

MASTERCLASS REVISION TEST # 1

[90 Question – 50 Minutes (including OMR Filling)]

28 Chapter List for the Test

- 1) Digestion and Absorption
- 2) Breathing and Exchange of Gases
- 3) Body Fluids and Circulation
- 4) Excretory Products and their Elimination
- 5) Locomotion and Movement
- 6) Neural Control and Coordination
- 7) Chemical Coordination and Integration
- 8) Human Reproduction
- 9) Reproductive Health
- 10) Transport in Plants
- 11) Mineral Nutrition
- 12) Photosynthesis in Higher Plants
- 13) Respiration in Plants
- 14) Plant Growth & Development
- 15) Organisms & Populations
- 16) Ecosystem
- 17) Biodiversity and Conservation
- 18) Environmental Issues
- 19) Biomolecules
- 20) Anatomy of Flowering Plants
- 21) Cell - The Unit of Life
- 22) The Living World
- 23) Animal Kingdom
- 24) Structural Organisation in Animals
- 25) Morphology of Flowering Plants
- 26) Biological Classification
- 27) Plant Kingdom
- 28) Cell Cycle and Cell Division



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1. Hormones are chemical messengers of all classes except:
 1. peptide
 2. steroid
 3. aminated
 4. Carbohydrate

2. Hypersecretion of growth hormone in adults does not cause further increase in height because
 1. growth hormone becomes inactive in adults
 2. epiphyseal plates close after adolescence
 3. bones loose their sensitivity to growth hormone in adults
 4. muscle fibres do not grow in size after birth

3. What is the function of valves in the vascular system?
 1. They allow blood flow away from the heart and limit high blood pressure in tissues
 2. They allow blood flow to those capillary beds that need the blood at that moment
 3. They allow blood flow toward the heart in veins that lack significant blood pressure
 4. They allow blood flow to the lungs when the blood lacks enough oxygen

4. What causes the flow of lymph in the lymphatic vessels from the interstitium to the veins?
 1. residual blood pressure forcing the plasma through the blood vessels
 2. suction from the contracting lymph nodes
 3. skeletal muscle contraction and the action of one-way valves
 4. active transport of lymph by cilia lining the lymphatic system

5. Adult human RBCs are enucleate. Which of the following statement(s) is/are most appropriate explanation for this feature?
 - (I) They do not need to reproduce.
 - (II) They are somatic cells.
 - (III) They do not metabolise.
 - (IV) All their internal space is available for oxygen transport.

1. Only (IV)
2. Only (I)
3. (I), (III) and (IV)
4. (II) and (III)

6. The part of the respiratory unit where the gas exchange first begins are the:
 1. Atrium
 2. Alveolar ducts
 3. Alveolar sacs
 4. Respiratory bronchioles

7. A condition in which a person's airways become inflamed, narrow and swell and produce extra mucus, which makes it difficult to breathe is known as
 1. Asthma
 2. Emphysema
 3. Chronic bronchitis
 4. Chronic obstructive pulmonary disease

8. Given the following results of a pulmonary function test of a normal healthy male:
 - A. A resting tidal volume of 500 ml
 - B. An anatomic dead space of 150 ml.
 - C. Breathing rate of 10 breaths/minute.
 - D. A total lung capacity of 6000ml
 - E. A residual volume of 1000ml. Which of the following statements is correct?

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1. His alveolar ventilation would be 6.5 L/minute
2. Doubling the breathing rate would double his alveolar ventilation
3. Doubling the depth of respiration (tidal volume) would double his alveolar ventilation
4. His vital capacity is 5500ml

9. The conversion of Carbon dioxide into carbonic acid in the red blood cells is catalyzed by the enzyme:
 1. hemoglobin
 2. carbonic anhydrase
 3. carbonic oxidoreductase
 4. carbonic transferase

10. Lungs are made up of air-filled sacs, the alveoli. They do not collapse even after forceful expiration, because of
 1. Residual Volume (RV)
 2. Inspiratory Reserve Volume (IRV)
 3. Tidal Volume (TV)
 4. Expiratory Reserve Volume (ERV)

11. The net filtration pressure is the interaction of the hydrostatic and osmotic pressures, driving fluid out of the capillary and is:
 1. about equal to the pulse pressure at 40 mmHg
 2. favored by colloid osmotic pressure of the plasma
 3. opposed by the hydrostatic pressure in afferent arteriole
 4. estimated to be approximately 10 mmHg in human kidneys

