

## UNIT-1

- Which of the following is an example of site-specific recombination?
  - Crossing-over during meiosis
  - Gene conversion
  - Integration of bacteriophage  $\lambda$  genome into the *E. coli* chromosome
  - Insertion of a transposon into a new site in a genome
- How does the Meselson-Radding model for recombination explain how the two DNA molecules interact at the beginning of homologous recombination?
  - Single-strand nicks appear at equivalent positions in each molecule
  - A specialized topoisomerase produces single-strand breaks in both DNA molecules
  - The two DNA molecules initiate recombination without breakage
  - A single-strand nick occurs in one molecule creating a free end that invades the other molecule to displace one of its strands
- Which of the following is the core sequence of the *att* sites present in the *E. coli* genome?

a) 5'GCTGGTGG3'	b) 5'TTTATAC3'
c) 5'CCAGG3'	d) 5'CTGG3'
- The term protogenome describes:
  - The first DNA genomes
  - The first cellular RNA genomes
  - Early RNA molecules that could self-replicate and direct biochemical reactions
  - The first polymeric RNA molecules
- The first biochemical systems on Earth were probably centered on which types of biomolecule?

a) Carbohydrates	b) DNA
c) Proteins	d) RNA
- Which of the following processes, resulting in gene duplication, occurs when DNA is exchanged between a pair of chromatids within a single chromosome?

a) DNA amplification	b) Replication slippage
c) Unequal crossing-over	d) Unequal sister chromatid exchange
- What is the result of autopolyploidy?
  - A nucleus derived from the fusion of gametes from two different species
  - A nucleus containing extra copies of a single chromosome





26. Thorns of Bougenwalia plant and tendrils of cucurbits are-
- a) Homologous organs
  - b) Paralogous organ
  - c) Analogous organ
  - d) Orthologous organ
27. Placental mammals such as mouse, wolf, Australian marsupials such as marsupial mouse, Tasmanian wolf shows-
- a) Parallel evolution
  - b) Convergent evolution
  - c) Divergent evolution
  - d) Phyletic evolution
28. Which of the following is not a vestigial organ in humans-
- a) Ear muscles
  - b) Tail vertebra
  - c) Premolar
  - d) Appendix
29. Which of the following was the earliest form with a lipid bilayer and can reproduce by budding-
- a) Coacervates
  - b) Microspheres
  - c) protobionts
  - d) Monospheres
30. Vaccines are prepared from killed microbes, they are
- a) Inactivated (killed) vaccine
  - b) Attenuated vaccines
  - c) Autogenous vaccine
  - d) None of these
31. Vaccines used against viral infections are
- a) Measles and Mumps vaccine
  - b) Cholera vaccine
  - c) Typhoid vaccine
  - d) Anti-rickettsial vaccine
32. If the microbes used in the vaccine are obtained from a patient, they are
- a) Anti viral vaccines
  - b) Anti bacterial vaccines
  - c) Autogenous vaccines
  - d) None of these
33. Vaccines prepared from toxins and chemicals are
- a) Cellular vaccines
  - b) Sub-cellular vaccines
  - c) Attenuated vaccines
  - d) Heterologous vaccines
34. Example for live vaccine is
- a) Rubella & BCG
  - b) Polio & TAB
  - c) Diphtheria & Tetanus
  - d) Hepatitis A & Rabies
35. DPT is given for the prevention of
- a) Diphtheria, Tetanus
  - b) Diphtheria, Pertussis
  - c) Diphtheria, Tetanus & pertussis
  - d) None of these

36. The live vaccines are available against the following viruses, except:
- a) Influenza
  - b) Measles
  - c) Rabies
  - d) Polio
37. HIV can be transmitted through
- a) Blood
  - b) Semen
  - c) Vaginal fluid
  - d) All of these
38. Match the following terms with their respective definitions A to E used in virology:
- |                       |                                                                           |
|-----------------------|---------------------------------------------------------------------------|
| 1. Haemagglutination  | A. A phenomenon of acquiring resistance to infection by a second virus    |
| 2. Virus titre        | B. A virus does not cause cytopathogenic changes in tissue culture        |
| 3. Virus interference | C. Determination of the number of infective units in the virus suspension |
| 4. Interferon         | D. A substance by which viruses can attack themselves to red blood cells  |
- a) 1.c, 2.b, 3.b, 4.a
  - b) 1.b, 2.a, 3.d, 4.c
  - c) 1.d, 2.c, 3.b, 4.a
  - d) All of these
39. Match the following vaccines with their respective contents A to E:
- |                    |                        |
|--------------------|------------------------|
| 1. Typhoid vaccine | A. Killed rickettsia   |
| 2. Typhus vaccine  | B. Killed bacteria     |
| 3. Measles vaccine | C. Attenuated viruses  |
| 4. Smallpox        | D. Killed viruses      |
|                    | E. Attenuated bacteria |
- a) 1.a, 2.c, 3.b, 4.d
  - b) 1.b, 2.a, 3.d, 4.c
  - c) 1.d, 2.c, 3.b, 4.a
  - d) All of these
40. Which of the following is NOT a function of the lungs?
- a) A Serves as a reservoir of blood for the left ventricle.
  - b) It is a filter to protect the systemic vasculature
  - c) Facilitates the exchange of O<sub>2</sub> and CO<sub>2</sub> between air and blood.
  - d) All of these