

Version No.			

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Answer Sheet No. _____

Sign. of Candidate _____

Sign. of Invigilator _____

BIOLOGY SSC–II
SECTION – A (Marks 12)
Time allowed: 15 Minutes

Section – A is compulsory. All parts of this section are to be answered on this page and handed over to the Centre Superintendent. Deleting/overwriting is not allowed. **Do not use lead pencil.**

Q.1 Fill the relevant bubble for each part. All parts carry one mark.

- (1) Inhaled and exhaled oxygen concentration differs with each other due to:
- A. Storage of Oxygen in lung tissue.
- B. Non-reactivity of Oxygen with blood.
- C. Liberation of Oxygen gas as a metabolic waste.
- D. Utilization of Oxygen during the aerobic respiration.
- (2) Which one of the following metabolic wastes is deposited in the leaves of tomato plant?
- A. Ammonium phosphate
- B. Calcium oxalate
- C. Magnesium phosphate
- D. Calcium phosphate
- (3) In binary fission of Amoeba, the offspring lack genetic variation because they:
- A. Are limited in number
- B. Are produced asexually
- C. Are unicellular organism
- D. Contain a single chromosome
- (4) The single cell protein involves replication of all microorganisms **EXCEPT**:
- A. Virus B. Bacteria
- C. Algae D. Yeast
- (5) DNA is a very delicate molecule. In chromosome it is supported by:
- A. Actin B. Fibrin
- C. Histone D. Myosin
- (6) Apart from hearing, ear also performs the function of:
- A. Hormonal secretion B. Memory
- C. Body balance D. Osmoregulation

- (7) Hinge joint which allows movement in one plane only is present in:
A. Neck B. Hip
C. Knee D. Shoulder
- (8) Calcitonin and Parathormone work in collaboration with each other for the regulation of:
A. Calcium in cell cytoplasm
B. Calcium in teeth
C. Calcium in bones
D. Calcium in blood
- (9) Applying your knowledge of inheritance, pin point the correct Genotype of true breeding round seeded pea plant:
A. RR B. Rr
C. rr D. RR and Rr
- (10) Human immunodeficiency virus (HIV) causes acquired immunodeficiency syndrome (AIDS) in human beings by:
A. Increasing the pH of blood
B. Decreasing the number of white blood cells
C. Increasing the division of red blood cells
D. Decreasing the oxygen carrying capacity of blood
- (11) The function of fungi in an ecosystem is to:
A. Provide oxygen to producers
B. Return nutrients to the environment
C. Increase complexity of food chain
D. Decrease competition among consumers
- (12) If a patient has severe throat infection, which one of the following types of medicine is required?
A. Sedative B. Antibiotics
C. Vaccine D. Narcotics
-



**Federal Board SSC-II Examination
Biology Model Question Paper
(Curriculum 2006)**

Time allowed: 2.45 hours

Total Marks: 53

Note: Answer ALL parts from Section 'B' and attempt ALL questions from Section 'C' on the separately provided answer book. Write your answers neatly and legibly.

SECTION – B (Marks 33)

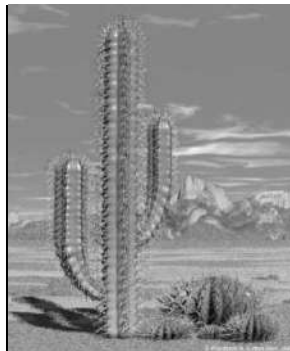
Q.1 Attempt ALL parts from the following. All parts carry equal marks. (11x3=33)

- i. What are the three main effects of air pollution on environment? Describe them briefly. (1x3)

OR

Write down the key points of theory of natural selection. (0.5+0.5+1+1)

- ii. a. Plants can be categorized on the basis of availability of water and salt. Identify the group and habitat to which this plant belongs. (1)



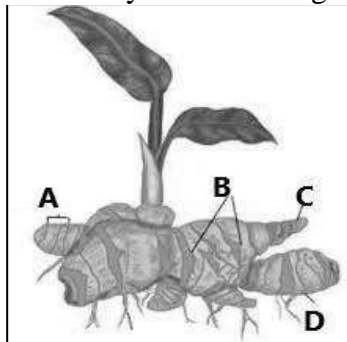
- b. Which characteristics make its survival possible? (2)

OR

Complete the table given below to associate the adaptations with the relevant flowers. (0.5x6)

Character	Insect pollinated flower	Wind pollinated flower
Colour		
Stamen and stigma		
Pollen grain		

- iii. Following diagram shows the way of natural vegetative propagation.



