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- Notes : 1. All questions are compulsory and carry equal marks.
2. Draw well labeled diagrams wherever necessary.

- 1.** Describe in detail nomenclature and ICTV classification of viruses. **16**
- OR**
- i) Describe structures of enveloped and non-enveloped viruses with suitable example. **8**
- ii) Describe in detail about modes of transmission of viruses. **8**
- 2.** Describe in detail assay of viruses by physical and chemical methods. **16**
- OR**
- i) Give the account on animal cell culture. **8**
- ii) Discuss in detail purification of virus by ELISA. **8**
- 3.** Describe in brief details life cycle of T4 bacteriophages. **16**
- OR**
- i) Discuss identification and genomics of plant viruses TMV. **8**
- ii) Discuss in detail transmission of plant viruses. **8**
- 4.** Describe in detail epidemiology, pathogenicity, diagnosis, prevention and treatment of HIV. **16**
- OR**
- i) Discuss in detail genetic recombinant vaccines. **8**
- ii) Give the account of interferons. **8**
- 5.** Write in short all compulsory.
- i) Discuss in detail symmetry of viruses. **4**
- ii) Discuss in detail infectivity assay. **4**
- iii) Give the account of common viral diseases of plants. **4**
- iv) Write on antiviral drugs. **4**
