UPES
End Semester Examination, May 2024

Course: Emerging Technologies in Clinical Trials   Semester: VI
Program: Int BMSC Clinical Research   Time: 03 hrs.
Course Code: HSCR3019   Max. Marks: 100

Instructions: Read the question paper carefully. Attempt the questions as mentioned.

S. No.	Section A Short answer questions/ MCQ/T&F (20Qx1.5M= 30 Marks)	Marks	COs
Q 1	What is the purpose of a clinical trial?	1.5	CO1
Q 2	Specify the term "protocol" in the context of clinical trials.	1.5	CO1
Q 3	Mention the purpose of compensation in clinical trials?	1.5	CO1
Q 4	Define patient engagement in healthcare.	1.5	CO1
Q 5	What types of data can be collected using sensory devices in clinical trials?	1.5	CO3
Q 6	How do regulatory bodies such as the FDA view the use of sensory devices in clinical trials?	1.5	CO3
Q 7	Give the concept of activity tracking in wearable devices.	1.5	CO3
Q 8	What are the primary sources of big data in clinical research?	1.5	CO2
Q 9	Define blockchain technology in the context of clinical research.	1.5	CO1
Q 10	How does ecological momentary assessment enhance ecological validity in research?	1.5	CO2
Q 11	Specify computerized adaptive testing as it pertains to neuropsychological assessments.	1.5	CO2
Q 12	Predict the role of gamification in healthcare interventions.	1.5	CO3
Q 13	What are the main functionalities of healthcare smartphone applications?	1.5	CO3
Q 14	Give the significance of user interface design in smartphone applications.	1.5	CO3
Q 15	Which varieties of data are generally collected in studies concerning digital medicine?	1.5	CO4
Q 16	How do wearables contribute to data acquisition in digital medicine studies?	1.5	CO4
Q 17	Enlist the challenges associated with data acquisition in digital medicine studies.	1.5	CO4

Q 18	By what means advanced-STEM platforms contribute to personalized medicine?	1.5	CO4
Q 19	Which ethical concerns need attention when utilizing advanced-STEM platforms in clinical studies?	1.5	CO1
Q 20	Define digital behavior change interventions.	1.5	CO4
Section B (4Qx5M=20 Marks)			
Q 1	Describe the advantages of artificial intelligence in clinical research and drug development.	5	CO1
Q 2	How does big data analytics contribute to the advancement of personalized medicine in clinical research?	5	CO4
Q 3	What are the benefits of using wearable activity monitors in promoting healthy lifestyles?	5	CO3
Q 4	How does remote monitoring enhance patient care in healthcare settings?	5	CO3
Section C (2Qx15M=30 Marks)			
Q 1	What are digital biomarkers, and how do they differ from traditional biomarkers? Give ethical considerations for the use of digital biomarkers.	5 + 5 + 5	CO3
Q 2	Explain computer-administered neuropsychological assessments, and how do they differ from traditional paper-based assessments? Enlist limitations of computer-administered neuropsychological assessments.	10 + 5	CO2
Section D (2Qx10M=20 Marks)			
Q 1	How do video games serve as a cognitive rehabilitation method, and what cognitive functions do they target?	10	CO3
Q 2	What are key clinical analytics applications in healthcare, and how do they improve provider decision-making?	10	CO2