- a. Label the parts A, B, C and D (1)
 b. Name this type of vegetative propagation and give example. (1)

c. From which part shoot and root of new plant arise. (1)

OR

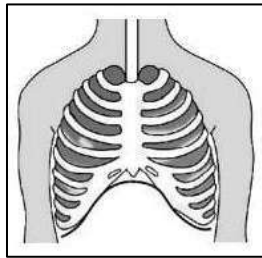
How does adrenal gland help to cope in emergency situations? (3)

iv. State the harmful effects of cigarette smoke on lungs and circulatory system. (1+2)

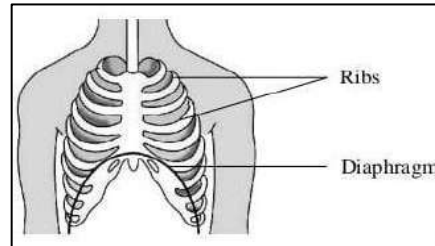
OR

Differentiate between the cross sectional views of brain and spinal cord with reference to white and grey matter. (1.5+1.5)

v. Following diagram shows the two steps of breathing.



A

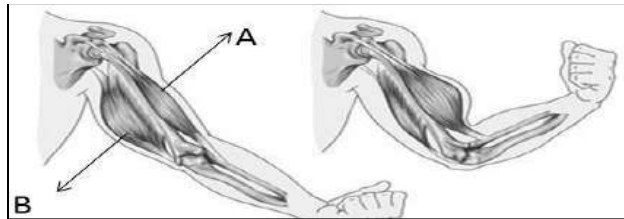


B

Which diagram (A or B) shows the process of inhalation? Support your answer with reasons.

OR

a. Mention the name of muscles at A and B. (1)

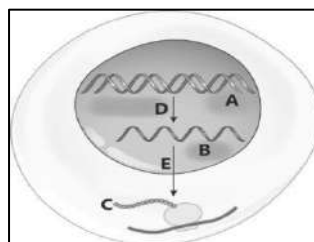


b. Elaborate the antagonistic movement of arm muscles. How do they cause the movement of elbow joint? (2)

vi. DNA is a genetic material that has instructions to direct all functions of cells.

a. Identify the labeled parts A, B and C in the diagram. (1)

b. Name the processes D and E. Describe them briefly. (2)



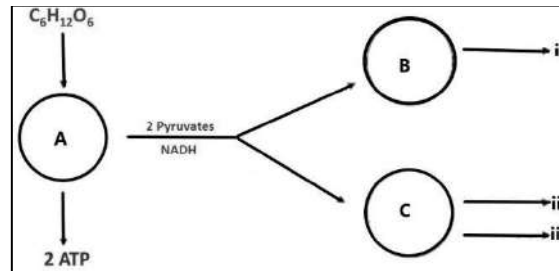
OR

Complete the given table.

(0.5x6)

Blood group	Possible Genotypes	Relationship between alleles
A		
AB		
O		

- vii. The flow chart is showing anaerobic respiration.

