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Question Paper Code: 99D15

B.E./B.Tech. DEGREE EXAMINATION, NOV 2023

Professional Elective

Biotechnology

19UBT915- VACCINE TECHNOLOGY

(Regulations 2019)

Duration: Three hours

Maximum: 100 Marks

Answer All Questions

PART A - (10 x 2 = 20 Marks)

1. What is the difference between 'hapten' and a 'adjuvant' CO1-U
2. Differentiate the term 'peptide' vaccine and 'sub unit' vaccine CO1-U
3. Construe the term 'Hypersensitivity' CO1-U
4. Distinguish between the 'Linear epitope' and 'Conformational epitope' CO1-U
5. Any new vaccine candidate has to generate a specific immune response, for atleast a similar population for it to succeed further. Why? CO1-U
6. Write down the new vaccine made in India against TB. CO1-U
7. 'Live' vaccines are dangerous if not properly preserved in refrigerator. Reason out the statement. CO2-App
8. Hepatitis A Vaccine is non-essential. Give reasons CO2-App
9. What are the essential ethics required for performing clinical trials in tribal population? CO1-U
10. Distinguish between 'Covaxin' vaccine and 'Covi shield' vaccine CO1-U

PART – B (5 x 16= 80 Marks)

11. (a) Elaborate the mechanism, production and precautions to be followed in designing protein based vaccines with examples. Give details about its advantages and disadvantages CO1-U (16)
- Or
- (b) Elucidate in detail about a) conjugate vaccines b) plant based vaccines in detail CO1-U (16)

12. (a) Design a vaccine candidate using in silico methods, highlighting the mechanism and procedure with your knowledge in vaccine technology. CO3-App (16)
- Or
- (b) Debate on the efficacy of the process of rational vaccine design. CO3-App (16)
13. (a) Explain the cause and effect of manipulating T cell repertoire in detail. CO1-U (16)
- Or
- (b) Describe the process of using dendritic cells for designing novel vaccine candidates CO1-U (16)
14. (a) 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)
- Or
- (b) Explain the mechanism, procedure and advantages in the design of Hepatitis B Vaccine CO1-U (16)
15. (a) Elaborate the large scale production process of vaccines with examples CO1-U (16)
- Or
- (b) Explain the risks of vaccination and the various legal issues with regard to mass vaccination. CO1-U (16)