

TERNA MEDICAL COLLEGE & HOSPITAL
DEPARTMENT OF PHYSIOLOGY

I MBBS IIND INTERNAL EXAMINATION
SUBJECT: PHYSIOLOGY

Date: 17/04/2025

Time: 3 Hrs

Total Marks: 100

SECTION-A

Q1. Multiple choice questions:

20 x 1M = 20M

1. Normal Resting Membrane Potential of nerve fibre is
 - a. -30 to -50mv
 - b. -50 to -60 mv
 - c. -70 to -90 mv
 - d. -100mv to -100mv
2. The intensity of stimulus which is just adequate to produce Action potential is called
 - a. Subminimal stimulus
 - b. Threshold stimulus
 - c. Utilization time
 - d. Chronaxie
3. A 25 year old lady lives close to sea level, she decides to spend a month of her summer vacation working in the mountains. After a week in the mountains, what kinds of changes would you expect to see as she adapts to the higher altitude?
 - a. decreased hematocrit
 - b. decreased blood pressure
 - c. decreased alveolar ventilation rate
 - d. decreased PO₂ in the alveoli
4. Taste sensation from posterior one third of tongue is carried by
 - a. Trigeminal nerve
 - b. Facial Nerve
 - c. Glossopharyngeal Nerve
 - d. Vagus Nerve
5. For measuring GFR, the ideal substance should be all EXCEPT
 - a. neither reabsorbed nor secreted
 - b. not metabolized to another substance
 - c. highly protein bound
 - d. easy to measure
6. A 30 year old male patient was given curare, a toxin which blocks the acetylcholine receptors on muscle tissue. This would result in:
 - a. increased stimulation of muscle fiber
 - b. inability of the muscle to respond to motor nerve stimulus
 - c. contraction of the muscle fiber
 - d. excessive contractions and convulsions
7. Sertoli cells play a key role in which of the following process:
 - a. Spermiogenesis
 - b. testosterone secretion
 - c. secretion of seminal fluid
 - d. production of germ cells
8. All are seen in Cushings syndrome EXCEPT
 - a. truncal obesity
 - b. hypertension
 - c. hypoglycaemia
 - d. hirsutism
9. With the Weber's test, the tone is perceived as louder in the affected left ear. The probable diagnosis is:
 - a. conduction loss in the right ear
 - b. sensorineural hearing loss in the right ear
 - c. sensorineural hearing loss in the left ear
 - d. conduction loss in the left ear

10. During the dark phase of the visual cycle, which form of vitamin A combines with opsin to make rhodopsin?
- All trans retinaldehyde
 - 11-cis retinaldehyde
 - All trans retinol
 - 11-cis retinol
11. The following contractile proteins are present in smooth muscle **EXCEPT**
- Actin
 - Myosin
 - Tropomyosin
 - Troponin
12. The major adrenal androgen is:
- testosterone
 - dihydrotestosterone
 - dehydroepiandrosterone (DHEA)
 - Androstenedione
13. Which of the following is **not true** about Turners Syndrome
- Common feature is ammenorrhea
 - Patients are tall
 - Female type of sexual developement
 - Chromosomal pattern is XO
14. In adults, intravesical pressure rises suddenly when intravesical volume reaches about:
- 100 ml
 - 200 ml
 - 300 ml
 - 400 ml
15. A young woman comes to you with complaints of pain during 14th day of her menstrual cycle that goes away soon. Changes that occur at the time of ovulation are all, **EXCEPT**
- LH surge 12 hours before ovulation
 - rise of basal body temperature by 0,5 -1°C
 - decrease in estrogen level
 - Fern and spinnbarkeit test positive for cervical mucus.
16. Counter current mechanism in the kidney is responsible for
- absorption of glucose
 - maintenance of blood flow
 - osmotic gradient in medulla
 - secretion of uric acid
17. In human being, the least useful physiological response to low environmental temperature is:
- shivering
 - vasoconstriction
 - release of thyroxine
 - piloerection
18. A 50 year old female recently noticed muscle weakness and frequent muscle cramps and spasm. Her blood investigation revealed serum calcium 7.6 mg%. What is the probable diagnosis?
- Hypercalcaemia
 - Hyperparathyroidism
 - Hypocalcaemia
 - Osteoporosis
19. Pregnancy tests are based on which hormone:
- Progesterone
 - Oestrogen
 - HCG
 - LH
20. All or None response in a nerve is applicable to:
- a mixed nerve
 - only a sensory nerve
 - only a motor nerve
 - a single nerve fibre

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SECTION-B

Q2. Long answer question:

12 x 1M = 12 M

- a) Describe neuromuscular junction with suitable diagram. Explain neuromuscular transmission. Write a note on Myasthenia Gravis. (3+5+4)

Q3. Short answer questions:

5 x 4M = 20M

- a) Define puberty. Describe changes that occur in male and female during puberty.
- b) Define hypoxia. Explain acclimatization changes on exposure to high altitude. (1 +3 M)
- c) A person with long standing stress consulted his family physician for marked muscle wasting, thinning of skin with pendular abdomen and reddish purple striae all over the abdomen. Name the clinical disorder he is suffering from (1M) ? Describe functions of the hormone concerned. (3M)
- d) A 40 year old male complains of nausea, vomiting, anorexia and lethargy. The renal clearance test shows:
- Creatinine excreted in urine in 1 min = 120mg/dl
- Plasma concentration of creatinine = 1.2mg/dl
- Urine flow rate= 1 ml/min
- i. Define clearance. (1M)
- ii. Calculate creatinine clearance from above given data and comment on its findings.(2M)
- iii. Name exogenous substance used for measurement of GFR and state its characteristics.(1M)

e- An 2 regⁿ of Aldosterone

Q4. Short answer questions (Any 4 out of 5)

4 x 5M = 20M

- a) Explain accommodation reflex pathway. What is Argyll Robertson Pupil? (4+1M)
- b) Describe functions and regulation of testosterone hormone.(3+2M)
- c) Draw well labelled diagram of Juxtaglomerular apparatus and explain its physiological significance. (2+3M)
- d) Enumerate physiological role of serum calcium. Explain actions of parathyroid hormone. (2+3M)
- e) Describe professional qualities and roles of a physician.

Q5. Short answer questions (Any 4 out of 5)

4 x 7M = 28M

- a) Describe cystometrogram with help of well labelled diagram, Explain Micturation reflex in detail. (4+3M)
- b) Describe structure and role of Organ of Corti in hearing. Enumerate any two causes of sensorineural deafness. (5+2M)
- c) Enumerate properties of nerve fiber. Describe any two in detail. (3+4M)
- d) What is normal fasting and postprandial blood glucose level? Describe regulation of blood glucose level in the human body. Add a note on Diabetes Mellitus. (1+4+2M)
- e) Describe uterine and ovarian changes occurring during menstrual cycle. Describe physiological basis of use of oral contraceptive pills for contraception. (5+2M)

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