12. The renal cortex:
 1. is in contact with the outer capsule
2. is divided into eight to fifteen conical renal pyramids
3. drains into the minor calyces
4. has long loop of Henle of juxtamedullay nephrons

13. Which of the following statements is correct?
 1. The ascending limb of loop of Henle is impermeable to water
 2. The descending limb of loop of Henle is impermeable to water
 3. The ascending limb of loop of Henle is permeable to water
 4. The descending limb of loop of Henle is permeable to electrolytes

14. The autonomic division of the peripheral nervous system does not innervate:
 1. visceral organs
 2. exocrine glands
 3. skeletal muscle
 4. endocrine glands

15. Both sympathetic and parasympathetic divisions of ANS innervate SA node. Their actions on SA node can be called as:
 1. antagonistic
 2. complementary
 3. synergistic
 4. additive

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16. Receptor sites for neurotransmitters are present on

1. membranes of synaptic vesicles
2. pre-synaptic membrane
3. tips of axons
4. post-synaptic membrane

17. The portion of a tooth that is embedded within the maxilla or mandible and is covered by gums is called as:

1. dentin
2. crown
3. root
4. Cementum

18. The anatomic region of the stomach where the esophagus opens into is:

1. cardiac
2. pyloric
3. fundus
4. Corpus

19. Pancreatic secretions can be prevented from entering the duodenum by:

1. pyloric valve
2. sphincter of oddi
3. the common bile duct
4. cholecystokinin secretion

20. The testes in the initial months of the development:

1. are found in the abdominal cavity.
2. descend into the scrotum by the end of second month.
3. start spermatogenesis.
4. secretes some LH.

21. Spermatogenesis takes place in:

1. interstitial space.
2. seminiferous tubules.
3. epididymis.
4. rete testis.

22. Which cells of 'Crypts of Lieberkühn' secrete antibacterial lysozyme?

1. Argentaffin cells
2. Paneth cells
3. Zymogen cells
4. Kupffer cells

23. The highest position in the human skull is occupied by:

1. occipital bone
2. temporal bone
3. maxillary bone
4. parietal bone

24. The bone that provides attachment to the tongue but does not directly articulate with another bone is:

1. ethmoid
2. palatine
3. hyoid
4. Larynx

25. Which of the following joints would allow no movement?

1. Fibrous joint
2. Cartilaginous joint
3. Synovial joint
4. Ball and socket joint

26. Capacitation occurs in

1. rete testis
2. epididymis

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3. vas deferens

4. female reproductive tract

27. The 'family planning' programs in India were initiated in:

1. 1947 2. 1951

3. 1957 4. 1961

28. What does RCH stand for?

1. Reproductive and Complete Health

2. Regional and Central Healthcare

3. Reproductive and Child Healthcare

4. Reproductive and Cumulative Health

29. Identify an exocrine gland amongst the following:

1. adrenal

2. pineal

3. parathyroid

4. salivary

30. The water potential of pure water is

1. zero

2. less than zero

3. more than zero, but less than one

4. more than one

31. Diffusion:

I. does not require any energy expenditure

II. is dependent on a living system

III. is a fast process

IV. is the only means for gaseous movements in plants

1. Only I and IV are correct

2. Only I, II and IV are correct

3. Only I, III and IV are correct

4. Only II and III are correct

32. Substances that have a hydrophilic moiety:

1. have to be transported across the plasma membrane by active transport

2. can diffuse across the plasma membrane at a slower rate, if larger in size

3. do not need a concentration gradient to diffuse across the plasma membrane

4. need to be facilitated even along the concentration gradient

33. Facilitated diffusion allows cells to:

1. achieve uphill transport without ATP energy

2. select substances for uptake

3. stop transport of hydrophilic substances

4. decrease the rate of diffusion of lipophilic substances

34. Match the following sexually transmitted diseases (Column - I) with their causative agent (Column - II) and select the correct option.

Column I	Column II
A. Gonorrhea	(i) HIV
B. Syphilis	(ii) Neisseria
C. Genital Warts	(iii) Treponema
D. AIDS	(iv) Human Papilloma Virus

A B C D

1. (ii) (iii) (iv) (i)

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2. (iii) (iv) (i) (ii)
3. (iv) (ii) (iii) (i)
4. (iv) (iii) (ii) (i)

35. In which of the following, all three are macronutrients?

1. Iron, copper, molybdenum
2. Molybdenum, magnesium, manganese
3. Nitrogen, magnesium, phosphorus
4. Boron, zinc, manganese

