

P - II (1+1+1) H / 20 (N)

2020

ZOOLOGY (Honours)

Paper Code : ZHT - V - A & B

[New Syllabus]

Important Instructions for Multiple Choice Question (MCQ)

- Write Subject Name and Code, Registration number, Session and Roll number in the space provided on the Answer Script.

Example : Such as for Paper III-A (MCQ) and III-B (Descriptive).

Subject Code :

III	A	&	B
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Subject Name :

- Candidates are required to attempt all questions (MCQ). Below each question, four alternatives are given [i.e. (A), (B), (C), (D)]. Only one of these alternatives is 'CORRECT' answer. The candidate has to write the Correct Alternative [i.e. (A)/(B)/(C)/(D)] against each Question No. in the Answer Script.

Example – If alternative A of 1 is correct, then write :

1. – A

- There is no negative marking for wrong answer.

মাল্টিপল চয়েস প্রশ্নের (MCQ) জন্য জরুরী নির্দেশাবলী

- উত্তরপত্রে নির্দেশিত স্থানে বিষয়ের (Subject) নাম এবং কোড, রেজিস্ট্রেশন নম্বর, সেশন এবং রোল নম্বর লিখতে হবে।

উদাহরণ — যেমন Paper III-A (MCQ) এবং III-B (Descriptive)।

Subject Code :

III	A	&	B
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Subject Name :

- পরীক্ষার্থীদের সবগুলি প্রশ্নের (MCQ) উত্তর দিতে হবে। প্রতিটি প্রশ্নে চারটি করে সম্ভাব্য উত্তর, যথাক্রমে (A), (B), (C) এবং (D) করে দেওয়া আছে। পরীক্ষার্থীকে তার উত্তরের স্বপক্ষে (A)/(B)/(C)/(D) সঠিক বিকল্পটিকে প্রশ্ন নম্বর উল্লেখসহ উত্তরপত্রে লিখতে হবে।

উদাহরণ — যদি 1 নম্বর প্রশ্নের সঠিক উত্তর A হয় তবে লিখতে হবে :

1. – A

- ভুল উত্তরের জন্য কোন নেগেটিভ মার্কিং নেই।

Paper Code : ZHT - V - A

Full Marks : 10

Time : Thirty Minutes

Choose the correct answer.

Answer *all* the following questions,
each question carries 1 mark.

1. Full form of PAS is —
 - (A) Periodine Acid Staining
 - (B) Periodic Acid Staining
 - (C) Periodine Acid Schiff
 - (D) Periodic Acid Schiff

2. Haematoxylin is a —
 - (A) Acid stain
 - (B) Basic stain
 - (C) Neutral stain
 - (D) None of these

3. Lipids are commonly stained using —
 - (A) Fast green
 - (B) Orange G
 - (C) Sudan stain
 - (D) Acetoalcohol

4. Which is NOT a coagulant fixative?
- (A) Ethanol
 - (B) Mercuric chloride
 - (C) Chromium trioxide
 - (D) Formaldehyde
5. Haversian canals occur in —
- (A) Humerus
 - (B) Pubis
 - (C) Clavicle
 - (D) Scapula
6. The 3-D picture of a specimen is obtained by —
- (A) SEM
 - (B) TEM
 - (C) Compound Microscope
 - (D) Simple Microscope
7. DNA separation by electrophoresis commonly uses —
- (A) Agarose- vertical
 - (B) Agarose-Horizontal
 - (C) PAGE- vertical
 - (D) PAGE- Horizontal

8. Podocytes are present in —
- (A) Ureters
 - (B) Loop of Henle
 - (C) Proximal convoluted tubule
 - (D) Bowman's capsule
9. Lambert-beers law is applied for —
- (A) Electrophoresis
 - (B) Chromatography
 - (C) Colorimetry
 - (D) None of these
10. The ends of actin filaments are anchored with —
- (A) M line
 - (B) Z disc
 - (C) Perimysium
 - (D) Sarcoplasmic reticulum
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ZOOLOGY (Honours)

Paper Code : ZHT - V - B

[New Syllabus]

Full Marks : 40

Time : One Hour Thirty Minutes

The figures in the margin indicate full marks.

Write your answer within one page for the questions carrying 4 marks each and within three pages for the questions carrying 12 marks each.

Unit - 1

(Histology and Histochemistry)

1. Answer any *two* questions : 4×2=8
 - (a) Define mordant and fixative. Differentiate between fixative and preservative. 2+2=4
 - (b) State the histological features of mammalian kidney with a labelled diagram.
 - (c) What is direct and indirect detection method used in immunohistochemistry?
 - (d) Briefly illustrate the chemical basis of “Feulgen staining”.

2. Answer any *one* question : 12×1=12
 - (a) Write briefly about Chromophoric and Auxophoric group. What do you mean by metachromasia of a dye? Give example. Name the plant source of Hematoxylin. Differentiate between Hematoxylin and Hematein. 2+2+5+1+2=12
 - (b) Point out the histological differences between mammalian thyroid gland and testis. Briefly discuss about the histological and functional aspects of mammalian adrenal gland. (3+3)+(3+3)=12

- (c) Write short notes on : 4×3=12
- (i) PAS reaction
 - (ii) Techniques of immunochemical staining and their applications.
 - (iii) Structure and function of lymph node with diagram.

Unit - 2

(Microscopy and Analytical Techniques)

3. Answer any *two* questions : 4×2=8
- (a) Differentiate between TEM and SEM. What is electron gun? 3+1=4
 - (b) State the principle of spectrophotometry. Distinguish between Colorimetry and Spectrophotometry. 2+2=4
 - (c) Write a short note on centrifugation. What is sedimentation coefficient? 3+1=4
 - (d) Give a brief account on the process of Agarose Gel electrophoresis.
4. Answer any *one* question : 12×1=12
- (a) Define R_f value. What do you mean by stationary and mobile phase of chromatography? Write down the steps involved in TLC. State the advantages of HPLC over TLC. 2+3+4+3=12
 - (b) State the basic principle of “Phase contrast microscopy”. What do you mean by the term ‘Light waves are in Phase’? State the applications of fluorescence microscopy. 4+4+4=12
 - (c) Write a short note on angular aperture. State its relation with numerical aperture. Define resolving power of microscope. Calculate the resolution of a microscope while using blue light ($\lambda = 450\text{nm}$), considering the angular aperture as 70° ($\sin 70^\circ = 0.94$). What will be the resolution of the same microscope if you use immersion oil? 2+2+2+4+2=12