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Question Paper Code: U4B05

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

Fourth Semester

Biomedical Engineering

21UBM405- PATHOLOGY AND MICROBIOLOGY

(Regulations 2021)

Duration: Three hours

Maximum: 100 Marks

Answer ALL Questions

PART A - (10 x 2 = 20 Marks)

1. What do you mean by pathology in medical science? CO1 -U
2. Define Carcinogenesis. CO1- U
3. How to analyze clotting time with capillary tubes? CO1- U
4. Define hematologic disorders. CO1- U
5. Give your opinion on the different stages of the bacterial growth curve. CO1 -U
6. Define Eukaryotic and Prokaryotic cells. CO1- U
7. Explain the principles of acid-fast staining. CO1 -U
8. Discuss about the terminal codons and its role in protein synthesis. CO1 -U
9. How do you use hybridoma technology for monoclonal antibody production? CO1 -U
10. Define adaptive and innate immunity. CO1 -U

PART – B (5 x 16= 80 Marks)

11. (a) How do you justify the process of intracellular accumulations that causes high pathogenic effect when various types of biomolecules accumulate in human tissue or cell? CO1- U (16)

Or

- (b) How do you say neoplasia cause tissue damage and comparative analysis of both benign and malignant tumours? CO1- U (16)

12. (a) Compare and contrast the physiological and pathological roles of the intrinsic and extrinsic pathways of blood coagulation. How do these pathways contribute to normal hemostasis, and what happens when they are dysregulated? CO1 -U (16)
- Or
- (b) Summarize the process of edema and its impact on Fluid and hemodynamic derangements and comparative analysis of edema and thrombosis in human blood vessels. CO1- U (16)
13. (a) Apply the concept of culture techniques using various media compositions to the culture of rare microbes in aerobic conditions and analyze the bacterial growth pattern of that rare microbes using colony counter approach. CO2 -App (16)
- Or
- (b) Apply the concept of the Voges-Proskauer test to distinguish deadly pathogens such as Salmonella and Klebsiella species in the incidence of illness in hospitals, especially in intensive care units. CO2- App (16)
14. (a) in such a case where simple stains and Gram stains cannot be used to detect pathogenic mycobacteria, which method do you prefer to study the spore form of mycobacteria and analyze the mechanism? CO1 -U (16)
- Or
- (b) Study of various staining methods and their principles for differentiation of microbes and in particular analysis of acid-fast staining methods for detection of spore shape of microbes. CO1 -U (16)
15. (a) Explain the concepts of interaction between unknown antigens and specific antibody and examine the different types of antibodies and their function in the human body. CO1- U (16)
- Or
- (b) Define mono-clonal antibody technology. How do you use mono-clonal antibody technology for the cancer treatment? CO1 -U (16)

