Total number of printed pages—4

03/1(FY)SEM-1-MIN1-ZOOMIN1014

2024

ZOOLOGY

Paper : ZOOMIN1014

(Cell and Molecular Biology)

Full Marks : 50
Pass Marks : 20

Time : Two hours

The figures in the margin indicate full marks for the questions.

1. Choose the correct answer : 1×5=5

(a) Meiosis I results in the formation of
প্রথম হ্রাসাত্মক কোষবিভাজনৰ ফলত তলৰ কোনটো গঠন হয়
(i) 2 deploid daughter cells
(২টা দ্বিগুণীয়া অপত্য কোষ)
(ii) 4 haploid daughter cells
(৪টা এগুণীয়া অপত্য কোষ)
(iii) 2 deploid daughter cells
(২টা দ্বিগুণীয়া অপত্য কোষ)
(iv) 4 deploid daughter cells
(৪টা দ্বিগুণীয়া অপত্য কোষ)

(b) Eukaryotic cells differ from Prokauyotic cells in having
তলৰ কোনটো কোষাংগ থকাৰ বাবে সংকোষ কেন্দ্রীয় কোষবোৰ প্রকোষ কেন্দ্রীয় কোষৰ পৰা পৃথক হয়?
(i) Chromatin reticulum (ক্রমাটিন ৰেটিকুলাম)

Contd.

(ii) Protoplasm (কোষ প্ৰৱস)
(iii) True nucleus (প্ৰবৃত্ত কোষকেন্দ্ৰ)
(iv) Ribosome (ৰাইবজম)

(c) A nucleic acid is a polymer of
নিউক্লিক এচিদ তলৰ কোনটো যৌগৰ পলিমাৰ।
(i) Amino acid (এমিন' এচিড)
(ii) Nucleosides (নিউক্লিঅ'চাইজ)
(iii) Protein (প্ৰটিন)
(iv) Nucleotides (নিউক্লিঅ'টাইড)

(d) Paining of homalgous chromosomes takes place in :
সমৰূপী ক্ৰম'জমৰ যোৰপত্তা প্ৰক্ৰিয়াটো তলৰ কোনটো স্তৰত সংঘটিত হয়?
(i) Leptotene (লেপ্ট'টিন)
(b) Zygotene (জাইগ'টিন)
(iii) Pachytene (পেকিটিন)
(iv) Diplotene (ডিপ্ল'টিন)

(e) The unit membrane concept was proposed by :
ইউনিট মেমব্ৰেন ধাৰনাটো কোনে আগবঢ়াইছিল?
(i) Robeutson (ৰবাৰ্টচন)
(ii) Danielle (ডেনিয়েলি)
(iii) Singere (চিংগাৰ)
(iv) Nichalson (নিকোলচন)

2. Answer the following questions **(any five)**: 2×5=10

(a) Why meiosis cell division is called reduction division?
মিঅ'চিচ কোষ বিভাজনক কিয় হ্ৰাসাত্মক বিভাজন বুলি কোৱা হয়?

(b) What is synapsis? In what stage synapsis takes place?
চাইনেপচিচ কি? কোষবিভাজনৰ কোনটো স্তৰত কাইনেপচিচ সংঘটিত হয়?

(c) Write about the Facilitated transport.
ফেচিলিটেওড পৰিবহনৰ বিষয়ে লিখা।

(d) What are the main functions of DNA?
ডি এন এ ৰ মুখ্য কাৰ্য্যসমূহ কি কি?

(e) What is Mycoplasma?
মাইক'প্লাজমা কি?

(f) What is viroid? Write a note on viraied
ভাইৰইড কি? ভাইৰইডৰ বিষয়ে এটা টোকা লিখা।

(g) Write about the functions of Galgi Apparatus.
গলগি সংঘৱ কাৰ্য্যসমূহ লিখা।

3. Answer the following questions ***(any five)***: 5×5=25
তলৰ প্ৰশ্নসমূহৰ উত্তৰ লিখা : **(যিকোনো পাঁচটাৰ)**

(a) Explain the meitotic cell division with suitable diagram.
উপযুক্ত চিত্ৰৰ সহায়ত দৈহিক কোষবিভাজন বৰ্ণনা কৰা।

(b) Distinguish between Prokauyotic and Eurkauyotic cells.
প্ৰ'কোষকেন্দ্ৰীয় আৰু সংকোষকেন্দ্ৰীয় কোষৰ মাজৰ পাৰ্থক্যসমূহ লিখা।

(c) Describe about the 'Watson and Crick' model of DNA
ডি এন এৰ ৱাটচন আৰু ক্ৰিক আৰ্হিটো বৰ্ণনা কৰা।

(d) Write about the structure of Nucleus with necessary diagram.
উপযুক্ত চিত্ৰৰ সহায়ত কোষকেন্দ্ৰৰ গঠন বৰ্ণনা কৰা।

(e) What are the passive transport?
সক্ৰিয় আৰু নিষ্ক্ৰিয় পৰিবহনৰ মাজৰ পাৰ্থক্যসমূহ কি কি?

