

Parvatibai Chowgule College of Arts and Science
Autonomous

B.Sc. Online Semester End Examination January/ February 2022

Semester: III

Subject: Zoology

Course Title: Vertebrate Endocrinology (Elective)

Duration: 2 Hours

Max. Marks: 45

Instruction: 1. All questions are compulsory

2. Figures to the right indicate full marks

3. Draw diagrams wherever necessary

Q.1. Answer ANY THREE of the following:

(09)

a) A hormone with pregnane skeleton is found in females contains two ketone groups (at C3 and C20), with unsaturated bond between C4 and C5. Based on the information provided above, identify, and draw the structure of this hormone. Explain what will happen if the hormone levels are low during pregnancy.

b) Our body needs calcium to perform many functions such as maintain strong bones. What will happen if the calcium levels are lower than normal. Is the parathyroid hormone antagonistic to calcitonin? Explain.

c) In a lactating mother, the hypothalamus releases hormone A which in turn stimulates the anterior pituitary to release hormone B, required for milk production. Based on your understanding of hormones, identify A and B. State the relationship between hormone B and fertility. How does the suckling action of the infant affect the regulation of hormone B.

d) Hormones X and Y plays a key role in the regulation of glucose homeostasis. These hormones are secreted by the pancreatic cells A and B. Identify the hormones X and Y and the cells A and B secreting the same. Also enumerate the mode of these hormone action in the body.

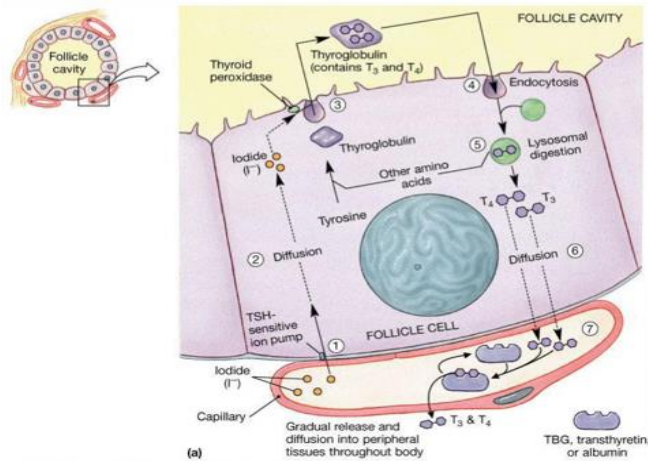
Q.2. Answer ANY TWO of the following:

(12)

a) A specific hormone released only during fight-flight responses, enters a cell by binding to a heptahelical receptor. Explain the mechanism of action with respect to the hormone mentioned above. How does it differ from a steroid hormone? Does this hormone affect the blood glucose levels? If yes, justify.

b) A 40-year-old lady is unable to conceive. Clinical diagnosis indicated low levels of steroid hormones in the female. Identify the steroid hormones required for conception in females. Give its clinical significance and mechanism of action.

c) Identify and explain the given pathway in detail. What will happen if thyroglobulin is absent in the body? How will it affect the secretion of hormones?

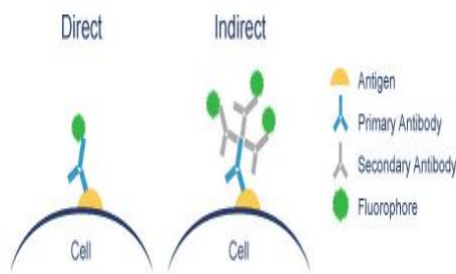


Q.3. Answer ANY TWO of the following:

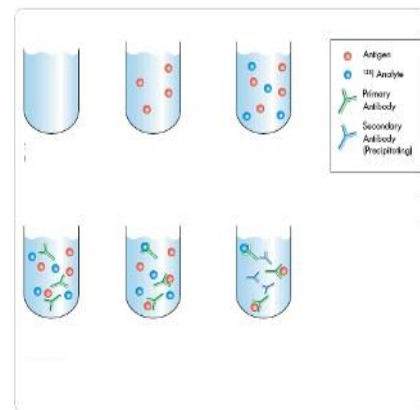
(12)

a) With the help of the given diagram identify A and B and compare the given techniques. What will happen if secondary antibody is absent in both?

A



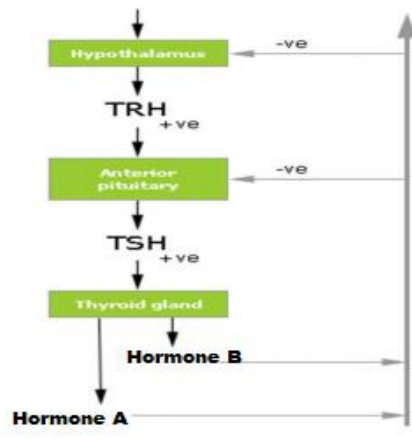
B



b) Suresh was diagnosed with a condition resulting from secretion of excessive growth hormone, and formation of tumor. Identify the condition. State its causes and effect. Also write a note on its diagnosis and treatment. Can this condition be prevented? Explain.

P.T.O

c) Identify the hormones A and B and describe the given regulatory pathway in detail. What will happen if the thyroid gland is unable to produce the Hormone A and B in adequate amounts. How will it affect the overall health of the person?



Q.4. Answer ANY ONE of the following:

(12)

A. (i) Two patients A and B suffer from diabetes. A suffers from diabetes mellitus and B from diabetes Insipidus. Both were supplemented with insulin injections. But the condition of patient B did not improve. Why? How can it be treated? Comment in its causes and pathophysiology.

(ii) Synthesis of thyroid hormone requires two raw materials A and B. Identify A and B and explain the process involved. What will happen if the enzyme thyroid peroxidase is unable to fabricate the thyroid hormone? How will it affect the overall process of thyroid secretion?

.

OR

B Calcium is the most important mineral in the human body. To perform vital functions, the human body works to keep a steady amount of calcium in the blood and tissues. Identify and explain the role of A and B in the process depicted in the image. Patients with kidney failure have diminished levels of calcitriol. How will this affect the blood calcium levels? Explain the synthesis and action of calcitriol in a normal individual. How does phosphate affect the level of calcium in the body?

P.T.O

