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Question Paper Code: UB605

B.E./B.Tech. DEGREE EXAMINATION, APRIL 2024

Professional Elective

Biomedical Engineering

21BMV605 - MEDICAL INFORMATICS

(Regulations 2021)

Duration: Three hours   Maximum: 100 Marks

Answer All Questions

PART A - (10 x 2 = 20 Marks)

1.	Define Bioinformatics.	CO1-U
2.	List out the security issues used in internet.	CO1-U
3.	What is computer assisted decision-making in medicine?	CO1-U
4.	List the benefits of automation in healthcare systems.	CO1-U
5.	What are the vital signs to be updated in CPR?	CO1-U
6.	Elucidate the role of APIs and Web services in CPR.	CO1-U
7.	What is the role of knowledge engineers in CMD systems?	CO1-U
8.	List out the application of computers in ICU's.	CO1-U
9.	What is surgical simulation?	CO1-U
10.	Give the applications of virtual reality in medicine.	CO1-U

PART – B (5 x 16= 80 Marks)

11. (a) (i) Describe the role of medical informatics in healthcare. CO1-U (8)

   (ii) Analyze the potential risks associated with unauthorized access CO3-Ana (8)
   to patient records and the implications for patient confidentiality.

Or

   (b) (i) Discuss the functional capabilities of a computerized Hospital CO1-U (8)
   Information System.

   (ii) Analyze the needs and applications, compare and contrast CO3-Ana (8)
   between medical informatics, bioinformatics and health
   informatics with necessary illustrations.

12. (a) (i) Explain the principles and technology behind computerized EEG systems. CO1-U (8)

   (ii) Explain the different automation methods employed in histology. CO1-U (8)

                                      Or

   (b) (i) Explain the principles and technology behind computer-assisted medical imaging. CO1-U (8)

   (ii) List out the advantages and limitations of nuclear medicine and Radiation therapy. CO1-U (8)

13. (a) (i) Analyze the need for Clinical information system in the current healthcare scenario. CO3-Ana (8)

   (ii) Compare and contrast the advantages and disadvantages of computerized patient records over traditional paper-based records. CO1-U (8)

                                      Or

   (b) (i) Analyze how computerized prescription systems contribute to medication safety by reducing the risk of prescription errors and adverse drug interactions. CO3-Ana (8)

   (ii) Explain in detail the need for computerized prescription for patients. CO1-U (8)

14. (a) With a neat diagram explain the general model of CMD and its various approaches to decision making. CO1-U (16)

                                      Or

   (b) (i) Explain the role of an expert system in a Clinical Decision Support System. CO1-U (8)

   (i) Illustrate the need for Computer assisted Medical Decision-making in the care of Critically ill patients. CO1-U (8)

15. (a) (i) What is the need for virtual reality in hospitals? Explain. CO1-U (8)

   (ii) Analyze the features and advantages of telemedicine and tele-surgery compared to traditional healthcare delivery and surgical techniques. CO3-Ana (8)

                                      Or

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(b) (i) What is surgical simulator? Explain. CO1-U (8)

(ii) Analyze the features and advantages of virtual endoscopy CO3-Ana (8) compared to traditional endoscopic procedures.

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