

14/11/24

Seat Number

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**DAGDU-02**

**BP 201-T : Human Anatomy and Physiology-II  
(712201)**

**Total Pages : 2]**

**Time: 3 Hours**

**Max. Marks : 75**

**Instructions to Candidates:**

1. Do not write anything on the question paper except SeatNo.
2. Draw neat, labelled diagram whenever necessary.
3. Figures to right indicate fullmarks.
4. All questions are compulsory.
5. Students should note no supplement will be provided.
6. Graphs or diagram should be drawn with the black ink pen or black HB pencil.

1. Attempt **ALL** the following Questions. **20**
  - i) Draw a well labelled diagram of neuron.
  - ii) Explain the role of pepsin in protein digestion.
  - iii) When growth hormone levels are low or high, what can we expect to happen?
  - iv) Give the composition and functions of CSF.
  - v) Comment on resuscitation method.
  - vi) Enumerate the parts of digestive system.
  - vii) Enlist various disorders of urinary system.
  - viii) Enlist lung volumes and lung capacities.
  - ix) Enumerate hormones secreted by pancreas. State their physiological functions.
  - x) How kidney is responsible for the maintenance of acid base balance?
2. Attempt **ANY TWO** of the following. **20**
  - i) Describe structure and function of pituitary gland, as well as their hormones and physiological function.
  - ii) Describe in detail the anatomy and physiology of male reproductive system.
  - iii) How does urine formation occur in the kidneys? Describe the processes involved.

3. Attempt **ANY SEVEN** of the following.

35

- i) Discuss mechanisms of breathing, including the involvement of diaphragm and intercostal muscles.
- ii) Discuss various functions of liver.
- iii) Describe process of digestion, including mechanical and chemical digestion, and role of enzymes.
- iv) Explain process of action potential generation and propagation along a neuron.
- v) Explain various phases of menstrual cycle.
- vi) What is the structure and function of DNA? Describe role of genes, and chromosomes in the inheritance.
- vii) Comment on role of renin-angiotensin system in kidney.
- viii) Discuss the role of ATP in cellular energy transfer and its importance in biological processes.
- ix) Describe the structure and functions of cerebrum.

- (c) The process of weakening a pathogen is called ..... .
- (i) Vaccination
  - (ii) Attenuation
  - (iii) Immunization
  - (iv) Virulence reduction
- (d) The principle antibodies involved in Type-II reaction are ..... .
- (i) IgE and IgA
  - (ii) IgM and IgA
  - (iii) IgG and IgM
  - (iv) IgD and IgA
- (e) Type-I hypersensitivity includes all of the following *except* :
- (i) Anaphylaxis
  - (ii) Hay fever
  - (iii) Extrinsic Asthma
  - (iv) Autoimmune hemolytic anemia
- (f) The transfer of naked DNA from one cell to another is transferred as :
- (i) Transduction
  - (ii) Lysogeny
  - (iii) Transformation
  - (iv) Conjugation

(g) The process in which bacteria can exchange plasmids with other bacteria is called :

- (i) Binary fission
- (ii) Budding
- (iii) HGT
- (iv) Fragmentation

(h) V-shaped chromosomes are named as .....

- (i) Teleocentric
- (ii) Submetacentric
- (iii) Metacentric
- (iv) Acrocentric

(i) Proteins responsible for compact packing and writing of chromosomal DNA are :

- (i) Histones
- (ii) Non-histone
- (iii) Trypsin
- (iv) Serein

(j) How many histone molecules are found in nature ?

- (i) 3
- (ii) 4
- (iii) 5
- (iv) 6

- (k) Types of vaccine is prepared from :
- (i) Synthetic medium
  - (ii) Lung tissue of gerbils
  - (iii) Fertile egg
  - (iv) Brain of monkey
- (l) Which is the first steroidal compound produced by microbial transformation by corynebacterium sp ?
- (i) Testosterone
  - (ii) Estrogen
  - (iii) Progesterone
  - (iv) Cortisone
- (m) The non-steroidal substance used in the formation of lotions and cosmetics is :
- (i) Dihydroxyacetone
  - (ii) L. Ascorbic acid
  - (iii) Prostaglandin
  - (iv) Cortisone
- (n) Conversion of cortisone to produce Prednisolone is an example of .....
- (i) Epoxidation
  - (ii) Deamination
  - (iii) Dehydrogenation
  - (iv) Reduction

- (o) Transposons are ..... .
- (i) RNA sequence
  - (ii) DNA sequences
  - (iii) Only found in eukaryotes
  - (iv) Contain no genes
- (p) Which of the following role is preferred by a bacteriophage in transduction ?
- (i) Vector
  - (ii) Donor
  - (iii) Recipient
  - (iv) Episome
- (q) Specialized transduction is mediated by ..... .
- (i) Lytic phages
  - (ii) Lysogenic phages
  - (iii) Both lytic and lysogenic
  - (iv) T<sub>4</sub> phages
- (r) Which of the following is *not* a product of fermentation ?
- (i) Lactose
  - (ii) Oxygen
  - (iii) Carbon dioxide
  - (iv) Ethanol

(s) Somatic mutations are also called :

- (i) Spontaneous mutation
- (ii) Bud mutational budspots
- (iii) Induced mutation
- (iv) None of the above

(t) What is the detection technique of auxotrophs ?

- (i) Spread plating
- (ii) Replica plating
- (iii) Streaking
- (iv) Pouring

2. Solve any two :

20

- (i) Define protein engineering. Explain different methods of protein engineering.
- (ii) Define hypersensitivity. Explain different classes of hypersensitivity reactions.
- (iii) What are the different classes and functions of interferons ? Write the different methods of interferon production ?

3. Attempt any seven :

35

- (i) Write the different methods of classification of plasmids.
- (ii) What are the effects of mutations ?
- (iii) What are the ideal characteristics of fermenter ? Mention the different provisions provided in a fermenter with their use.
- (iv) List out the various blood components and their use.
- (v) Define vector. Write the properties and example of some artificial vectors used in rDNA technology.
- (vi) Briefly discuss steps involved in polymerase chain reaction.
- (vii) Write different classes of antibodies and their functions.
- (viii) What is immunosuppression ? Give drugs used as immunosuppressant.
- (ix) What are the different methods of attenuation ?