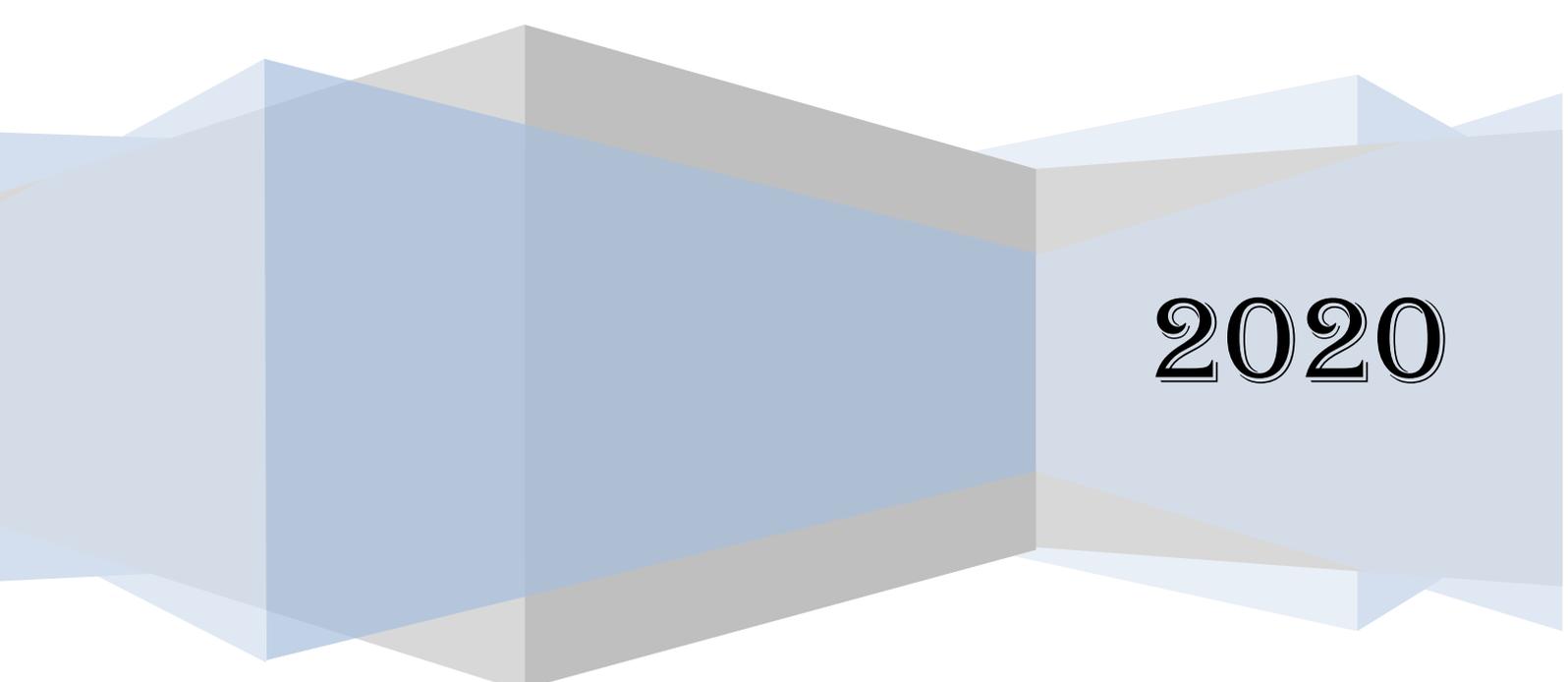


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Physiology (Questions)

Part III (General) : Paper IV A : Unit 06

**Dept. Of Physiology
Ramsaday College, Amta**



2020

CHAPTER 1 : HAEMATOLOGY

Syllabus:

Blood groups - ABO and Rh. Blood transfusion - precaution and hazards. Immunological basis of identification of ABO and Rh blood groups. Functions and estimation of hemoglobin. Abnormal hemoglobin - thalassaemia and sickle-cell anaemia. Definition, determination and significance of TC, DC, ESR, Arneht count, PCV, MCV, MHC, MCHC, bleeding time, clotting time and prothrombin time. Anaemia - types (definition and causes). Leucocytosis, leucopenia and leukemia. Purpura.

