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Question Paper Code: UD305

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

Professional Elective

Biotechnology

21BTV305 VACCINE TECHNOLOGY

(Regulations 2021)

Duration: Three hours

Maximum: 100 Marks

Answer All Questions

PART A - (10x 2 = 20 Marks)

1. Define the term "Vaccine" CO1 U
2. Recite the term "Immunization" CO1 U
3. List out the types of white blood cells and mention which one is first arrived at the site of infection? CO1 U
4. Write the immunological significance of the Interferons and Phagocytes CO1 U
5. Vaccines can also be designed using dendritic cells. How? CO2 App
6. Write down the new vaccine made in india against TB. CO1 U
7. Hepatitis A Vaccine is non-essential. Give reasons CO2 App
8. Tetanus Toxoid, commonly called as 'TT' is normally administered intramuscularly after severe wound infection or after an accident. Why? CO2 App
9. Many vaccines failed for Covid-19 after some initial success. Why? CO2 App
10. Distinguish between 'Covaxin' vaccine and 'Covi shield' vaccine CO1 U

PART – B (5 x 16= 80 Marks)

11. (a) Explain in detail about (i) Live Vaccine (ii) Attenuated vaccine with examples CO1 U (16)
- Or
- (b) Describe (i) active immunization (ii) passive immunization in detail CO1 U (16)

12. (a) Imagine that you are selected as a Clinical Immunologist in Multispeciality Hospital. Develop a detailed note about how the body's innate defense system is functioning and write in detail about the internal and external defenses. CO1 U (16)
- Or
- (b) Explain in detail about the Lymphatic system and its function with neat diagram. Write short notes about hematopoiesis? CO1 U (16)
13. (a) Describe the rationale approach for vaccine development in detail. CO1 U (16)
- Or
- (b) Explain the cause, effect and importance of T cell repertoire in detail. CO1 U (16)
14. (a) Explain the mechanism, procedure and advantages in the design of Hepatitis B Vaccine CO1 U (16)
- Or
- (b) What is a toxoid? How is it different from a attenuated or live vaccine? What is its need? Explain the design of Diphtheria toxoid CO1 U (16)
15. (a) Outline the process of using 'immune informatics for 'better' vaccine design in detail. Highlight the ramifications in designing novelty in vaccine technology CO2 App (16)
- Or
- (b) A Computer Science student wants to do a project on vaccine design. Provide strategies and help him in designing a 'nearly' successful vaccine candidate using software. CO2 App (16)