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Question Paper Code: UB705

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

Professional Elective

Biomedical Engineering

21BMV705 ADVANCEMENT IN HEALTHCARE

(Regulations 2021)

Duration: Three hours

Maximum: 100 Marks

Answer All Questions

PART A - (10x 2 = 20 Marks)

1. How would you apply a VPN to secure communication between a healthcare provider and patient in a telehealth system? CO1 U
2. How telemedicine and remote monitoring help in managing patients with chronic conditions? CO1 U
3. List the benefits of digital radiology in modern hospital settings. CO1 U
4. Describe the ways AI enhances medical imaging in radiology CO1 U
5. Summarize the key features of teleconsultation in radiology. CO1 U
6. Write the process of generating medical reports from physiological test results. CO1 U
7. Mention the main components of e-health technology. CO1 U
8. Illustrate how a well-designed system can improve patient care in a healthcare facility. CO1 U
9. Describe the importance of security and privacy measures in protecting patient information in digital healthcare. CO1 U
10. Identify two examples of wearable devices used in healthcare. CO1 U

PART – B (5 x 16= 80 Marks)

11. (a) Design a comprehensive patient portal for a hospital aiming to improve patient engagement and self-management. What innovative features would you include, and how would you plan for potential challenges during the portal's implementation? CO3- Ana (16)

Or

- (b) Analyze the key factors that influence a hospital's transition from paper-based records to an EHR system. How might each step in the process contribute to the success or failure of the transition? CO3- Ana (16)
12. (a) (i) Analyze the role of digital health in hospitals. What are the key factors influencing the implementation and utilization of digital technologies, and how do they impact healthcare outcomes? CO3- Ana (8)
- (ii) How would you apply your understanding of the key milestones in radiology's digital history to predict future advancements in medical imaging? CO1- U (8)
- Or
- (b) (i) Analyze the steps involved in medical image archiving, storage, and networking. How do these processes ensure data security, accessibility, and compliance with healthcare regulations? CO3- Ana (8)
- (ii) Explain the key aspects of modern healthcare and the considerations that influence its delivery and quality. CO1- U (8)
13. (a) (i) How would you address the challenges of integrating physiological test results into EMRs to ensure accurate medical reporting? Provide specific strategies. CO3- Ana (8)
- (ii) Analyze the potential impacts of implementing speech recognition technology in the radiology reporting process. What factors should be considered to ensure a successful integration? CO3- Ana (8)
- Or
- (b) (i) Analyze the impact of digital methods on the process of functional diagnosis in medical reporting. What are the key enhancements these methods bring to accuracy and efficiency? CO3- Ana (8)
- (ii) Examine the benefits and drawbacks of using digital methods for functional diagnosis in the creation of medical reports. What specific factors could influence the reliability of these reports? CO3- Ana (8)
14. (a) Design a comprehensive program that utilizes mobile phones to improve healthcare accessibility in underserved regions. What key components would you include to ensure its success and sustainability? CO3- Ana (16)

Or

- (b) Design a comprehensive framework for integrating standards into healthcare delivery that addresses both electronic health records and patient safety. What key components would you include to ensure optimal compliance and effectiveness? CO3- Ana (16)
15. (a) Develop a strategic plan for a healthcare organization to enhance interoperability among its systems. What steps would you take to ensure all systems can communicate effectively, and what metrics would you use to measure success? CO2- App (16)
- Or
- (b) Analyze the relationship between the different phases of the implementation process in an e-health project. How does the success of one phase impact the subsequent phases? CO2- App (16)