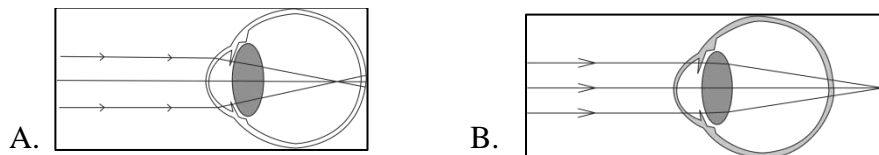


- a. Identify the processes A, B and C. (1.5)
 b. Mention the products (i), (ii) and (iii) produced by these processes. (1.5)

OR

When crossing a white four o'clock plant with a pink one, what would be the probability of red pink and white flowers among offspring? (3)

- viii. a. Relate the given diagrams A and B with the specific disorder of eye. (1)



- b. Recognize the cause of the eye sight problem of the grandmother if she is unable to read the newspaper. (1.5)
 c. Suggest the lens to rectify this problem. (0.5)

OR

- a. What would be the difference in composition of dialysis fluid before and after dialysis? (1.5)
 b. Which substances should be the same in fluid and blood? (1.5)
 ix. Which type of symbiosis exists between lice and human being? Justify your answer with reasons and two relevant examples. (1+2)

OR

- a. Visualize what would happen if there are no nitrogen fixing bacteria present in an ecosystem. How will it disturb the nitrogen cycle? (2)
 b. Which natural process would be stopped if denitrifying bacteria become extinct? (1)

- x. Keeping in view the working of vaccine, summarize how does corona vaccine produce immunity in human body. (3)

OR

How does gametogenesis differ in males and females? (3)

- xi. Name the hormones produced by Pancreas. Write about their roles in human body. (1+2)

OR

What are the steps of eutrophication? (3)

SECTION – C

(Marks: 20)

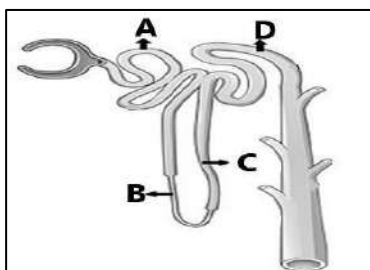
Note: Attempt all questions. Marks of each question are given within brackets. (4x5=20)

Q.2 How are seeds produced from male and female gametophyte in angiosperms? Explain the process with the help of diagram. (1.5+1.5+2)

OR

Nephron is the structural and functional unit of kidney. Explain the re-absorption of glomerular filtrate at A, B, C and D. Which processes are involved in it?

(1+1+1+1+1)



Q.3 Genetic engineering offers enormous benefits by producing the GMO. Apply the knowledge to identify the different steps of production of GMO. Illustrate it with the help of labelled diagram. (3+2)

OR

Antibiotics are very essential medicinal drugs. How does antibiotic resistance develop? Analyze serious effects caused by antibiotic resistance. (2+3)

Q.4 Draw and label the structure of eye. Give detail of each layer of eye. (3+2)

OR

Explain the one way flow of energy through an ecosystem (5)

Q.5 Skeleton provides protection and support for animal body. Describe the bones of the axial skeleton in human. (5)

OR

Explain structure and function of Nasal cavity and Trachea in the Human Respiratory system. (3+2)

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Federal Board SSC-II Examination
Biology Model Question Paper SLOs (Curriculum 2006)
SECTION – A

Q.1 Encircle the correct option i.e. A / B / C / D. All parts carry equal marks. (1x12)

- (1) Differentiate between the composition of inspired and expired air.
- (2) Describe the mechanisms / adaptations in plants for the excretion / storage of CO₂, H₂O, O₂, latex, resins and gums.
- (3) Describe different types of asexual reproduction i.e. binary fission, budding, spore formation and vegetative propagation.
- (4) Describe single-cell protein and its importance.
- (5) Describe the composition of chromatin material.
- (6) Explain the role of ear and eye in maintenance of homeostasis through balance and accommodation.
- (7) Describe the location and movement of hinge joints.
- (8) Outline the parts of endocrine system; major glands of this system (Pituitary, Thyroid, Pancreas, Adrenal, Gonads) and names of their respective hormone.
- (9) Describe complete dominance using the terms dominant, recessive, phenotype, genotype, homozygous, heterozygous, P1, F1, F2 generations and proving it diagrammatically through a monohybrid genetic cross.
- (10) Explain AIDS as an example of sexually transmitted diseases.
- (11) Describe the interrelationships between different components of the ecosystem.
- (12) Describe the principle usages of painkillers, antibiotics, vaccines and sedatives.

