BRAINWARE UNIVERSITY

Term End Examination 2024-2025
Programme – B.Sc.(MLT)-2022
Course Name – Health Informatics
Course Code - BMLTE504B
(Semester V)

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) What does BLAST stand for?
a) Basic Local Alignment Search Tool. b) Biological Linked Alignment Search Tool.
c) Basic Long Alignment Search Tool. d) Biological Long Alignment Search Tool.

(ii) BLAST is primarily used for?
a) Protein structure prediction. b) Sequence alignment and searching.
c) Gene cloning. d) DNA synthesis.

(iii) Which of the following types of BLAST is used for protein-protein comparison?
a) BLASTn. b) BLASTp.
c) BLASTx. d) tBLASTn.

(iv) Describe the significance of a high bit score in BLAST.
a) It represents a poor match. b) It indicates a significant and high-quality alignment.
c) It suggests the presence of large gaps. d) It reflects the number of hits in the database.

(v) Explain the use of gaps in a BLAST alignment.
a) To identify mismatches. b) To align areas where one sequence has no corresponding base.
c) To score sequence identities. d) To calculate the E-value.

(vi) What type of data is collected during patient care, such as medical histories and diagnoses?
a) Public Health Data. b) Administrative Data.
c) Clinical Data. d) Research Data.

(vii) Which of the following is an example of administrative data?

a) EHRs. b) Appointment schedules.
c) Vaccination rates. d) Quality of life assessments.

(viii) How does public health data contribute to healthcare?

a) It aids in billing processes. b) It tracks disease outbreaks and informs policy decisions.
c) It supports patient-centered care. d) It ensures continuity of care.

(ix) A patient fills out a survey about their health experiences. This information will be used to tailor their treatment plan. Which type of data is being utilized?

a) Clinical Data. b) Administrative Data.
c) Patient-Reported Data. d) Research Data.

(x) Identify the example of qualitative data from the following options.

a) Blood sugar level of 100 mg/dL. b) Results from a clinical trial measuring heart rates.
c) A patient's emotional response during a focus group interview. d) Body temperature recorded as 37°C.

(xi) Which term describes a graphical representation of an algorithm?

a) Flowchart. b) Pseudocode.
c) Structured English. d) Decision Table.

(xii) How does the diamond symbol function in a flowchart?

a) Represents a process. b) Indicates a decision point.
c) Shows data input or output. d) Represents the flow of control.

(xiii) Which flowchart symbol is used to connect different parts of a flowchart?

a) Arrow. b) Rectangle.
c) Diamond. d) Circle.

(xiv) Which standard facilitates the exchange of clinical and administrative data?

a) HL7. b) SNOMED-CT.
c) ICD. d) LOINC.

(xv) What type of data does DICOM specifically manage?

a) Clinical notes. b) Medical imaging information.
c) Administrative data. d) Laboratory results.

Group-B

(Short Answer Type Questions) 3 x 5=15

2. Explain the significance of the E-value in BLAST results. (3)
3. Explain quantitative data with example. (3)
4. Explain interval scale with example. (3)
5. What are flowcharts, and how do they facilitate understanding of algorithms? (3)
6. Analyze how epigenetic modifications affect gene expression. (3)

OR

Analyze the role of transcriptional activators and repressors in disease contexts. (3)

Group-C

(Long Answer Type Questions) 5 x 6=30

7. Describe different methods of algorithm representation. (5)
8. Classify data based on nature and source with appropriate example. (5)
9. Develop a model of Data-Information-Wisdom-Knowledge for a Diagnostic Testing Workflow. (5)

10. Describe different branches of bioinformatics. (5)
11. Analyze different formats of BLAST with their application. (5)
12. Create a flowchart to arrange the numbers X, Y, Z in descending order. (5)

OR

Create a pseudocode to log in to facebook account. (5)

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