**ST MARY’S UNIVERSITY**

**TWICKENHAM, LONDON**

BA/BA(ITT)/BSc Degree Examination students registered for

Level **FIVE**

Title: **Aetiology of Chronic Disease**

Code: **HEP5005**

Semester: **ONE**

Date: **10th January, 2020**

Time: **9:30 am – 11:30 am**

TIME ALLOWED: **TWO HOURS**

This paper is in **TWO** Sections.

**SECTION A:** Answer **ALL** multiple choice questions

**SECTION B:** Answer **FIVE** questions.

**Answer Section A questions on THIS paper – circle your answer for each of the questions**

**Regnum:**

**SECTION A**

Multiple Choice. Answer **ALL** questions**: (30 marks)**

1. The human body has a set point in order to maintain stable weight. Which hormone is central to governing the set point and is produced from white adipose tissue?
   1. Leptin
   2. Ghrelin
   3. Peptide YY
   4. Pancreatic polypeptide
2. An individual is defined as being obese when they have a Body Mass Index of:
3. <30 kg/m²
4. >25 kg/m²
5. >30kg/m²
6. >28.3 kg/m²
7. Plaques and atherosclerosis are best defined as:
8. Fatty deposits and clots
9. Fatty deposits and thickening and hardening of the blood vessels.
10. Clots and thickening and hardening of the blood vessels
11. Hardening of the arteries and bleeding
12. Which of the following cells are transformed white adipocytes capable of generating heat?
    * + - 1. Brown fat cells
          2. Beige fat cells
          3. White adipocytes
          4. Subcutaneous adipocytes
13. Which of the following best describes the terms ‘leptin resistance’ and ‘insulin resistance’?
    * + - 1. The body’s inability to produce leptin only
          2. The body’s inability to produce insulin only
          3. The body’s inability to recognise and respond to the presence of both leptin and insulin.
          4. The body’s inability to produce both leptin and insulin
14. Excess adipose tissue found centrally in the human body is responsible for releasing:
15. Cortisol
16. Free fatty acids and cytokines (adipocytokines)
17. Free fatty acids
18. Proteins
19. Which of the following are risk factors for developing cardiovascular disease?
    1. Smoking and physical inactivity
    2. Osteoporosis
    3. Hypertension
    4. Parkinson’s disease
20. Hypertension is normally considered as:
    1. Systolic pressure ≥140mmHg Diastolic pressure ≤70mmHg
    2. Systolic pressure ≥140mmHg Diastolic pressure ≥90mmHg
    3. Systolic pressure ≥140mmHg Diastolic pressure ≥70mmHg
    4. Systolic pressure ≥140mmHg Diastolic pressure ≤90mmHg
21. Which of the following statements does **not** apply to insulin?
22. Is produced in the beta cells of the pancreas
23. Insulin converts glycogen into glucose
24. Insulin is released in response to amino acids in the blood
25. Elevated glucose in the blood promotes insulin secretion
26. In the fasting plasma glucose test, what is the level of glucose that indicates that a patient is diabetic?
    1. ≥7.0 mmol/l
    2. ≥ 11.0 mmol/l
    3. ≤7.0 mmol/l
    4. = 6mmol/
27. Which of the following can occur during sleep deprivation?
28. Increased digestion processes
29. Increased cell repair
30. Decreased cortisol secretion
31. Impaired glucose tolerance
32. Which statement does **not** apply to strokes?
    1. Restriction of blood supply to the brain
    2. Restriction of blood supply to the brain, burst blood vessel in the brain
    3. Restriction of blood supply to the heart
    4. Tissue damage with permanent loss of function
33. Which of the following is the correct definition for cardiovascular disease?
34. Blood vessels irregularity and diseases
35. A group of disorders of the heart and lungs
36. A group of disorders of heart and kidney
37. A group of disorders of the heart and blood vessels
38. Which medication is commonly prescribed to lower cholesterol?
39. Beta blockers
40. Asprin
41. Statins
42. Sodium sulphate
43. Chronic Restrictive Pulmonary Disease is caused by:
    1. Inflammation and scarring (fibrosis) of the lungs
    2. Diseases affecting the respiratory muscles
    3. Diseases affecting the lung wall
    4. All of the above
44. Which of the following statements accurately describes the condition of emphysema?
    1. It is a chronic obstructive pulmonary disease where alveolar walls breakdown, reducing the total surface for gaseous exchange
    2. It is a chronic obstructive pulmonary disease with inflammation of air passages
    3. It is a chronic obstructive pulmonary disease with hyper reactive airways and chronic air passage inflammation
    4. It is a chronic restrictive pulmonary disease with reduced lung expansion
45. Asthma can be triggered by which of the following?
    1. House dust mites, pollution, animal fur, exercise, tobacco smoke, cold air and chest infections
    2. Exercise and tobacco smoke only
    3. Cold air and chest infections, anxiety only
    4. None of the above
46. The excretory function of the kidney controls:
47. Water content/ volume of the body
48. Acid –base balance in the body
49. Osmotic pressure in the body
50. All of the above
51. The first sign of diabetic chronic kidney disease is:
52. Protein in the urine
53. Glucose in the urine
54. Blood in the urine
55. Salt in the urine
56. The two main symptoms of late stage chronic kidney disease are:
57. Tiredness and anxiety
58. Tiredness and nausea
59. Dehydration and physical pain
60. Hyperglycemia and physical pain
61. Bone cells are deposited and made by;
62. osteoclasts
63. osteoblasts
64. calcium
65. white blood cells
66. Osteoarthritis caused by obesity or injury is called;
67. Primary Osteoarthritis
68. Rheumatoid Osteoarthritis
69. Acute Osteoarthritis
70. Secondary Osteoarthritis
71. Deficiency of the neurotransmitter dopamine in the body is associated with;
72. Multiple Sclerosis
73. Parkinson’s Disease
74. Arthritis
75. Osteoporosis
76. Which of the following contribute to increased risk of developing to Multiple Sclerosis?
77. Caucasian ethnicity
78. Viruses
79. Temperate climate
80. All of the above
81. Inflammation of one or more weight bearing joints is called:
82. Osteoporosis
83. Osteoarthritis
84. Arthritis
85. Acute inflammation
86. Risk factors considered to contribute to the development of cancer include:
87. Age
88. Age and ultraviolet light
89. Cigarette smoke and age
90. Cigarette smoke, age and ultraviolet light
91. Metastasis is defined as:
92. The growth of cancer cells
93. The movement of small groups of cancer cells to another part of the body, via the bloodstream
94. The name given to benign tumours
95. The rapid growth of and invasion by cancer cells
96. Which of the following provide the greatest risk for someone developing chronic conditions such as diabetes?
    1. High levels of visceral white adipose tissue
    2. High levels of subcutaneous white adipose tissue
    3. High levels of visceral brown fat
    4. High levels of subcutaneous brown fat
97. The endocrine function of the pancreas involves:
98. Glucagon secreted by the alpha cells
99. Insulin secreted by the beta cells
100. Somatostatin secreted by the delta cells
101. All of the above
102. Which of the following statements **do not apply** to Type 1 Diabetes?
103. Pancreatic beta cells are destroyed resulting in inability to produce insulin
104. Generally occurs earlier in the lifespan of humans
105. Type 1 diabetes is caused by lifestyle factors
106. Type 1 diabetes individuals are usually thin
107. Chronic kidney disease is often caused by:
108. Hypertension
109. Physical inactivity
110. Smoking
111. All of the above

