**Biochemistry Research topics**

1. Metabolic and Hormonal regulation of blood glucose.

2. Metabolism of ketone bodies.

3. Metabolism of Cholesterol.

4. Metabolism of Ammonia.

5. Metabolism of urea.

6. Jaundice

7. Gout

8. Metabolism of vitamin A

9. Metabolism of vitamin D

10. Metabolism of vitamin C

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**Anatomy Research topics**

Research 1

1. Give an account of the anatomy of thyroid gland.

2.Describe the anatomy of 4th ventricle

3. Describe the anatomy of liver and its peritoneal relations.

4. Describe in detail the anatomy of internal iliac artery.

5. Give a note of the development of midgut and its congenital anomalies.

Research 2

1. Describe in detail the anatomy of muscles of mastication.

2. Give an account of blood supply of the brain.

3. Discuss in detail the anatomy of lumbar plexus.

4. Describe the anatomy of the urinary bladder and its relations in both sexes.

5. Give a note of the development of female genital system and its congenital anomalies.

Research 3

1. Describe the anatomy of parotid gland.

2. Give an account of the anatomy of cerebellum.

3. Describe in detail  the anatomy of abdominal Aorta.

4. Describe the anatomy of the rectum.

5. Give an account of the development of the kidney and its congenital anomalies.

Research 4

1. Describe in detail the anatomy of the scalp.

2. Describe the anatomy of 3rd ventricle.

3. Give an account of the anatomy of the stomach and its peritoneal relations

4. Describe in detail the anatomy of the uterus.

5. Give a note of the development of the testis and its congenital anomalies.

Research 5

1. Describe the anatomy of posterior triangle of the neck.

2. Give an account of the anatomy of internal capsule.

3. Describe the anatomy of the spleen and its peritoneal relations.

4. Describe in detail the anatomy of ischiorectal fossa.

5. Give a note of the development of the palate and tongue. Mention their congenital anomalies.

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**Physiology Research topics**

**First research topic**

1. **Give an account of:**
2. The mechanism of fever, and give account on the dangers of hypothermia and hyperthermia.
3. Respiratory quotient, discuss its significance, uses and factors that affect it.
4. Autoregulation of GFR, explain its significance.
5. Mechanism of urine acidification and alkalinization.
6. Physiological action of insulin hormone and its hormonal regulation of secretion
7. Mechanism of gastric H+ secretion.
8. Sensory transduction in the olfactory system.
9. **40 years old male patient with history of 5 years type 1 D.M. Presented to the neurological clinic with tingling, numbness of recent onset. By examination the neurologist find that the patient lost vibration sense in both lower limbs till the level of both knees.**
10. Mention other diseases associated with absent vibration sense?
11. Name receptors for vibration sense? What are the properties of receptors?
12. Discus in details pathway of vibration sense?
13. Describe types of postsynaptic potential?
14. Discuss the form of synaptic plasticity with examples of each.
15. **A 60 years old male patient presented to the clinic with rigidity and hand tremors that appear during rest and disappear during movement.**
16. What is your diagnosis?
17. Discuss other manifestations of this disease and relate it to the function of that part of the brain.
18. **A 70 years old patient presented to the outpatient ophthalmolgy clinic with diminution of vision the doctor prescribed him glasses that corrected the condition**
19. What are the possible causes of his diminution of vision?
20. Discuss the physiological basis of each cause.
21. Discuss the physiological basis of measuring visual acuity with landolt chart.
22. **Explain the events in a normal woman during her menstrual cycle on the following days :**
23. Pituitary hormone levels from 8 to 12 days.
24. Uterine events from 14 to 28 days.
25. Ovarian events throughout the cycle.
26. Puberty abnormality, explain its effect on menstrual cycle.