Questions :

1. What is anaemia? Mention different types and name of anaemia with physiological causes.
2. What is sickle cell anaemia?
3. What is the significance of determination of ESR?
4. What is Rh factor?
5. What are the precautions taken / adverse effects of mismatch during blood transfusion?
6. What is thalassaemia?
7. What are PCV, MCHC, and MCV?
8. Compare between Hb A & Hb F
9. What is polycythemia, Leucopenia, purpura, leukocytosis?
10. What is the function of Haemocytometer?
11. Define and give normal values of prothrombin time, bleeding time and clotting time.
12. Discuss the method of estimation of Haemoglobin.
13. Distinguish between TC & DC.
14. Mention 2 important functions of Haemoglobin/ Mention the primary functions of Hb.
15. What is Arneht count?
16. Difference between leukocytosis and leukemia.
17. Discuss the basis of ABO blood group determination.
18. What is erythroblastosis foetalis?
19. What do you mean by *a man with O blood group*?

CHAPTER 2 : BIOCHEMISTRY AND MOLECULAR BIOLOGY

Syllabus:

Brief idea of HMP shunt and its significance (detailed enzymatic reactions are not required). Lipoproteins - types and functions. Purine and pyrimidine bases, nucleosides, nucleotides and polynucleotides. Structure of DNA and RNA. Elementary idea of gene, genome, transcription, genetic code, translation and genetic engineering.

Pathophysiological significance of the following blood constituents: glucose, urea, creatinine, uric acid, cholesterol, bilirubin, SGPT and SGOT, alkaline and acid phosphatases and ketone bodies

Questions :

1. Name the different purine and pyrimidine bases.
2. Distinguish between gene and genome.
3. Mention the physiological significance of Hexose Monophosphate Shunt.
4. What is lipoprotein? Describe the different types of plasma lipoproteins and mention their functions.
5. What do you mean by genetic engineering and genome?

6. Describe the pathophysiological significance of increased level of blood uric acid, SGOT, SGPT, ketone bodies, bilirubin, glucose, urea, acid phosphatase, alkaline phosphatase, cholesterol and creatinine.
7. State the different types of RNA.
8. Write the names of two ketone bodies. Why excess ketone bodies are produced during starvation.
9. What is genetic code? Mention its characteristics.
10. What is nucleotide and nucleoside? Distinguish between nucleotide and nucleoside.
11. What do you mean by translation and transcription?
12. Describe the pathophysiological significance of presence of ketone bodies in urine.
13. How does DNA differ chemically from that of RNA?
14. Write the full form of SGOT and SGPT.
15. Mention the structural characteristics of DNA.
16. Write the functions of chylomicrons.
17. Write the nitrogen bases of a RNA molecule.

CHAPTER 3 : MICROBIOLOGY AND IMMUNOLOGY

Syllabus:

Virus - DNA virus and RNA virus. Bacteriophage. Bacteria-structure and morphological classification. Gram positive and Gram negative and acid-fast bacteria. Pathogenic and non-pathogenic bacteria - definition with a few examples. Sterilization and Pasteurization. A brief idea of antibiotics. Elementary knowledge of innate and acquired immunity. Humoral and cell mediated immunity. Vaccination - principles and importance of immunization. Basic principle of immunological detection of pregnancy

Questions :

1. Define and Name two pathogenic and non-pathogenic bacteria.
2. What do you mean by acquired immunity, innate immunity, humoral immunity, cell mediated immunity?
3. Give the definitions of antibiotics with one example.
4. What do you mean by Gram positive and Gram negative bacteria?
5. What are DNA & RNA virus? Give example.
6. Classify bacteria morphologically.
7. What is pasteurization and sterilization?
8. What is the importance of immunization?
9. What is bacteriophage? Describe the structure of a bacteriophage with a neat diagram.
10. What are acid fast bacteria? Give example.
11. What is RNA virus? Give example.
12. Describe typical bacteria with a labeled diagram.
13. What is the basic principle of immunological detection of pregnancy?
14. What is vaccination? Give example of oral vaccine.
15. Distinguish between innate and acquired immunity.
16. What is DNA virus? Give example.

CHAPTER 4 : SOCIAL PHYSIOLOGY

Syllabus:

Composition and nutritional value of common Indian foodstuffs – rice, wheat, pulses, egg, meat, fish and milk. Dietary fibers. Calorie requirement. Concept of ACU. Principle of balanced diet

formulation of individuals - infants, growing children, students, pregnant women, lactating women and aged persons. Dietary management of obese, diabetic person, hypertensive person and athlete. Diet survey. Malnutrition and its causes - PCM, marasmus, kwashiorkor their prevention. Iron and iodine deficiency.

