

RAMAKRISHNA MISSION VIDYAMANDIRA

(Residential Autonomous College affiliated to University of Calcutta)

B.A./B.Sc. FIFTH SEMESTER EXAMINATION, DECEMBER 2019

THIRD YEAR [BATCH 2017-20]

MICROBIOLOGY [Honours]

Paper : V [Gr-B]

Date : 19/12/2019

Time : 11 am – 1 pm

Full Marks : 50

Answer any five questions :

[5×10]

1. a) What are viroids and virusoids? [2]
b) Make a schematic diagram of Baltimore classification. Give a comprehensive description of HIV structure. How TRPS can be used for viral detection? [1+2+2]
c) What do you mean by antigenic shift and antigenic drift? [2]
d) SV40 is believed to suppress transcriptional properties of the tumor-suppressing p53. What is the functional consequence of such inhibition? [1]
2. a) Animal virus generally tend to have lipid envelopes in addition to capsid. Can you justify the presence of this in lights of their host infection strategy? [2]
b) Give a schematic diagram for the strategy of anti-retroviral therapy. [3]
c) Poor nutrition or stress can cause recurrence of herpes — Justify. [2]
d) Describe strand displacement replication of adenovirus. [3]
3. a) Describe with diagram the principle of Indirect ELISA. [4]
b) How are virus infected altered self cells tackled and destroyed by the immune system? [3]
c) What are Perforins? [3]
4. a) Name an organ where both T and B cells can simultaneously be found? [1]
b) Describe the term: (i) Allotype (ii) Histotope (iii) Idiotype [3×2]
c) Booster dose is often administered to a child after the initial immunisation. Explain why it is needed? [3]
5. a) Differentiate between agglutination and precipitation. [3]
b) What is agglutination inhibition assay? Explain with examples. [4]
c) What is cluster of differentiation? [3]
6. a) The total no. of cells in an adult human body is outnumbered by the total no. of bacterial cells present in the body. Can you explain the significance? [2]
b) Explain the role of normal flora during acne formation. [2]
c) Write down the role of invasins in bacterial pathogenicity. [3]
d) What are autochthonous and allochthonous micro flora? [3]
7. a) Write down three important portals of entry in human body with example of bacteria residing there. [3]
b) What is the role of pattern-recognition – receptors in host defence? How do bacteria evade this defence? [2+2]
c) Explain the mode of action of Cholera toxin. [3]
8. a) Differentiate between endotoxins and exotoxins. [3]
b) What is the role of mucociliary escalation in host defence? [3]
c) Where would you find *Bacteroides fragilis* in human body? [1]
d) What do you mean by opportunistic pathogen? [3]

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