36. An element that is labeled as 'essential' for plants is characterized by all the following except:

1. Its deficiency cannot be met by supplying some other element
2. It allows normal vegetative growth but does not allow seed set, if absent
3. Its requirement must be specific
4. It must be directly involved in the metabolism of the plant

37. The minimum amount of requirement for an element to be classified as a macronutrient for plants is:

1. 5 mmole kg⁻¹ of dry matter
2. 10 mmole kg⁻¹ of dry matter
3. 20 mmole kg⁻¹ of dry matter
4. 40 mmole kg⁻¹ of dry matter

38. Which of the following element required by the plants is a micronutrient?

1. Phosphorus
2. Sulphur
3. Iron
4. Magnesium

39. Phosphoenol pyruvate (PEP) is the primary CO₂ acceptor in

1. C₃ -plants
2. C₄ -plants

3. C₂ -plants
4. C₃ and C₄ -plants

40. Section 13.1 NCERT asks you to explain the conclusions that can be drawn from the Moll's half leaf experiment. Let me refresh your memory of Class X by the following diagram:

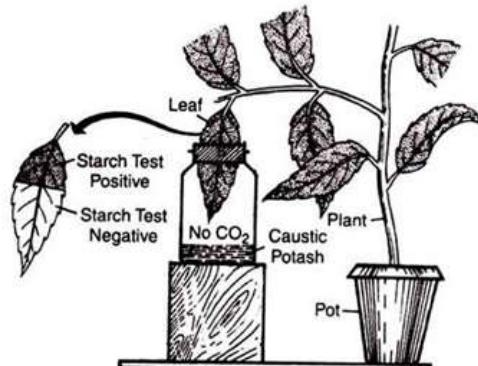


Fig. 36. Demonstration of "Moll's half-leaf" experiment.

What can be said after observing the results of the experiment?

- I. Negative starch test by the leaf portion present inside the bottle indicates CO₂ is necessary for this process.
- II. Negative test of starch, which is also shown by the portion of the leaf present in between the split of the split cork is due to the lack of CO₂ and light, thus indicating that both of them are essential requirements.

1. Only I
2. Only II
3. Both I and II
4. None

41. C. B van Neil proved that:

1. Plants produce glucose when they grow
2. Blue and red light are effective for photosynthesis
3. It is only the green part of the plants that

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could release.

4. Hydrogen from a suitable oxidizable reduces carbon dioxide to carbohydrates.
42. Refer section 13.3, NCERT – in text question. When do you think the chloroplasts will be aligned with their flat surfaces parallel to the walls of the mesophyll cells?
1. In dark
 2. When light intensity is low
 3. When light intensity is high
 4. They are always aligned parallel to the walls
43. Which statement is wrong for Krebs' cycle?
1. There are three points in the cycle where NAD^+ is reduced to $\text{NADH} + \text{H}^+$
 2. There is one point in the cycle where FAD^+ is reduced to FADH_2
 3. During conversion of succinyl Co-A to succinic acid, a molecule of GTP is synthesised
 4. The cycle starts with condensation of acetyl group (acetyl Co-A) with pyruvic acid to yield citric acid
44. Energy released by oxidation in respiration:
1. can use only carbohydrates as respiratory substrate
 2. all is released free into the cell
 3. all is released in a single step
 4. cannot be used directly
45. Refer Section 14.1, NCERT where it is stated that plants can get along without respiratory organs. What may be the reason/s

for this?

- I. Each plant part takes care of its own gas exchange needs
 - II. Plants do not present great demands for gas exchange
 1. Both I and II
 2. Only I
 3. Only II
 4. Neither I nor II
46. In Section 14.1, it is written that most cells of a plant have at least a part of their surface in contact with air. The arguments in favor of this statement include all except:
1. Flattened leaves
 2. Closely packed parenchyma in most regions
 3. Presence of lenticels
 4. Mostly dead cells in the interior
47. Fruit and leaf drop at early stages can be prevented by the application of
1. Cytokinins
 2. ethylene
 3. auxins
 4. gibberellic acid
48. In Section 15.1.1 NCERT says that plant growth is unique. What is the character of plant growth being referred to?
1. Plants have a closed growth
 2. Capacity of unlimited growth throughout life
 3. Complete absence of growth after a certain age
 4. Growth without development

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49. All the following contribute to an increase in girth of dicots and gymnosperms except:

1. Apical meristem
2. Lateral meristems
3. Vascular cambium
4. Cork-cambium

50. Match Column I [phase of growth] and Column II [cell characteristics] and choose the correct answer from the codes given:

