BRAINWARE UNIVERSITY

Term End Examination 2023-2024
Programme – B.Sc.(BT)-Hons-2021/B.Sc.(BT)-Hons-2022
Course Name – Basic Laboratory Sciences and Clinical Techniques
Course Code - GEAHS401
(Semester IV)

Full Marks : 60 **Time : 2:30 Hours**

[The figure in the margin indicates full marks. Candidates are required to give their answers in their own words as far as practicable.]

Group-A
(Multiple Choice Type Question) 1 x 15=15

1. *Choose the correct alternative from the following :*

(i) Select the tube that is mostly used for X-ray diffraction:
   a) Coolidge tube b) Crookes tube
   c) Regulator tube d) Shockproof dental x-ray tube

(ii) Name the part of the photometer that can prevent unwanted light:
   a) Slit b) Condenser
   c) Filter d) Detector

(iii) Select the correct one about RT-PCR:
   a) It shows the DNA copies by time by time b) anealing takes place in room temperature
   c) both of them d) none of them

(iv) Name the device that produce, typically disperse & measure the light:
   a) Spectrometer b) Photometer
   c) Fluorescence d) Phosphoroscence

(v) Identify the phenomenon of phosphorescence:
   a) The substance produce light continuously even after the incident light is cut off b) The substance produce visible light or radiation
   c) Decrease in fluorescence intensity d) None of the above

(vi) Select which of the following molecules can be analyzed using a northern blot:
   a) RNA b) Carbohydrates
   c) Proteins d) DNA

(vii) Discover, which type of chromatography involves the separation of substances in a mixture over a 0.2mm thick layer of an adsorbent:
   a) Gas liquid b) Column
   c) Thin layer d) Paper

(viii) Select, oil immersion objective lens has an NA value of_____
   a) 0.65 b) 0.85
   c) 1.33 d) 1

(ix) Identify in Phase contrast microscopy, the rate at which light enters through objects is _____

a) Constant
b) Inversely proportional to their refractive indices
c) Directly proportional to their refractive indices
d) Exponentially related to their refractive indices

(x) If you wish to change an immunofluorescence stain so it stains a different type of microorganism than it did before, select, what would you do:

a) Switch from epifluorescence to transmitted fluorescence
b) Change to a different type of fluorescent dye.
c) Use a different type of antibody.
d) All of these

(xi) Indicate the probable inventor of the compound microscope:

a) Girolamo Fracastoro
b) Zaccharias Janssen
c) Antonie van Leeuwenhoek
d) Robert Hooke

(xii) Trace the normal value of Hb in adult male:

a) 9-12 gm/dl
b) 14-18gm/dl
c) 15-18mg/dl
d) 12-15gm/l

(xiii) Choose the name of the condition that results when a person does not have enough platelets:

a) Thrombocytopenia
b) Thromboangiitis
c) Thrombocythemia
d) Thrombopathia

(xiv) Choose the term used for considering presence of sugar in urine:

a) Hyperglycemia
b) Hypoglycemia
c) Glucosuria
d) kitonuria

(xv) Label an addictive drug, such as opium, that relieves pain, alters mood and behaviorm and causes sleep or feelings of mental numbness:

a) Toxin
b) Anabolic Steriods
c) Narcotic
d) Poison

Group-B

(Short Answer Type Questions) 3 x 5=15

2. State the applications of Photometry. (3)
3. Compare Spectrophotometer with Spectrofluorometer. (3)
4. Distinguish between spectroscopy & spectrometry. (3)
5. Define ESR with its normal values. (3)
6. Infer on the clinical significance of Blood glucose measurement. (3)

OR

Analyze the significance of specialized equipments used in phlebotomy. (3)

Group-C

(Long Answer Type Questions) 5 x 6=30

7. Illustrate quenching along with its types. (5)
8. Discuss the method and applications of TLC. (5)
9. Illustrate the procedure of Western Blotting. (5)
10. Explain the DNA fingerprinting with its applications. (5)
11. Draw an inference on the clinical aspects of urine lab tests. (5)
12. Illustrate the working principle of Flame Emission Spectrophotometry. (5)

OR

Devise a schematic diagram of Fluorimeter and elaborate the application of this instrument. (5)

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