

Post Graduate Diploma in Management (Hospital & Health Management)

PGDM – 2023-25 Batch

2nd Year – 4th Semester End Examination

Subject & Code : Artificial Intelligence in Healthcare Integrating
Biomedical Data-HIT 711

Reg. No.:

Semester & Batch : IV, 2023-25

Date : 10-02-2025

Time & Duration : 10:30 A.M.-01:30 P.M. (3 Hrs.)

Max. Marks : 70

Instructions:

- Budget your time as per the marks given for each question and write your answer accordingly.
- Don't write anything on the Question Paper except writing your Registration No.
- Mobile Phones are not allowed even for computations.

Part A: Q.1 to Q.10 all questions are compulsory (10 X 2 Marks = 20 Marks)

One liner, MCQs, True/False

S. No	Column X	S. No	Column Y
1	Electronic Health Record	A	generated by physicians, patients, hospitals, pharmacies, and other sources but is controlled by the patient
2	Personal Health Record	B	originates with and is controlled by single provider
3	Electronic Medical Record	C	originates with and is controlled by doctors
	Say True or False		
4	K-means clustering is a supervised model		
5	Naïve Bayes algorithm uses neural network to work		
6	Telemedicine can be used for every disease treatment		
7	Annotation in DNA sequence starts with the term "Origin"		
8	Variables need to be declared with any particular type in python		
9	TCG is a stop codon		
10	Digital therapeutics is an example of Software as Medical Device		

Contd...2..

Part B: Q.11 to Q.15 attempt any four questions (4 X 5 Marks = 20 Marks)

Short Notes

11. Explain annotation in of DNA sequence
12. Barnatics is working around elderly care and wellness. The goal is to use digital technology to promote wellness among elderly living alone in their home. How can you integrate the biomedical data with AI and health data to promote their wellness?
13. Explain in detail any two packages used in Python
14. Write in brief the ethical aspects of using AI for healthcare
15. Mendep is a software program used for communicating with menta patients. Is these digital therapeutics? What are the key features to be present for digital therapeutics software

Part C: Q.16 to Q.19 attempt any three questions (3 X 10 Marks = 30 Marks)

Long Notes

16. Study the following figure clearly.

Interpret the above 2 figures.

Table 3. Summary of decision trees.

Experimental Subgroup	N	Physical	Role	Emotional	Cognitive	Social	Fatigue	Appetite Loss	Pain	Insomnia	Prediction Accuracy (%)	Root Node	Cut point
All Cancers	8478	x	x			x	x	x			67.34		27.8
Newly Diagnosed	3767	x	x			x	x	x			68.04		27.8
Recurrent Cancers	4711	x	x	x		x	x		x		66.16		38.9
Newly Diagnosed	Lung	730	x	x		x					67.95		75.0
	Breast	718	x	x	x	x	x				72.7		91.7
	Colorectal	243				x	x	x			74.49		27.8
	Prostate	527				x	x				73.62		27.8
	Pancreatic	415		x			x		x		63.61		47.2
	All others	1134	x				x	x			66.84		27.8
	Lung	682		x			x				67.16		50.0
	Breast	1102	x	x	x	x	x				68.51		27.8
Recurrent Cancers	Colorectal	628				x	x				62.26		44.4
	Prostate	285	x			x	x				71.23		90.0
	Pancreatic	292		x	x		x				69.18		44.4
	All others	1722	x	x		x	x	x			66.78		75.0
	Stage 1	470	x	x		x	x				70.85		91.7
Newly Diagnosed	Stage 2	908		x	x	x	x	x		x	73.68		91.7
	Stage 3	644				x	x				70.03		27.8
	Stage 4	1434	x	x		x	x		x		67.5		75.0
	Unknown	311				x	x				63.99		38.9
	Regional (Stage 1–3)	496		x		x	x				66.13		27.8
Recurrent Cancers	Metastatic (Stage 4)	3470	x	x	x	x	x		x		66.63		38.9
	Unknown	745	x	x			x				66.85		38.9

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-: 3 :-

Draw decision tree for either newly diagnosed case of cancer or recurrent case. Explain the parts of the decision tree and give your interpretation.

17. Differentiate between k-means clustering and k-means classification with suitable example
18. ABC wants to implement AI based application for Asthma diagnosis. They would like to compare their algorithm with two more established platforms. Explain in detail the process to be undertaken, including the steps and challenges to be addressed.
19. Explain in detail the all the 4 stages of protein structure.