaneous limb movements.
D. Relaxed muscles with high tone.

Section B: Short Answer Questions (SAQ's)

40 Marks.

1. State five functions of the liver — 5 marks
2. Explain why fatty stool results from the absence of bile or pancreatic juice — 6 marks
3. Distinguish between circulating hormones and local hormones — 6 marks
4. Explain how hormones are classified chemically — 6 marks
5. Why do an individual have to blow the nose after crying? Explain. — 6 marks
6. Describe the intrinsic conduction pathway of the human heart — 5 marks
7. Explain how the body regulate body temperature — 6 marks

Section B: Long Answer Questions (SAQ)

Question 1.

40 Marks.

a) Citing one hormone, describe the two major mechanism by which hormones brings about their effects on their target tissue — 10 marks

b) Describe the mechanism through which norepinephrine influence heart contractility 10 marks

Question 2.

Describe digestive active when an individual take a balanced diet offered in a localrestaurant during time

20 marks