(f) Write about different phases of cell cycle.
কোষচক্রৰ বিভিন্ন স্তৱসমূহৰ বিষয়ে লিখা।

(g) Write a note on Meirotubulus.
মাইক্রটিউবলেৰ ওঁপৰত এটা টোকা লিখা।

(h) Explain briefly about the replication of DNA.
ডি এন এ ৰ অনুকৃত্যায়ন বিষয়ে চমুকৈ ব্যাখ্যা কৰা।

4. Answer ***any one*** of the following : 10x1=10
তলৰ **যিকোনো একটা** উত্তৰ লিখা ঃ

(a) Define Plasma membrane. Describe about the structure and functions of Plasmam membrane. Give necessary diagram. 2+4+4
কোষাবৰনৰ সংজ্ঞা দিয়া। কোষাবৰনৰ গঠন আৰু কার্য্য উপযুক্ত চিত্রৰ সহায়ত বর্ণনা কৰা।

(b) Describe the structure and functions of Endoplasmic reticulum. 5+5
অন্তঃপ্রৰসীয় জালিকাৰ গঠন আৰু কার্য্য বর্ণনা কৰা।

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63 (FY)SEM–3/MAJ/ZOOMAJ2024

2024

ZOOLOGY

Paper : ZOOMAJ2024

(Principles of Ecology and Animal Behaviour)

Full Marks : 50

Pass Marks : 20

Time : Two hours

The figures in the margin indicate full marks for the questions.

1. Choose the correct answer : 1×5=5

   (a) The transition zone between two biome is known as

   (i) ecocline

   (ii) niche

   (iii) ecotone

   (iv) ecotype

Contd.

(b) _____ is considered as the founder of modern ethology.

(i) Konrad Lokenz

(ii) Ivan Pavlov

(iii) Karl von Frisch

(iv) Alexander von Humboldt

(c) Animals that can tolerate very large variations in salinity are called

(i) Stenohaline

(ii) Stenothermal

(iii) Euryhaline

(iv) Eurythermal

In aquatic habitat, organisms living in the bottom sediments are known as ____ fauna.

(i) benthos

(ii) nekton

(iii) zooplankton

(iv) phytoplankton

ne most important property of an ganised society is

aggregation

association

division of labour

niche sharing

2. Answer the following questions : ***(any five)*** 2×5=10

(a) Distinguish between autecology and synecology.

(b) Write on Leibig's law of minimum.

(c) What is stimulus filtering?

(d) Write in short about detritous food chain.

(e) Define pheromone with example.

(f) Distinguish between natality and mortality.

(g) What is 'circadian rhythm'? Explain with example.

3. Answer the following questions : ***(any five)*** 5×5=25

(a) Distinguish between *r*-selected and *K*-selected species with example.

(b) Write in brief about the role of density-dependent factors in regulating population.

(c) Write a note on different types of ecological pyramids with example.

(d) Explain dance language of honeybee and its significance. 4+1=5

(e) What is reflex action? Discuss conditional reflex with a suitable example. 4+1=5

(f) Define homing behaviour. Write the roles of homing behaviour to instinct migration in fishes. 1+4=5

(g) Explain *J*-shaped and *S*-shaped population growth curve with proper diagram. 4+1=5

(h) What is meant by ecological efficiency? Describe Lindeman's law of trophic efficiency. 1+4=5

4. Answer the following question : ***(any one)*** 10×1=10

(a) Explain energy flow in an ecosystem with reference to the law of thermodynamics and *Y*-shaped energy flow model. 7+3=10

(b) What is population dispersal? Write in brief about different means of dispersal. Narrate the effect of dispersal on population. 2+5+3=10

Total number of printed pages–4

63 (FY)SEM–3/MAJ/ZOOMAJ2014

2024

ZOOLOGY

Paper : ZOOMAJ2014

(Basics of Biochemistry)

Full Marks : 50

Pass Marks : 20

Time : Two hours

The figures in the margin indicate full marks for the questions.

1. Choose the correct answer: : 1×5=5

a) Ribose and deoxyribose differ in structure around a single carbon namely

i) C_1

ii) C_2

iii) C_3

iv) C_4

Contd.

b) The lipid that functions as food reserve in animals is

i) Phospolipid

ii) Tryglyceride

iii) Glycogen

iv) Estrogen

c) Which of the following is not the structural component of biological membrane ?

i) Fatty acid

ii) Sphingolipid

iii) Sterols

iv) Phospholipid

d) Repsid is an example for the class of enzymes namely

i) Oxidoreductases

ii) Transferases

iii) Hydrolases

iv) Ligases

e) The backbone of nucleic acid structure is constructed by

i) Peptide bonds

ii) Glycosidic bonds

iii) Phosphodiester bridges

iv) All of the above

2. Answer the following questions : ***(any five)*** 2×5=10

a) State the importance of lipids in human body.

b) What is rancidity ?

c) Name two steroids.

d) What is denaturation of protein ?

e) What are immunoglobulins ?

f) Write the complementary sequence of GATCAA.

g) What are cofactors ?

3. Answer the following : ***(any five)*** 5×5=25

a) Write short notes on glycosidic bond and peptide bond.

b) Give a brief account on the types and functions of different types of RNA.

c) Distinguish between purine and pyrimidine.

d) Give a brief account on the conjugated proteins.

e) Write on biological significance of lipids.

f) Give a brief account on the significance of at least three important carbohydrates.

g) Discuss briefly on Fischer's lock and key model explaining mechanism of enzyme action.

h) Discuss on the structure of DNA as Watson and Crick model.

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

a) Discuss on the factors affecting enzyme actions.

b) Discuss on important saturated and unsaturated fatty acids of biological importance.