

Date:

Registration number:

ST. JOSEPH’S COLLEGE (AUTONOMOUS), BENGALURU-27

CBCS OPEN ELECTIVE- IV SEMESTER

SEMESTER EXAMINATION: APRIL 2022

(Examination conducted in July 2022)

**PH OE 4218 - Medical Physics**

Time- 2 hrs Max Marks-60

This question paper contains **4** printed pages and **three** parts

**Part A**

**Answer the following questions 15×1=15**

1. Which of the following reduces the frictional force between the articular cartilage in our joints?

a) Ligament

b) Synovial fluid

c) Articular cartilage

d) Joint capsule

1. Which of the following is the characteristic of Osteoporosis?

a) Stone like bones

b) Loss of bone mass

c) Thick and dense bones

d) Large and misshapen bones

1. Which of the following is not a heat transport mechanism?

a) Conduction

b) Convection

c) Radiation

d) Scattering

1. The resting potential of axon is

a) <50 milli volt

b) 60-90 milli volt

c) 100-200 milli volt

d) 1500 milli volt

1. The residual lung volume will be

a) 1200 mL

b) 150 mL

c) 700 mL

d) 500 mL

1. How many divisions will be there in lungs?

a) 23

b) 15

c) 60

d) 40

1. Spirometry is used to diagnose \_\_\_\_\_\_

a) Asthma

b) Sugar

c) High Pressure

d) Polio

1. Electroencephalogram is the study of

a) Study of electrical activity of muscle action

b) Study of electrical activity of hear functions

c) Study of electrical activity of brain functions

d) Study of electrical activity of eye functions

1. In ECG, a patient’s heart beat can be obtained by counting

a) P-Q wave

b) QRS complex

c) Q-S wave

d) S-T wave

1. Which of the following light isomerizes the bilirubin excretion in the neonatal jaundice?

a) Blue light

b) Red Light

c) Green light

d) White light

1. The average sound propagation speed in soft tissues is \_\_\_\_\_\_\_\_\_\_

a) 1400 to 1650 m/s

b) 500 to 700 m/s

c) 65 to 400 m/s

d) 2000 to 20,000 m/s

1. Which of the following radiation has huge ionization ability?

a) Alpha radiation

b) Beta radiation

c) Gamma radiation

d) All the above

1. PET stands for

a) Positron Emission Tomography

b) Pulsed Election Transmission

c) Probabilistic Electric Transient

d) None of the above

1. Which of the following isotopes are suitable for thyroid glands?

a) I-125

b) T-99

c) Fe-56

d) C-14

1. The movement of ions across the cell membrane generates an electrical pulse known as

a) Action potential

b) Electric potential

c) Magnetic potential

d) Electromagnetic potential

**Part B**

**Answer any 15 questions 15×2=30**

1. Draw the ECG pattern and mark its feature in it.
2. Contrast heart attack from cardiac arrest.
3. Write about the properties of sound waves.
4. Contrast the properties of ordinary light from lasers.
5. What do you mean by radioactivity?
6. Discuss leukaemia.
7. List out few radioactive substances and its applications.
8. What do you mean by opaque and lucent regions in X-ray images?
9. List out the engineering applications of X-rays.
10. Write few applications of spirometry.
11. Define the lung volume and its capacity.
12. What do you mean by paged’s diseases of bones?
13. List out the ideal properties of thermometric liquids.
14. Discuss the structure and function of synovial fluid in human joints.
15. List out the variety of thermometers.
16. What are all the applications of thermographic camera?
17. Write any two interesting facts about human lungs.

**Part C**

**Answer any 03 questions 3×5=15**

1. With a neat diagram discuss about Electrocardiogram.
2. Discuss the applications of ultrasound.
3. What do you mean by radiation damage and explain?
4. Discuss about various cavities in human body.
5. Discuss the structure of neurons and its functions with neat diagram.