

2019

4th Semester Examination

**PHYSIOLOGY**

**Paper - SEC2T**

Full Marks : 40/25

Time : 2 Hours

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

**Computer Application in Health Science**

(Marks - 25)

1. Answer any *five* questions from the following :

1×5

- (a) Name two operating systems currently used  
universally. 1
- (b) What do you mean by anti-virus? 1
- (c) Name one input and one output device of a  
computer. 1

[ Turn Over ]

- (d) How can you copy and paste a file without using the mouse? 1
- (e) What is the function of UPS? 1
- (f) What was the name of first ever computer? 1
- (g) Who is considered as the father of computers? 1
- (h) What do you mean by hybrid computers? 1

2. Answer any *four* questions from the following : -  
2×5

- (a) Write two utilities of both MS Excel and MS Powerpoint. 1+1
- (b) What do you mean by web-browsers? Give example. 1+1
- (c) Give a comparative account on human brain and the computer's CPU. 1+1
- (d) What is the basic procedure of sending an e-mail? 2
- (e) What are the functions of RAM and hard disk? 1+1
- (f) What do you mean by download and upload? 1+1

(g) Name two applications where basic mathematical calculations can be performed. 1+1

(h) How MS word can be used to prepare tables and body texts? 1+1

3. Answer any *one* question from the following :

5×2

(a) Give a brief note on computer hardware and software. 2½+2½

(b) Briefly describe different types of computers with example. 5

(c) Discuss about teh basics of computer-assisted imaging and its implications in medicine. 5

(d) Discuss how basic statistical parameters and data are analyzed in respective applications in the computer. 5

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[ Turn Over ]

**Physiological Techniques and  
Public Health Assessment**

(Marks - 25)

1. Answer any *five* questions from the following :  $1 \times 5$

- (a) What do you mean by audiometry? 1
- (b) Write the full name of EEG 1
- (c) What is the purpose of a perimetry test? 1
- (d) What are the implications of stereotactic techniques in medicine? 1
- (e) What are the implications of stereotactic techniques in medicine? [1
- (f) Define obesity. 1
- (g) Name a common method used to assess the socio-economic status. 1
- (h) Mention the types of growth curves. 1

2. Answer any *four* questions from the following :

$2 \times 5$

- (a) Name the different waves of EEG. Mention the respective condition where those waves are seen. 1+1

- (b) Define stunting and wasting. 1+1
- (c) What is BMI. How it can be calculated? 1+1
- (d) Discuss in brief about the procedure of perimetry test. 2
- (e) Give a very brief note on deep breathing test. 2
- (f) Name the two charts used to assess visual acuity and colour blindness. 1+1
- (g) What is the significance of electromyography (EMG)? 2
- (h) Draw a normal ECG wave and show the waves in your diagram. 1+1

3. Answer any *one* question from the following :

5×2

- (a) Discuss the Heath-Carter method for somatotyping of adults. 5
- (b) Discuss about the limb-leads and chest-leads of ECG.  $2\frac{1}{2}+2\frac{1}{2}$
- (c) Discuss the procedure of measuring nerve conduction velocity. 5

[ Turn Over ]

- (d) Discuss the significance of different types of growth curves to assess nutritional status of individuals. 5
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### **Histopathological Techniques**

(Marks - 25)

1. Answer any *five* questions from the following :

- 1×5
- (a) What do you mean by histopathology? 1
- (b) Give two examples of fixatives. 1
- (c) What is microtome? 1
- (d) What is the main difference between stain and dye? 1
- (e) What is the function of mordant? 1
- (f) Give one example where antibody is used as a histological reagent. 1
- (g) What do you mean by cryostat? 1
- (h) How many types of light microscopes are there? 1

2. Answer any *four* questions from the following :

2×5

(a) Differentiate between scanning and transmission electron microscope. 1+1

(b) Briefly state the process of silver impregnation. 2

(c) What is mounting? Give two examples of mounting medium. 1+1

(d) Briefly mention the limitations of histochemistry. 2

(e) What is autoradio activity? 2

(f) Briefly discuss about karyotyping. 2

(g) Give a brief note on the histochemistry of pigments. 2

(h) What are the applications of immunological techniques in histology? 2

3. Answer any *one* question from the following :

5×2

(a) Briefly describe the process of Hematoxylin-Eosin staining, step-by-step with the help of a flow-chart. 5

[ Turn Over ]

- (b) Give a brief note on PAS staining and Sudan Black Stain. 2½+2½
- (c) Briefly discuss about the principle and application of different types of immunological techniques. 5
- (d) Give a brief note on DNA hybridization techniques. 5
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## **Sports Medicine and Nutritional Physiology**

(Marks - 40)

1. Answer any *five* questions from the following :

2×5

- (a) What do you mean by sports injury? Give example. 1+1
- (b) What is osteoporosis? 2
- (c) What are therapeutic modalities? Give one example. 1+1
- (d) Write two principal objectives of sports medicine. 2



- (e) What do you mean by the term "kinesiology"? 2
- (f) Write any two causes for sports injury and mention any two preventive measures. 1+1
- (g) What do you mean by the term "RICE" in the field of sports injury management and rehabilitation? 2
- (h) Write a very brief note on whirlpool bath. 2
2. Answer any *four* questions from the following : 5×4
- (a) State the importance of sport physician and coaches in sports arena. 2½+2½
- (b) Classify muscles kinesiologically and give a brief note. 2+3
- (c) Discuss the role of ice-treatment and heat-treatment in sports injury management. 2½+2½
- (d) Briefly discuss about different weight management strategies for athletes. 5
- (e) What do you mean by short wave diathermy? What are its implications in medicine as well as sports arena? 2+3

[ Turn Over ]

- (f) Briefly discuss about how manipulation of various nutritional parameters improves athletic performances? 5

3. Answer any *one* question from the following :

- (a) Discuss in details about the planning and preparation of diet for athletes of various categories. How does the dietary intervention affect the individuals to perform better in their respective events. 5+5

- (b) What are the different types of sports injury? What are the specific objectives of sports medicine? Write a brief note on "TENS" therapy. 4+3+3
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