

કુલ સમય :— ૬૦ મીનીટ

કુલ પ્રશ્નો : ૫૦

વિદ્યાર્થીએ ટીક કરવાના પ્રશ્નો : ૩૫

નોંધ : વિદ્યાર્થીએ માત્ર ૩૫ પ્રશ્નો જ ટીક કરવાના રહેશે. જો વધારે ટીક કરેલ હશે તો પ્રથમ ૩૫ પ્રશ્નો જ ગણતરીમાં લેવામાં આવશે.

- The study of the full complement of proteins expressed by a genome is called \_\_\_\_\_.  
(a) Proteome (b) Proteomics (c) Genomics (d) Protein formation
- The effects of protein on an entire organism is described in \_\_\_\_\_.  
(a) Phenotypic function (b) Cellular function (c) Molecular function (d) Structural genomics
- The network of interactions engaged in by protein at cellular level is described in \_\_\_\_\_.  
(a) Phenotypic function (b) Cellular function (c) Molecular function (d) Structural genomics
- Sequencing of genomic DNA is included in \_\_\_\_\_.  
(a) Phenotypic function (b) Cellular function (c) Molecular function (d) Structural genomics
- What is the goal of structural proteomics project?  
(a) To crystallize and determine the structure of as many proteins as possible, in many cases with little or no existing information about protein function  
(b) To identify and sequence of all the genes present in the human body  
(c) To introduce new genes to human beings  
(d) To remove disease causing genes from humans
- Genes of different species but possessing a clear sequence and functional relationship to each other are \_\_\_\_\_.  
(a) Ortholog (b) Synteny (c) Paralog (d) Microarray
- Functions and structure of genome is \_\_\_\_\_.  
(a) species (b) Genomics (c) inheritance (d) None of these
- Which of the following statements, if any, is false?  
(a) Amplifying DNA means making many identical copies of one or more starting DNA sequences.  
(b) The object of DNA cloning is to amplify DNA.  
(c) The object of PCR is to amplify DNA  
(d) The object of DNA sequencing is to amplify DNA
- Which of the following statements, if any, is false?  
(a) The polymerase chain reaction (PCR) is a cell-free method of DNA amplification.  
(b) PCR is usually used to amplify a specific DNA sequence of interest using oligonucleotide primers that bind to closely flanking sequences.  
(c) PCR is superior to cell-based DNA cloning for two major reasons: it is much quicker and it allows much greater DNA amplification.  
(d) PCR requires the use of a heat-stable DNA polymerase to make copies of the template DNA.
- Electrophoresis helps to separate \_\_\_\_\_.  
(a) DNA segments (b) Cells from DNA (c) Tissues (d) RNA from DNA
- During DNA profiling, DNA nucleotides hybridized with the probe can be detected through \_\_\_\_\_.  
(a) Electrophoresis (b) Polymerase chain reaction (c) Autoradiography (d) Hybridoma
- Recombinant DNA construction involves \_\_\_\_\_.  
(a) Cleaving DNA with a restriction endonuclease and joining with ligase  
(b) Cleaving DNA with ligase and joining with endonuclease  
(c) Cleaving and joining DNA with restriction endonuclease  
(d) Cleaving DNA with a restriction endonuclease and joining with polymerase
- A segment of DNA that reads from the same forward and backward is called \_\_\_\_\_.  
(a) Palindromic DNA (b) Complementary DNA (c) Plasmid DNA (d) Copy DNA
- cDNA, a term used in recombinant DNA technology means \_\_\_\_\_.  
(a) Competitive DNA (b) Chemical DNA (c) Complex DNA (d) Complementary DNA
- The process of introduction of foreign DNA into an animal cell is called \_\_\_\_\_.  
(a) Transversion (b) Conversion (c) Inversion (d) Transfection
- The first clinical application of gene therapy over a 4 year old girl was for  
(a) Adenosine deaminase deficiency (b) Adenosine deficiency  
(c) Growth deficiency (d) Adenine deficiency
- Which bacterium is used in the production of insulin by genetic engineering?  
(a) Saccharomyces (b) Rhizobium (c) Escherichia (d) Mycobacterium
- The expression of a transgene in the target tissue is identified by a  
(a) Transgene (b) Promoter (c) Enhancer (d) Reporter
- RNA interference helps in  
(a) Cell proliferation (b) Micropropagation (c) Cell defence (d) Cell differentiation
- The vaccines prepared through recombinant DNA technology are  
(a) Third generation vaccines (b) First-generation vaccines (c) Second-generation vaccines (d) None
- Restriction enzymes were discovered by  
(a) Smith and Nathans (b) Alexander Fleming (c) Berg (d) None
- Bacteria protect themselves from viruses by fragmenting viral DNA with  
(a) Ligase (b) Endonuclease (c) Exonuclease (d) Gyrase
- The hierarchical genome sequencing approach is \_\_\_\_\_.  
(a) entirely dissimilar to the shotgun approach (b) dissimilar to the shotgun approach  
(c) similar to the shotgun approach, but on a larger scale (d) similar to the shotgun approach, but on a smaller scale
- The whole genome shotgun approach can produce a draft sequence very rapidly because it is based on the direct sequencing approach.  
(a) True (b) False
- Which of the following is untrue about the genome mapping?  
(a) It doesn't lead to the understanding of a genome structure (b) It involves identifying relative locations of genes  
(c) It involves identifying traits (d) It involves identifying mutations