	COLUMN I		COLUMN II
A	Meristematic	a	Increased vacuolation, new cell wall deposition
B	Elongation	b	Thin cellulosic wall with abundant plasmodesmatal connections
C	Maturation	C	Maximal wall thickening

Codes

A B C

1. a b c
2. b c a
3. b a c
4. c b a

51. Which type of association is found between entomophilous flower and pollinating agent?

1. Mutualism
2. Commensalism
3. Cooperation
4. Co-evolution

52. Who is revered as the father of ecology in India?

1. Gurdev Singh Khush
2. Ramdeo Mishra
3. Panchanan Maheshwari
4. Jawahar Sharma

53. Nicotine, caffeine, quinine and opium produced by plants are actually:

1. Primary metabolites needed in reproduction
2. Secondary metabolites needed for growth
3. Alkaloids that are present in seeds
4. Defenses against grazers and browsers

54. Consider the given statements regarding competition amongst organisms:

- I. Only related species can compete for the same resource
- II. Competition occurs only when the resources are limiting

The correct statement/s is/are:

1. I alone
2. II alone
3. Both I and II
4. Neither I nor II

55. What type of ecological pyramid would be obtained with the following data?

Secondary consumer : 120 g

Primary consumer : 60 g

Primary producer : 10 g

1. Inverted pyramid of biomass
2. Upright pyramid of biomass
3. Upright pyramid of numbers
4. Pyramid of energy

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56. A physical structure that is characteristic for each type of ecosystem is due to:

1. Interaction between various biotic components of the ecosystem
2. Interaction between various abiotic components of the ecosystem
3. Interaction between various biotic and abiotic components of the ecosystem
4. Interaction of producers with abiotic components of the ecosystem

57. In an ecological pyramid, the saprotrophs:

1. are primary producers
2. can be at any trophic level
3. are not given any place
4. are kept with apex predators

58. Ecological succession is:

1. gradual and predictable
2. gradual and unpredictable
3. sudden and predictable
4. sudden and unpredictable

59. The Earth Summit was held in Rio do Janeiro in:

1. 1987
2. 1990
3. 1992
4. 2002

60. When a threatened plant needs urgent measures to save it from extinction, the desirable approach is:

1. in-situ conservation
2. ex-situ conservation
3. cryopreservation
4. biopreservation

61. Introduction of Lates niloticus led to the extinction of

1. Gambusia
2. Pupfish
3. Cichlid fish
4. Chinook salmon

62. In which one of the following the BOD (Biochemical oxygen demand) of sewage (S), distillery effluent (DE), paper mill effluent (PE) and sugarmill effluent (SE) have been arranged in ascending order. (AIPMT 2007)

1. SE < PE < S < DE
2. PE < S < SE < DE
3. S < DE < PE < SE
4. SE < S < PE < DE

63. Which award given to individuals or communities from rural areas that have shown extraordinary courage and dedication in protecting wildlife?

1. Venu Menon Animal Allies Award
2. Amrita Devi Bishnoi Award
3. David Shepherd Wildlife Award
4. The Pledge Award

64. Which of the following is not a consequence of deforestation?

1. An increase in atmospheric carbon dioxide as trees can hold lot of carbon in their biomass.
2. Loss of biodiversity due to habitat destruction.
3. A wetter climate as trees can hold lot of water.
4. Soil erosion due to loss of protective layer of vegetation.

65. Slash and burn agriculture leads to nutrient depleted soils and deforestation if:

1. crash crops are implanted rather than cereals
2. it is practiced in a sufficiently larger area
3. some useful trees are retained by the

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farmers

4. sufficient time is not allowed to the land to recover.

66. Conjugated proteins containing carbohydrates as prosthetic group are known as

1. Chromoproteins

2. Glycoproteins

3. Lipoproteins

4. Nucleoproteins

67. Which of the following bio-molecules is strictly not a polymer?

1. Carbohydrates

2. Proteins

3. Fats

4. Nucleic acids

68. Most of the polymerization reactions result from:

1. Redox reactions

2. Dehydration synthesis

3. Hydrolysis

4. Isomerization

69. Prokaryotic and eukaryotic flagella differ in

1. Type of movement and placement

2. Location and mode of functioning

3. Microtubular structure and function

4. Microtubular organisation and type of movement

70. Cell is the fundamental structural and functional unit of all living organisms. This statement can be best justified by the fact that:

1. The cells contain nucleic acids that are contain genetic information
2. A large number of organelles present in the cell perform various functions
3. Anything less than a complete structure of a cell does not ensure independent living
4. All multi-cellular organisms begin their life as a single celled zygote

71. Who first saw and described a living cell?

1. Anton Von Leeuwenhoek
2. Robert Hooke
3. Robert Brown
4. Rudolph Virchow

72. The diversity in living beings is due to

1. Mutations
2. Long term evolutionary changes
3. Short term evolutionary changes
4. Gradual changes

73. Choose the correct one

(a) Growth cannot be taken as a defining property of living organism.
(b) Dead organism does not grow.
(c) Reproduction cannot be an all inclusive defining characteristic of living organisms.
(d) No nonliving object is capable of replicating itself.
(e) Metabolism in a test tube is nonliving.
(f) Metabolism is a defining feature of all living organisms.

