

2018

## MICROBIOLOGY — HONOURS

Sixth Paper

(Group - A)

Full Marks - 50

*The figures in the margin indicate full marks.**Candidates are required to give their answers in their own words as far as practicable*Answer *Question No. 1* and *any four* from the rest

1. Answer *any five* questions : 2×5
- (a) Why are diseases caused by opportunists are becoming virulent more frequently?
- (b) How will you differentiate a bacterial toxin from an antibiotic?
- (c) What are superantigens?
- (d) What is meant by 'Pathogenicity Island'?
- (e) Why Oral Poliovirus Vaccine (OPV) is preferred over Inactivated Poliovirus Vaccine (IPV)?
- (f) Why the beta lactam drugs vary in their spectrum of action in spite of having the same target?
- (g) What are prions? How are they transmitted?
2. (a) Why lambda phage uses different promoters to transcribe the cI repressor gene immediately after infection and in the lysogenic state?
- (b) Which gene is required for the lysogenic phage to be adopted? How the calm lysogenic period of a bacteriophage can be terminated?
- (c) How bacteriophages can be isolated from the environment?
- (d) What do you understand by "Temperate Infection"? 2+(1+2)+2+3
3. (a) Toxoid can be prepared from the exotoxins but not from endotoxins — Explain.
- (b) How will you distinguish between invasions and exotoxins of pathogenic bacteria?
- (c) What are different approaches of gene therapy? Discuss the success and failure of each.
- (d) What do you mean by the term 'spontaneous prophage induction'? 2+3+3+2

[Turn Over]

4. (a) Name one antihelminthic and one antiprotozoan agent.  
(b) Describe structure and function of cholera toxins.  
(c) What do you mean by respiratory burst?  
(d) Explain why the patients with iron overload will be more susceptible to bacterial infection.  
(e) Name the pathogen, disease symptoms and transmission of polio. 2+(2+2)+1+3
5. (a) What is the role of normal microflora in human body?  
(b) What is portal of entry?  
(c) What is 'non-tuberculous' mycobacteria? Give example.  
(d) Name the drug regimer used to treat tuberculosis.  
(e) What is a macrolide antibiotic used for? 2+2+2+2+2
6. (a) Discuss the symptoms and pathogenesis of typhoid.  
(b) What is a non-nucleoside polymerase inhibitor?  
(c) Why fungal infections are difficult to treat compared to that of bacteria?  
(d) Why it is not possible to develop a single flu vaccine?  
(e) Knowing the symptoms of tetanus what kind of therapy would you prefer to treat the disease? 3+1+2+2+2
7. Write briefly about the following :  $2\frac{1}{2} \times 4$
- (a) SV40 Virus  
(b) Amoebiasis  
(c) Mechanisms of bacterial drug resistance  
(d) MTB Complex.