26. One centiMorgan is defined as \_\_\_\_\_ percentage of the total recombination events.  
(a) 0.1 (b) Ten (c) One (d) 0.01
27. Which of the following is incorrect?  
(a) Initial DNA sequencing reactions generate short sequence reads from DNA clones  
(b) To assemble a whole genome sequence, these short fragments are joined to form larger fragments  
(c) The average length of the reads is about 50 bases  
(d) A number of overlapping contigs can be further merged to form scaffolds
28. The genome annotation process involves two steps: gene prediction and functional assignment.  
(a) True (b) False
29. Which of the following is incorrect regarding gene annotation?  
(a) The gene annotation of the human genome employs a combination of theoretical prediction and experimental verification  
(b) Gene structures are first predicted by ab initio exon prediction programs  
(c) The predicted genes are compared with experimentally determined cDNA and EST sequences  
(d) The pair wise alignment programs are not involved
30. Which of the following is incorrect regarding Automated Genome Annotation?  
(a) It exists because of the need to develop fast and automated methods to annotate the genomic sequences  
(b) The automated approach relies on homology detection  
(c) The automated approach doesn't rely on heuristic sequence similarity searching  
(d) Automation brings speed in gene annotation process
31. Which of the following is untrue about comparative genomics?  
(a) It is comparison of whole genomes from different organisms  
(b) It includes comparison of gene number, gene location, and gene content from these genomes  
(c) It provides insights into the mechanism of genome evolution and gene transfer among genomes  
(d) It doesn't help to reveal the extent of conservation among genomes
32. Within-Genome Approach is to identify regions within a genome with unusual compositions.  
(a) True (b) False
33. Genes involved in the same metabolic pathway tend to be clustered among phylogenetically diverse organisms.  
(a) False (b) True
34. What are the characteristics of stable angina?  
(a) Chest pain that occurs with exertion and/or emotional stress (b) Severe and crushing chest pain (>20 mins)  
(c) Chest pain that occurs at rest (d) Bradycardia
35. Which of these is a symptom of HIV infection?  
(a) Swollen lymph nodes (b) Fever (c) Tiredness (d) All of the above
36. A person has AIDS when which of these occurs?  
(a) Exposure to HIV  
(b) HIV antibodies are found in the blood  
(c) The CD4+ count is lower than 200 or opportunistic infections develop in an HIV-infected person  
(d) A person has HIV for 5 years
37. What does HIV-positive mean?  
(a) Either antibodies against HIV or the virus particles themselves are present in the blood (b) You have been tested for HIV  
(c) Your white cell count is high (d) You have been informed about HIV
38. HIV attacks a certain kind of cell in the immune system. Which is it?  
(a) Red blood cells (b) White blood cells called T cells (c) Platelets (d) Epithelial cells
39. Which of the following drugs is used as a 'booster' for protease inhibitors?  
(a) Lopinavir (b) Abacavir (c) Ritonavir (d) Both A and B
40. If taken together, rifampicin enhances the effects of nevirapine.  
(a) True (b) False
41. Which drug is capable of killing Plasmodium inside the red blood cells?  
(a) Chloroquine (b) Primaquine (c) Metronidazole (d) Penicillin
42. There is a vaccine against malaria  
(a) True (b) False
43. Mosquito responsible for malaria transmission  
(a) Aedes aegypti (b) Aedes albopictus (c) Anopheles (d) Haemagogus
44. Malaria can be lethal  
(a) True (b) False (c) Both (d) None of the above
45. How can one protect himself from malaria?  
(a) Using mosquito repellent (b) Wearing light-colored, long-sleeved shirts and trousers  
(c) Both (d) None of the above
46. There is no treatment against malaria  
(a) True (b) False (c) Both (d) None of the above
47. Avian flu is most commonly spread by:  
(a) Humans (b) Pigs (c) Birds (d) All of the above
48. When avian flu was first identified?  
(a) Mid-1800s (b) Late 1800s (c) Early 1900s (d) In 2012
49. Monoclonal antibodies are  
(a) heterogeneous antibodies produced from single clone of plasma cells  
(b) homogenous antibodies produced from single clone of plasma cells  
(c) Both a and b  
(d) None of these
50. The technology used for the production of monoclonal antibodies is  
(a) Mass culture technology (b) Hybridoma technology (c) Suspension culture (d) None of these