Total No. of Printed Pages –3

SS/PBN-I/BP&BC/01-23

2023

(January)

BIOPHYSICS AND BIOCHEMISTRY

Full Marks : 75

Time : 3 hours

The figures in the margin indicate full marks for the questions

FIRST HALF

1. Answer the following questions: 1x10=10

(a) S.I Means

i. International Second
ii Second International Unit
iii System International of Unit
iv International System of Unit

(b) Rate of change of velocity within time is :

i. Time
ii. Acceleration
iii. Vector
iv. Kinetic energy

(c) An objects mass per unit volume:

i. Force
ii. Energy
iii. Density
iv. Gravity

(Turn Over)

(d) When the force and displacement are in the same direction:
i Positive work
ii. Negative work
iii. Work
iv Neutral

(e) Movement of thermal energy from one area to another in a liquid or gas is:
i. Convection
ii. Conduction
iii. Rdiation
iv. None of these

f) The relationship between Joules and Calorie is 1 calorie =
i. 3 782 J
ii. 2.323 J
iii. 4.186 J
iv. 5.472 J

g) Intraocular Pressure is measured by:
i. Sphygmomanometer
ii Tonometer
iii B.P Instruments
iv A and B

h) Cochlea is a coiled bony structure that called:
i. Cochlea duct
ii Cochlea canal
iii. Cochlear angle
iv A and B

i) _ _ _ _ _ _ is less sensitive to patient movement that MRI:
i. ECG
ii. EEG
iii. X-RAY
iv. CT Scan

j) The electrons are always found whizzing around the center in area is called:
i. Nucleus
ii. Covent are
iii. Orbital's
iv. Orbit

Continue

2. A car travels at a uniform speed of 30 kmph for 30 minutes and then at a uniform speed of 60 kmph for next 30mints. Calculate the average speed of the car (in kmph)? 2
3. State the Newton's laws of Motion. 3
4. State the law of conservation of energy. Write a short note on Transformation of Energy in a Human body. 1+2=3

OR

State Pascal law and prove it with proper diagram.

5. Define 1 calorie of heat. What are the processes of heat transfer (explain)? 1+4=5
6. Write the laws of Reflection (with diagram). 2
7. Define Accommodation Power of Eye. What are the types defective vision and its correction uses of lenses? 1+4=5
8. Write short note on any four (4) of the following: 2.5x4=10
   - *(a)* Vocalization
   - *(b)* Pacemaker
   - *(c)* Noise pollution and its Prevention.
   - *(d)* Dialysis.
   - *(e)* X-Rays
   - *(f)* Structure of Atom
   - *(g)* N-type semiconductor

SECOND HALF

9. Classify Carbohydrates. Define Cori Cycle. 2+2=4
10. What are Glycols? How Glucose is formed from non-carbohydrate compounds? 3+4=7
11. What is dehydration? Name the sources of three important electrolytes present in blood. 2+3=5
12. What are lipoproteins? What are the substance produced from Cholesterol? 4+3=7
13. What are gluconeogenesis? How is blood sugar level maintained? 3+5=8
14. Write short notes (any one of them) : 1x4=4
    - *(a)* Urea
    - *(b)* Eukaryotic Cell structure
    - *(c)* Beta-Oxidation

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