Roll No.												

PRESIDENCY UNIVERSITY

BENGALURU

End - Term Examinations – December 2025

Date: 13 – 12- 2025 **Time:** 01:00pm – 04:00pm

School: SOE	**Program:** B.Tech	
Course Code: ECE3070	**Course Name**: AI and Digital Health	
Semester: VII	**Max Marks**: 100	**Weightage**: 50%

CO - Levels	CO1	CO2	CO3	CO4	CO5	CO6
Marks	12	12	20	20	18	18

Instructions:

(i) Read all questions carefully and answer accordingly.

(ii) Do not write anything on the question paper other than roll number.

Part A

Answer ALL the Questions. Each question carries 2marks. **10Q x 2M=20M**

1.	Artificial Intelligence (AI) refers to computer systems capable of performing tasks that normally require human intelligence. Define Artificial Intelligence.	**2 Marks**	**L1**	**CO1**
2.	Digital health integrates technology with healthcare to improve diagnosis, treatment, and patient management. How does AI help in transforming diagnostics?	**2 Marks**	**L1**	**CO2**
3.	AI enhances digital health by enabling data-driven decision-making. What are the limitations of available medical data?	**2 Marks**	**L1**	**CO3**
4.	The growth of wearable devices has increased real-time health data availability. List the work of AI data annotators in health care.	**2 Marks**	**L1**	**CO3**
5.	AI supports personalized care based on patient-specific data. Enumerate the advantages and disadvantages, if empathy is incorporated in AI.	**2 Marks**	**L1**	**CO4**
6.	Digital health improves accessibility to healthcare services. Will AI resolve human resources crisis?	**2 Marks**	**L1**	**CO4**
7.	Telemedicine combined with AI has expanded remote patient care. How to shift the volume of health data to value?	**2 Marks**	**L1**	**CO5**
8.	AI reduces human error in clinical environments. What is personalized medicine?	**2 Marks**	**L1**	**CO5**
9.	Big Data analytics drives AI efficiency in healthcare. How AI virtual assistant will help human in future?	**2 Marks**	**L1**	**CO6**
10.	Fitness trackers use AI to recommend physical activities. How remote monitoring could be done using AI?	**2 Marks**	**L1**	**CO6**

Part B

Answer the Questions. **Total Marks 80M**

11.	**a.**	Cloud computing helps store and process massive medical datasets. Explain in detail about the fear and expectation of Artificial Intelligence (AI)	**10 Marks**	**L2**	**CO1**
	b.	AI algorithms can detect diseases from medical images such as X-rays, CT scans, and MRIs. Describe health data management.	**10 Marks**	**L2**	**CO2**
		Or			
12.	**a.**	Machine learning assists in early detection of conditions like cancer. What are the types of AI? Explain in detail.	**10 Marks**	**L2**	**CO1**
	b.	AI-powered tools identify patterns that humans may overlook. What is treatment pathway design and how it will be framed inside the clinic?	**10 Marks**	**L2**	**CO2**

13.	**a.**	Robotic surgery uses AI for precise and minimally invasive procedures. Discuss about the misconceptions and overhyping of AI. Analyze how the overhyping will help in future healthcare AI evolution.	**16 Marks**	**L3**	**CO3**
	b.	AI supports clinical decision-making for doctors. Write about the AI ethics to be followed in healthcare.	**4 Marks**	**L2**	**CO4**
		Or			
14.	**a.**	Diagnostic chatbots offer preliminary medical advice. Explain the technological limitations of AI and limitations of available medical data.	**16 Marks**	**L2**	**CO3**
	b.	AI can analyze ECG and EEG data for cardiac and neurological disorders. Describe elaborately about AI, which solves the human resource crisis in medical field.	**4 Marks**	**L2**	**CO4**

15.	**a.**	Dermatology uses AI to classify skin lesions. What is the necessity of regulating the AI in health care and write in detail about the regulating authority	**12 Marks**	**L2**	**CO4**
	b.	Ophthalmology benefits from AI in detecting diabetic retinopathy. Why there is a need of shift from volume to value in use of AI in healthcare.	**4 Marks**	**L2**	**CO5**
	c.	AI models help predict disease outbreaks. What will be the AI health care virtual assistant of human in future**.** Compare the current healthcare tools with AI virtual assistant.	**4 Marks**	**L3**	**CO6**
		Or			
16.	**a.**	AI-supported drug recommendations help optimize treatments. Discuss about the role of AI in future diagnostic algorithms and medical robots.	**12 Marks**	**L2**	**CO4**
	b.	Predictive analytics forecasts patient deterioration in ICUs. Explain the term “Volume ”and “Value” in healthcare.	**4 Marks**	**L2**	**CO5**
	c.	Virtual health assistants help monitor chronic patients. What is remote monitoring in health care?	**4 Marks**	**L2**	**CO6**

17.	**a.**	AI-based triage systems improve emergency department workflow. Explain how the evidence based medicine help the society.	**10 Marks**	**L3**	**CO5**

	b.	Genomic medicine uses AI to identify genetic risk factors. Describe connected medicine in brief.	**10 Marks**	**L3**	**CO6**
Or					
18.	**a.**	Wearable devices collect continuous health data such as heart rate and oxygen levels. Explain the future personalized medicine using AI.	**10 Marks**	**L3**	**CO5**
	b.	AI analyzes wearable data to detect abnormalities. Discuss about disease and condition management in AI healthcare.	**10 Marks**	**L3**	**CO6**