Name :				
Roll No. :				O Down of Exercising and Exercised
Invigilato	r's Si <sub>{</sub>	gnature :		
	CS/B.	.Tech(BME-NEW	)/SEM-4	/BME(PH)-401/2012
		20	12	
`	B	OPHYSICS &	<b>BIOCH</b>	<b>EMISTRY</b>
Time Allotted: 3 Hours				Full Marks: 70
	The	e figures in the mai	rgin indica	ate full marks.
Candida	ates a	are required to give	their ansv	wers in their own words
as far as practicable.				
GROUP – A				
		( Multiple Choice	e Type Qu	uestions )
1. Choose the correct alternatives for the following:				
				$10 \times 1 = 10$
i)	The frequency range of ECG signal is			
	a)	150 – 200 Hz	<b>b</b> )	△100 - 150 Hz
	u)	100 200 112	9)	100 100 112
	c)	0·05 − 100 Hz	d)	50 – 100 kHz.
ii)	Which of the following is a natural radio isotope?			
	a)	<sup>16</sup> O	b)	14 N

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Approximate range of "let go" current for male is

d)

b)

d)

None of these.

40 - 60 mA

none of these.

 $^{238}$  U

2 - 8 mA

9 - 30 mA

c)

a)

c)

iii)

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- iv) In case of atrial flutter
  - a) interval between T and P waves completely disappears
  - b) interval between P and Q waves completely disappears
  - c) interval between S and T waves completely disappears
  - d) none of these.
- v) One of the macromolecules of cell membrane is
  - a) phospholipid
- b) ammonia
- c) sodium
- d) strontium sulphate.
- vi) The amount of extra celluar body fluid is
  - a) 1/3 of TBW (total body water)
  - b) 1/4 of TBW (total body water)
  - c) 2/3 of TBW (total body water)
  - d) 3/4 of TBW (total body water).
- vii) The normal pH of body is
  - a) 8.1

b) 7.4

c) 6.4

- d) 8.9.
- viii) Alpha block occurs in
  - a) ECG

b) EEG

c) EMG

d) EOG.

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- ix) Differences in concentration of ions on opposite sides of a cell membrane is called
  - a) Membrane potential
  - b) Membrane pump
  - c) Transmembrane pump
  - d) None of these.
- x) The ratio of the volume of O  $_2$  taken and CO  $_2$  given out during respiration is called
  - a) Respiratory quotient
  - b) TCA cycle
  - c) Glycolysis
  - d)  $\beta$  oxidation.

#### **GROUP - B**

### (Short Answer Type Questions)

Answer any *three* of the following.

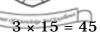
- $3 \times 5 = 15$
- 2. With the help of a block diagram, explain the functioning of a visual colorimeter.
- 3. What do you mean by fluorescence and phosphorescence in terms of photochemistry?
- 4. Classify carbohydrate with example.
- 5. Give a brief outline of the recording procedure of EMG signal.
- 6. What is Utracentrifugation? Explain electrophoresis. 2 + 3
- 7. Explain the function of body fluid ? How the acid-base balance of our body is maintained ? 2 + 3

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#### **GROUP - C**

# (Long Answer Type Questions)

Answer any three of the following.



- 8. Define radioactivity with the help of law of radioactivity decay. Briefly describe a procedure for production of radioisotopes. Give a brief outline of interaction of radiation with matter. Discuss about the electrical properties of excitable cell membrane. 3 + 4 + 4 + 4
- 9. What do you mean by macroshock and microshock in the physiological measurement? Briefly discuss about the recording procedure of EEG signals and give a brief outline of medical significance of EEG waveforms. Draw an equivalent electrical circuit of cell membrane. What is Electro-Retino Gram (ERG)? 3 + (4 + 2) + 3 + 3
- 10. Briefly describe the procedure of 12-leads ECG recording. What is the medical significance (diagnostic importance) of ECG waveform? What is bipolar method of body impedance.
- 11. What do you mean by primary, secondary, tertiary and quaternary structures of protein ? Why are proteins called amphoteric ? 10 + 5
- 12. Write the process of translation. Describe the process of DNA replication. 7+8

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