Reg. No. : | | | | | | | | | | |

Question Paper Code: 99D15

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

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.	Write down the contributions of Vaccine to cervical cancer	CO1-U
2.	State the minimum precautions to be followed before administering a vaccine to an individual	CO1-U
3.	Differentiate 'Immunity' and 'Auto Immunity'	CO1-U
4.	What is a 'Viral Vector' vaccine? Give example	CO1-U
5.	Vaccines can also be designed using dendritic cells. How?	CO1-U
6.	Designing vaccine against HIV is quite challenging. Why?	CO1-U
7.	Hepatitis B vaccine is designated as essential vaccine by WHO. Reason out the statement	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.	Write down some basic regulations to be done before starting clinical trials in healthy humans for new vaccine.	CO1-U
10.	What is meant by 'in vitro' vaccine design?	CO1-U

PART – B (5 x 16= 80 Marks)

11.	(a)	A person is infected with HIV. His immunity is compromised. But there is a need to vaccinate him against Covid-19. How will you proceed with vaccination for this case? Explain in detail	CO1-U	(16)

Or

	(b)	Making vaccines for diseases like HIV, TB is quite a hard task. Design a new strategy to tackle this phenomenon to find new vaccine candidates. Decipher in detail the concept of 'Reverse Vaccinology'. Highlight its procedure, importance and need.	CO1-U	(16)
12.	(a)	Explain all the requirements for induction of immunity in detail for designing a vaccine	CO1-U	(16)
		Or		
	(b)	Explain in detail the features of 'Auto' Immunity and the various disadvantages of it in relation to vaccine design.	CO1-U	(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)	Describe the regulations and ethics to be followed in developing countries before and after vaccination	CO1-U	(16)
		Or		
	(b)	Elucidate the process of conduct of 'clinical trials' for humans and animals for new vaccines	CO1-U	(16)