**SECTION B**

Short answer questions.

Answer **FIVE** from the sevenquestions below. Total marks available 70 (14 marks per question)

Each answer should include:

* Definition/explanation - 4 marks
* Answering the question - 10 marks

**Write the answers to Section B in an examination booklet provided**

* + - 1. Define the terms ‘atherosclerosis and ‘atheroma’ **(4 marks).** Discuss the role of cigarette smoking in the development and progression of atherosclerosis **(10 marks).**
      2. Explain the term ‘cardiovascular disease’ and provide two examples of CVD **(4 marks).** Discuss the risk factors associated with cardiovascular disease **(10 marks).**
      3. Explain the difference between ‘visceral adipose tissue’ and ‘subcutaneous adipose tissue’ **(4 marks).** Discuss the physiological link between visceral adipose tissue and the development of type 2 diabetes **(10 marks).**
      4. Explain the difference between type 1 and type 2 diabetes **(4 marks).**  Discuss the mechanisms of how type 2 diabetes can damage the kidneys **(10 marks).**
      5. Identify four risk factors that increase the likelihood an individual will have insufficient sleep **(4 marks).** Discuss how hormonal changes following a long period of insufficient sleep might cause an individual to gain weight **(10 marks).**
      6. Explain the ‘set point’ theory in relation to body mass **(4 marks).** Describe the physiological adaptations that occur following weight loss that can inhibit further weight loss from occurring **(10 marks).**
      7. Define and explain the condition of osteoporosis **(4 marks).** Discuss the main risk factors that can contribute to the development of this disease **(10 marks).**

**END OF EXAMINATION**