

# MOCK EXAM TWO

## BIOLOGY

1. DNA replication requires all of the following except
  - a) An enzyme to unwind double stranded DNA
  - b) DNA ligase
  - c) RNA polymerase
  - d) Deoxyribonucleotides (dATP, dTTP, dGTP, dCTP)
2. The following statement about the number of chromosomes is false except
  - a) It is variable only in somatic cells
  - b) It is constant for all the cells of a human being
  - c) Different organisms belonging to the same species have the same number of chromosomes
  - d) It is different for males and females
3. An important function of lysosomes is
  - a) Phagocytosis
  - b) The synthesis of proteins for export from the cell
  - c) The transfer of information from the nucleus to the cytosol
  - d) The synthesis of chromatin
4. Which two components in bone are responsible for the hardness and pliability of bone
  - a) Osteoclasts and collagen
  - b) Mineralized salts and osteocytes
  - c) Mineralized salts and collagen
  - d) Collagen and elastic fibres
5. Which of the following descriptions is unique to cardiac muscle tissue?
  - a) It is involuntary
  - b) It contains smooth muscle tissue
  - c) It has striations
  - d) It has intercalated discs
6. Which of the following cell types can be infected by HIV?
  - a) T-helper cells
  - b) Spermatozooids
  - c) Vaginal epithelium
  - d) Neuroglial cells

- 7) Which of the following statement about lactate dehydrogenase is true?
- a) it reduces pyruvate to lactic acid
  - b) it oxidizes lactic acid
  - c) it is a protein
  - d) all of these are true
- 8) The ratio of the net gain of ATP per glucose molecule in anaerobic respiration compared to aerobic respiration is
- a) 1:2
  - b) 1:19
  - c) 19:1
  - d) 4:5
- 9) Which is not true about the genetic code?
- a) It is an overlapping code
  - b) It is exactly the same in all organisms
  - c) It is composed of triplet code of three bases per codon
  - d) It produces 64 different possibilities of base sequences
- 10) The correct order of molecule involved in protein synthesis is
- a) Messenger RNA, transfer RNA, polypeptide
  - b) Transfer RNA, polypeptide, DNA messenger RNA, DNA
  - c) DNA messenger RNA, polypeptide, transfer RNA
  - d) DNA, messenger RNA, transfer RNA, polypeptide
- 11) Molecules are absorbed after digestion by the lacteal of the villi of the ileum
- a) Water soluble vitamins
  - b) Fatty acid and glycerol
  - c) Glucose and amino acid
  - d) Water and mineral salt
- 12) Vitamins are organic compounds that
- a) Help activate enzymes during chemical reactions
  - b) Provide energy for metabolism
  - c) Help form cell membranes
  - d) Are not obtained from food
- 13) Which of the following reactions will occur in a muscle cell during a vigorous exercise?
- a)  $6\text{CO}_2 + 6\text{H}_2\text{O}$
  - b)  $18\text{CO}_2 + 18\text{H}_2\text{O}$
  - c)  $2\text{CH}_3\text{CH}_2\text{OH} + 2\text{CO}_2$
  - d)  $2\text{CH}_3\text{CHO} + \text{COOH}$
- 14) If communication between the SA node and the AV node becomes blocked which part of the heart is most certainly affected.
- a) The ventricles will contract at a slower rate
  - b) The atria will contract at a slower rate
  - c) The ventricles will contract at faster rate
  - d) The heart rate will increase

- 15) What will happen if the level of aldosterone in the blood decreases?
- a) More sodium is excreted in the urine
  - b) Less potassium is excreted in the urine
  - c) Systemic blood pressure will decrease
  - d) Glomerular filtration will decrease
- 16) Homologous pairs of chromosomes separate during
- a) Meiosis 1
  - b) Meiosis 2
  - c) Mitosis
  - d) Both a and b
- 17) Which of the following occur during meiosis but not mitosis
- a) Homologous chromosomes pair up
  - b) Crossing over occurs between homologous chromosomes
  - c) Off springs have fewer chromosomes than their parents cells
  - d) All the above
- 18) At the moment of fertilization in humans, all of the following occur except
- a) Rupture of the graafian follicle
  - b) Oestrogen production is very low
  - c) FSH and LH production is high
  - d) Formation of the corpus luteum
- 19) Which best describes an antigen
- a) Any cell of the immune system
  - b) A protein produced by B cell that responds against a foreign protein
  - c) A protein or polysaccharide that can be recognized as foreign by a cell immune system
  - d) The receptor on T or B cell that recognizes as foreign protein
- 20) Which kind of T cell is most important in AIDS infection?
- a) Helper T cells
  - b) Killer T cells
  - c) Suppressor T cells
  - d) Memory T cells