1. (a) and (c)
2. All except (e)
3. All except (c)
4. All of these

74. As we go from species to kingdom in a taxonomic hierarchy, the number of common

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characteristics

1. Will decrease
2. Will increase
3. Remain same
4. May increase or decrease

75. Metameric segmentation is the characteristic of

1. Mollusca and chordata
2. Platyhelminthes and arthropoda
3. Echinodermata and annelida
4. Annelida and arthropoda

76. In some Bilateria, the body is of many segments that show serial repetition of parts. Such segments are called as:

1. Myotomes
2. Metameres
3. Proglottides
4. Comb plates

77. The phylum with exclusively marine animals is:

1. Porifera
2. Cnidaria
3. Ctenophora
4. Platyhelminthes

78. Simple epithelium is a tissue in which the cells are

1. hardened and provide support to the organ
2. cemented directly to one another to form a single layer

3. continuously dividing to provide form to an organ
4. loosely connected to one another to form an irregular organ

79. Identify the incorrectly matched pair:

	Type of epithelium	Location
1.	Simple squamous	Blood vessels and alveoli
2.	Simple cuboidal non brush bordered epithelium	Proximal convoluted tubule
3.	Columnar epithelium	Stomach and small intestine
4.	Ciliated epithelium	Bronchioles and fallopian tubes

80. Unicellular glands located in the alimentary canal are called as:

1. Paneth cells
2. Payer's patches
3. Goblet cells
4. Histiocytes

81. P-protein is found in

1. Parenchyma
2. Collenchyma
3. Sieve tube
4. Xylem

82. Which of the following plants are used as green manure in crop fields and in sandy soils

1. Crotalaria juncea and Alhagi camelorum
2. Calotropis procera and Phyllanthus niruri

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3. Saccharum munja and Lantana camara
 4. Dichanthium annulatum and Azolla nilotica

83. Organisms which obtain energy by oxidation of reduced inorganic compounds are

1. Photoautotrophs

2. Saprotophys

3. Photoheterotrophs.

4. Chemoheterotrophs

84. Bryophytes have

1. Archegonia

2. Dominant gametophytic and parasitic sporophytic phases

3. Thalloid plant body

4. All the above

85. A bacterium divides every 35 minutes. If a culture containing 10^5 cells per mL is grown for 175 minutes. What will be the cell concentration per mL after 175 minutes ?

1. 175×10^5 cells
 2. 85×10^5 cells
 3. 35×10^5 cells
 4. 32×10^5 cells

86. Roots arising from the parts of a plant other than radical are called as:

1. Tap root
 2. Fibrous roots
 3. Adventitious roots
 4. Lateral roots

87. In a flower if the gynoecium occupies the highest position, the flower is said to be:

1. Superior
 2. Inferior
 3. Hypogynous
 4. Epigynous

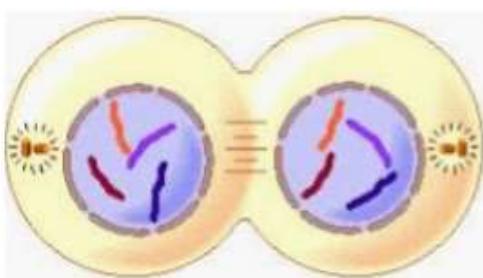
88. Cuticle:

1. is a covering both outside and inside of the epidermis
 2. is well developed in roots
 3. helps in prevention of water loss
 4. is a proteinaceous layer

89. In a dicot stem, the pericycle is present on the inner side of the endodermis and:

1. above the phloem in form of semi-lunar patches of sclerenchyma
 2. above the xylem in form of semi-lunar patches of sclerenchyma
 3. above the phloem in form of semi-lunar patches of collenchyma
 4. above the xylem in form of semi-lunar patches of collenchymas

90. Identify the stage of mitosis shown in the given diagram:



1. Prophase
 2. Metaphase
 3. Anaphase
 4. Telophase