Population problem and its control. Problem of infertility and brief idea about *in vitro* fertilization and intrauterine gamete transfer. Brief idea of AIDS and hepatitis B and their preventions.

Questions :

1. Discuss the nutritive value of milk, egg, fish, pulses and rice.
2. What is the importance of inclusion of dietary fibre in the diet?
3. Prepare a balanced diet chart for pregnant woman.
4. What do you mean by ACU?
5. What is intra uterine gamete transfer and in vitro fertilization?
6. Name 2 food stuffs containing sufficient amount of iron and iodine.
7. How diabetes is controlled by diet?
8. What are the symptoms of AIDS? Mention its preventive measures.
9. How high blood pressure of a person can be controlled by diet?
10. What is malnutrition?
11. Mention two reasons each for male and female infertility.
12. Prepare a balanced diet for growing children.
13. Give a brief idea of Hepatitis – B. Mention its two preventive measures.
14. What is PCM?
15. Describe a method of diet survey. What are the significance / utility of diet survey?
16. Give a brief account on AIDS & Hepatitis B.
17. Describe two methods of birth control in female.
18. Write the preventive measures of Kwashiorkor and Marasmus.
19. What is balanced diet? Give example.
20. How obesity can be controlled by diet?
21. What are dietary fibers? Write its physiological importance.
22. Why iodine and iron is essential for our body?
23. Mention different methods of population control.
24. Prepare a balanced diet chart for lactating woman.

CHAPTER 5 : WORK PHYSIOLOGY

Syllabus:

Physical work - definition and units of measurement. Concept and classification of physical work -- static and dynamic work, positive & negative work. Cardiovascular and respiratory changes during physical exercise. Brief idea of maximal aerobic power and excess post-exercise oxygen consumption. Basic idea of doping. EMG. Physical fitness index – Harvard step test. ECG -- normal waves and leads. Anthropometry and its uses.

Questions :

1. Describe the respiratory and cardiovascular changes during physical exercise.
2. Explain with example the positive and negative work.
3. What do you mean by Excess Post-exercise Oxygen Consumption (EPOC)? What is the significance of its measurement?
4. What is anthropometry? Mention its uses.
5. Describe briefly the different leads for ECG recording.
6. Explain the different waves of normal ECG.
7. Classify work.

8. What is static and dynamic work? Give difference with example.
9. What is doping? Give a brief account on it.
10. What is maximum aerobic power? State its normal value.
11. What is physical fitness index? Describe one process for its determination.
12. Difference between ECG and EMG.
13. What is EMG?

CHAPTER 6 : ENVIRONMENTAL PHYSIOLOGY

Syllabus:

Environment - its physiological aspects. Effect of extreme temperature on humans. Hypobaric environment - effects on physiological system, acclimatization. Hyperbaric conditions and Caisson disease. Brief idea of cyanosis, dyspnoea, hyperpnoea, apnoea and asphyxia. Some common pollutants and their effects - carbon monoxide, lead and arsenic. Effects of noise on human body and preventive measures.

Questions :

1. What is meant by pollutant?
2. Describe briefly the effects of noise pollution in human.
3. What are the sources and toxic effects of lead on human body?
4. Describe briefly the effects of extreme high and extreme cold temperature on our body.
5. Mention the effects of hyperbaric and hypobaric environment on physiological system / human body.
6. What are cyanosis, caisson disease, asphyxia, hyperpnoea, apnoea and dyspnoea?
7. Mention the preventive measures of noise pollution.
8. Discuss the sources and toxic effects of carbon monoxide on human.
9. What is acclimatization and heat stroke?
10. What are the sources of arsenic and its toxic effect on human body?
11. What do you mean by noise? Describe the auditory and behavioral changes in human during noise pollution.

CHAPTER 7 : BIOSTATISTICS

Syllabus:

Basic concepts – variable, population, parameter, sample, statistic. Classification of data – qualitative and quantitative, continuous and discontinuous. Presentation of data–frequency distribution, bar diagram, pie diagram, frequency polygon and histogram. Mean, median, mode, standard deviation and standard error.

Questions :

1. What is variable? Describe different types with example.
2. What is parameter? Give example.
3. What is standard deviation and standard error?
4. Give a brief account on frequency distribution.
5. How do you draw a pie diagram?
6. What is parameter? Give example.
7. What do you mean by biostatistics, population and sample?
8. What do you mean by qualitative and quantitative data?
9. What is histogram? How do you draw a histogram?

10. What do you understand by mean, median and mode?
11. How frequency polygon can be drawn?
12. How do you draw a bar diagram?

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