



B.Sc./4th Sem (H)/PHYS/24(CBCS)/New

2024

4th Semester Examination

PHYSIOLOGY (Honours)

Paper : SEC 2-T

(New Syllabus)

[Revised Syllabus, w.e.f. Session 2022-23]

[CBCS]

*The figures in the margin indicate full marks.
Candidates are required to give their answers
in their own words as far as practicable.*

(Histochemistry and Histopathology)

Full Marks : 25

Time : Two Hours

Group - A

Answer any **three** of the following questions : $2 \times 3 = 6$

1. Define chromophore and auxochrome. 2
2. Give an example each of acid and basic dye. 1+1
3. Why glutaraldehyde containing fixatives are avoided in staining of tissues with PAS? 2

P.T.O.

(2)

4. Why organic fixatives are not used in fixation of fat tissue?

2

5. What is the most common method of decalcification? Briefly mention.

1+1

Group - B

Answer any *two* of the following questions : $5 \times 2 = 10$

6. Define exfoliative cytology. Give one advantage and disadvantage each of exfoliative cytology. $1+2+2$

7. Discuss different types of embedding media with their properties. 5

8. Define cryotomy. What is the application of frozen section? Which gas is used in cryostat? $1+3+1$

Group - C

Answer any *one* of the following questions : $9 \times 1 = 9$

9. What is the principle of PAS technique? Give the limitations and applications of PAS stain. What is the difference between PAS and PASD stain? $3+(2+2)+2$

10. What is fixation? Mention the different types of fixative. Write the basic principle of fixation. Briefly discuss the advantage of any one fixative. $(2+2)+2+3$

(3)

OR

[Medical Microbiology and Immunology]

Full Marks : 40

Time : Two Hours

Group - A

Answer any *five* of the following questions : $2 \times 5 = 10$

1. What do you mean by Pili? 2
2. What is molecular chronometer? Give examples. 1+1
3. Name the causative agents of Diptheria and Gonorrhea. 2
4. Write down the basic difference of Gram +ve and Gram -ve bacterial cell wall. 2
5. What is viriod? 2
6. What is prion? 2
7. What do you mean by opportunistic infection? 2
8. What is hapten? How does it differ from antigen? 1+1

Group - B

Answer any *four* of the following questions : $5 \times 4 = 20$

9. Explain the significance of Robert Koch's postulates in the field of medical microbiology. What do you know about nosocomial infections? 3+2

P.T.O.

(4)

10. Describe the process of constructing phylogenetic tree using RNA sequence. 5
11. Describe the etiology and symptoms of tuberculosis. 1+4
12. Describe the sexual lifecycle of protozoa responsible for malaria. 2
13. State the detection and prevention method of E. coli gastroenteritis. 2+3
14. What is the difference between the lytic and lysogenic cycle of lambda phage? 5

Group - C

Answer any *one* of the following questions : 10×1=10

15. Describe the life cycle of candida albicans. Mention the clinical symptoms of HIV virus. 6+4
 16. Explain the microbial growth with the help of growth curve. Mention the effects of environmental factors on microbial growth. 6+4
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(5)

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(Computer Application in Health Science)

Full Marks : 25

Time : Two Hours

Group - A

Answer any *three* of the following questions : $2 \times 3 = 6$

1. What is computer virus? 2
2. Define operating system with example. 2
3. What do you mean by application program? 2
4. What is an e-mail? 2
5. State two applications of computer in physiological models
perparation. 2

P.T.O.

(6)

Group - B

Answer any *two* of the following questions : $5 \times 2 = 10$

6. What do you mean by utility program and state their function? $2+3$
7. Write short notes on RAM and ROM. $2\frac{1}{2}+2\frac{1}{2}$
8. Briefly discuss the application of Microsoft excel in graphical representation of data in pie diagram. 5

Group - C

Answer any *one* of the following questions : $9 \times 1 = 9$

9. What do you mean by computer assisted imaging? Discuss briefly about the basic principle of computer assisted imaging. Mention the importance of computer assisted therapy in health science. $2+3+4$
 10. Briefly discuss different generations of computer. Give a brief description on analog and mainframe computers. $4+(2\frac{1}{2}+2\frac{1}{2})$
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(7)

OR

**[Physiological Techniques and
Public Health Assessments]**

Full Marks : 25

Time : Two Hours

Group - A

Answer any *three* of the following questions : $2 \times 3 = 6$

1. What do you mean by red-green colour blindness? 2
2. State the importance of audiometry. 2
3. Mention two factors that are affecting nerve conduction velocity. 2
4. How do you explain the difference between obesity and overweight regarding BMI? 2
5. Write down two advantages of Helath-Carter method. 2

Group - B

Answer any *two* of the following questions : $5 \times 2 = 10$

6. Write down the classification based on Kuppaswamy Socioeconomic scale. 5
7. What is Visual Acuity? Describe the procedure of measuring Visual Acuity. 2+3

P.T.O.

8. What is the importance of ECG? What is the normal range of ECG parameters for both male and female?

1+4

Group - C

Answer any *one* of the following questions : $9 \times 1 = 9$

9. Describe the procedure and importance of EEG.
10. State the interpretation of different types of growth curves in identifying stunting, underweight and thinness.
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(9)

OR

[Histopathological Techniques]

Full Marks : 25

Time : Two Hours

Group - A

Answer any *three* of the following questions : $2 \times 3 = 6$

1. What is the role of microtome in histopathology? 2
2. Name two types of fixative. 2
3. Write two key differences between light and electron microscope. 2
4. What is the use of histochemistry? 2
5. What is embedding media? 2

Group - B

Answer any *two* of the following questions : $5 \times 2 = 10$

6. Write the principle of immunohistochemistry. 5
7. Why is quality control being important in histopathology? 5
8. Discuss the technological advancements in histology. 5

P.T.O.

(10)

Group - C

Answer any **one** of the following questions : $9 \times 1 = 9$

9. Explain the PAS reaction. Discuss the method of tissue preparation for electron microscopy studies. $4+5$
 10. What is the purpose of silver impregnation technique in histology? Discuss the method of DNA hybridization. $4+5$
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OR

[Sports Medicine and Nutritional Physiology]

Full Marks : 40

Time : Two Hours

Group - A

Answer any *five* of the following questions : $2 \times 5 = 10$

1. Write in brief the concept of sports medicine. 2
2. Write the role of sports physician. 2
3. Write the importance of muscles in movements. 2
4. What do you mean by Kinesiology? 2
5. How anemia may affect sports performance? 2
6. What do you mean by Transcutaneous Electrical Nerve Stimulation? 2
7. Name the types of sports injuries. 2
8. Mention the importance of clinical application of heat modalities. 2

Group - B

Answer any *four* of the following questions : $5 \times 4 = 20$

9. Briefly write the weight management strategies for sports persons. 5
10. Write the role of vitamins and minerals in athletic performance. 5

P.T.O.

11. Briefly write the role of ice in treatment of sports injuries. 5
12. Briefly discuss the prevention and management of sports injuries. 5
13. Write the time and composition of dietary intakes of athletes. 5
14. Briefly discuss the planning and preparation of diets for sports persons suffering from osteoporesis. 5

Group - C

Answer any *one* of the following questions : 10×1=10

15. Write the Kinesiological classification of muscle. Briefly discuss the role of joints in movements. State the reasons of sports injuries. 3+4+3
 16. Briefly discuss the major pathways for energy production during exercise. Write the planning and preparation of diets for female athletes. 5+5
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