**Second research topic**

1. **Give an account of:**
2. Thermoregulatory system.
3. Transport maximum of a substance.
4. Mechanisms of hormonal regulation of tubular handling of Na and K in the kidney
5. The course of the auditory nervous pathway?
6. The significance of the bilateral auditory cortical representation?
7. Composition and regulation of pancreatic secretion
8. Actions and regulation of thyroid hormones.
9. **A 60 years old male patient presented to the clinic with inability to insert a key in its lock due to sever hand shaking. On examination he had nystagmus and speech disorder.**
10. What is your diagnosis?
11. Discuss other manifestations of this disease and relate it to the function of that part of the brain.
12. **A 50 years old woman presented to the outpatient ophthalmolgy clinic with ocular pain and headache, on examination her Rt ocular pressure was 27mmHg.**
13. What is the possible diagnosis?
14. Discuss the physiology of this disease.
15. **A patient is experiencing sever pain, if it were possible to place an electrode into the gray matter around the cerebral aqueduct of the mid-brain and stimulate the ells in this region, it would induce an analgesic response.**
16. How can you explain such an effect?
17. What is the neural substrates underlying this phenomenon?
18. Describe pathway of pain sensation?
19. Discus properties of synaptic transmission between pre and post synaptic neurons?
20. Give an account on types of synaptic inhibition?
21. **The following graph shows the levels of ovarian hormones during a menstrual cycle.**



1. What does hormone number 1 represent?
2. Give an account on hormone number 1 and list the actions on the involved organs?
3. Uterine events from 14 to 28 days.
4. The role of hypothalamus in regulation of ovarian hormones.

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**Histology Research topics**

**Research 1**

**Describe in details the following points:**

1. The structure of urineferous tubule
2. Glomeruli structure by light and electron microscope with reference to blood renal
3. Spermatogenesis and spermiogenesis
4. Describe the detailed histological structure of the ovary and uterus in relation to

menstrual cycle.

1. Describe the lemnisci in brain stem.
2. Describe the histological structure of the organ of Corti.
3. Describe the histological structure of the sensory cells in the organ of Corti

**Research 2**

**Describe in details the following points:**

1. Describe in details the histological structure of breast and placenta in relation to pregnancy and rest.
2. barrier and juxta-glomerular apparatus
3. Secondary sexual glands
4. The structure of urineferous tubule
5. Describe different corpora in the human body
6. Describe different junctions in the human body
7. Describe the lemnisci in brain stem.

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**Psychology Research topics**

**1)** Memory dimensions, memory processes, Theories explaining forgetting and How to Improve Your Memory?

* + Memory process, types.
	+ Theories of forgetting
	+ How to improve memorization, study
	+ How memory affecting learning process.

**2)** Creativity and Intelligence: The Role of Genetics and Environment in Determining Intelligence, what makes kids creative and what are different

intelligence tests.

**3)** Violence in the Media: psychology of frustration, aggression and violence

 Etiology of aggression and violence

 Link between frustration, defense mechanism, personality and aggression

 Explain how frustration lead to violence in society can.

**4)** Defense mechanisms are thoughts, feelings, and/or behaviors used to avoid anxiety. What are Common Defense Mechanisms People Use for Anxiety and How to cope with stress?

 Common defense mechanisms and types of conflicts

 Defense mechanism can protect against conflicts, anxiety but also can lead to anxiety. explain

 How can defense mechanism lead to coping with stress.

**5)** Do we inherit or create our personalities? A review of the evidence.

 Basic knowledge about personality

 Factors affecting personality development

 Differences between different personality traits

 Difference between temperament and traits.

**6)** Emotion influences motivation, recent memory, learning, perception and thinking. Explain.

 Emotion is crucial for different psychological function and relate to them biologically

Differences between positive and negative emotions

 Effect of positive emotions on learning, memory, perception, and thinking.

 Other factors affecting learning, memory, perception, and thinking.

**7)** Psychology Behind Attraction: how marketing professionals influence consumer choices.

 Psychological aspects of attraction (attention, perception)

 Laws of attention

 Laws of perception

 How can marketing professionals uses laws of perception and attention in improving marketing

**8)** Stress affects human beings differently. Explain.

 Basic knowledge of stress

 Types of stress and stressors

 Individual difference between persons in response to stress and factors behind this.

 Different reaction to stress

 Coping mechanisms

**9)** Motivation and its Varied Theories. How motivation plays a role in human development

 Theories of motivation

 Effect of positive emotions on learning, memory, perception, and thinking.

 Other factors affecting learning, memory, perception, and thinking.

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