SECTION – B (Marks 33)

Q.2 Attempt ALL parts from the following. All parts carry equal marks. (11×3=33)

- i. Describe effects of pollution on plants, animals and human beings.

OR

Describe how variation leads to competition and differential survival by best fitting the environment.

- ii. Explain osmotic adjustments in plants.

OR

Describe the adaptations in the structure of wind-pollinated and insect-pollinated flowers.

- iii. Explain vegetative propagation in plants (through stem, suckers and leaves).

OR

Explain how adrenaline may be involved in exercise and emergency situations.

- iv. Describe the biological consequences of smoking in relation to the lungs and circulatory system.

OR

Differentiate between the cross sectional views of brain and spinal cord, with reference to white and gray matter.

- v. Describe the mechanism of breathing in term of movements of ribs and diaphragm.

OR

Describe the action of flexors and extensors as a pair of opposing muscles selecting biceps and triceps as example.

- vi. Describe the central dogma stating the role of gene in protein synthesis.
OR
 Selecting the example of ABO blood group system, explain co-dominance.
- vii. Explain the method of fermentation by yeast and bacteria.
OR
 Explain incomplete dominance in 4 o'clock plant.
- viii. State how short and long sightedness can be treated.
OR
 Explain dialysis as treatment of the kidney.
- ix. Explain competition, predation and symbiosis (parasitism, mutualism, commensalisms).
OR
 Describe carbon and nitrogen cycles.
- x. Describe the role of vaccines in producing immunity against specific diseases.
OR
 Describe gametogenesis in rabbit
- xi. Outline the parts of endocrine system, major glands of this system (pituitary, thyroid, pancreas, adrenal and gonads) and give names of their respective hormones.
OR
 Explain the cause of pollution

* * * *

SECTION – C

(Marks: 20)

Note: Attempt all questions. Marks of each question are given within brackets. (4x5 = 20)

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- Q.3** Describe sexual reproduction in plants by explaining the life cycle of a flowering plant.
OR
 Describe that urine formation involves three processes i.e. filtration, reabsorption and secretion.
- Q.4** Define genetic engineering and describe its objectives. Describe how a gene is transplanted.
OR
 Categorize major antibiotics as per their bactericidal and bacteriostatic effects.
- Q.5** Describe the structure of human auditory and visual receptors.
OR
 Relate biogeochemical cycles with flow of energy and ecological balance.
- Q.6** Describe the main components of the axial skeleton and the appendicular skeleton.
OR
 Describe the roles of parts of air passageways and of lungs.

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BIOLOGY SSC-II

TABLE OF SPECIFICATION

Assessment Objectives	Unit 10: Gaseous Exchange	Unit 11: Homeostasis	Unit 12: Coordination	Unit 13: Support and Movement	Unit 14: Reproduction	Unit 15: Inheritance	Unit 16: Man and His Environment	Unit 17: Biotechnology	Unit 18: Pharmacology	Total Marks	% age
K (Knowledge)	Q1(1) 1 Q2(v) 3	Q1(2) 1 Q2(ii) 3	Q1(6) 1	Q1(7) 1 Q2(v) 3	Q2(ii) 3	Q1(5) 1 Q2 (i) 3	Q2(i) 3	Q1(4) 1	Q1(12) 1	25	21.1%
U (Understanding)	Q2(iv)3 Q6(5)	Q3(5)	Q1(8) 1 Q2(iv) 3 Q2(xi)3 Q5(5)	Q6(5)	Q1(3) 1 Q3(5)	Q2(vi) 3 Q2(vi) 3	Q1(11) 1 Q2(ix) 3 Q2(ix) 3 Q2 (xi) 3 Q5 (5)			57	48.3%
A (Application)		Q2 (viii -a) 1.5 Q2 (viii -b) 1.5	Q2(viii) 3 Q2 (iii) 3		Q2(iii) 3 Q1(10) 1 Q2 (x) 3	Q1(9) 1 Q2 (vii) 3		Q2(vii)3 Q4(5)	Q2(x) 3 Q4(5)	36	30.5%
Total Marks	12	12	19	9	16	14	18	9	9	118	100%

