Home Assignment for Winter Break – 2023-24
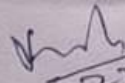
Class XIB   Sub – BIOLOGY

Name of the chapter –

5. Biomolecules
6. Cell Cycle and Cell division
7. Photosynthesis in Higher Plants
8. Respiration in Plants

1. Do **10 MCQ** questions from each chapter

2. Do **05 Assertion-Reason** from each chapter

3. Do **10 short answer type** questions of 02 marks each from each chapter.

4. Do **10 short answer type** questions of 03 marks each from each chapter.

5. Do **04 long answer** type questions of 05 marks each from each chapter.

6. Do **case-based questions** of 04 marks each from each chapter.

7. Do **diagram-based** questions of 04 marks each from each chapter.

All questions should be done in a separate home assignment note book.

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Name of subject teacher- **Ramesh Kumar Singh, PGT (BIO)**   22/12/23

COMPETANCY BASED QUESTION BANK

MCQ

1. What is the main structural component of cell membranes?

   a) Proteins   b) Carbohydrates   c) Lipids   d) Nucleic acids

2. In which phase of the cell cycle does DNA replication occur?

   a) G1 phase   b) S phase   c) G2 phase   d) M phase

3. What is the primary pigment involved in photosynthesis?

   a) Chlorophyll a   b) Chlorophyll b   c) Carotene   d) Xanthophyll

4. In which part of the human respiratory system does gas exchange occur?

   a) Bronchi   b) Alveoli   c) Trachea   d) Larynx 5. Which of the following is not a component of blood?

   a) Plasma   b) Red blood cells   c) White blood cells   d) Lymph

6. Which gland is often referred to as the "master gland" of the endocrine system?

   a) Thyroid gland   b) Adrenal gland   c) Pituitary gland   d) Pancreas

7. Which cells in the nervous system support and nourish neurons?

   a) Axons   b) Synapses   c) Neuroglia   d) Dendrites

8.. Which of the following is a characteristic feature of kingdom Fungi?

   a) Presence of chlorophyll   b) Absence of cell walls

   c) Heterotrophic mode of nutrition   d) Prokaryotic cell structure

9.. Which of the following is not a type of RNA?

   a) Messenger RNA (mRNA)   b) Transfer RNA (tRNA)

   c) Ribosomal RNA (rRNA)   d) Deoxyribosomal RNA (dRNA)

10. Which hormone is responsible for the regulation of blood sugar levels?

   a) Insulin   b) Estrogen   c) Testosterone   d) Thyroxine

11 Which part of the brain is responsible for the coordination of muscle movements and maintaining balance?

   a) Medulla oblongata   b) Cerebellum   c) Hypothalamus   d) Cerebrum

12. Apart from light and carbon dioxide, what is the other requirement for photosynthesis to occur?
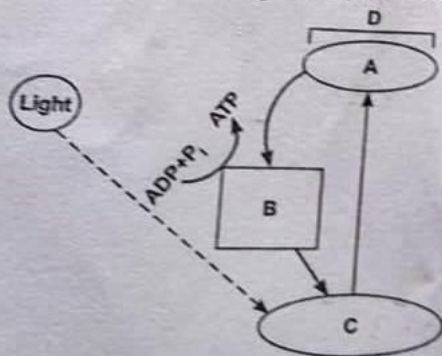
1. Define the term 'Xylem' and explain its function in plants.

2. Name the two stages of photosynthesis and where each occurs in the chloroplast.

3. Draw the diagram of stomata and write the role of guard cells in plant leaves?

4. Mention the components of blood and their functions.

5. Elaborate on the role of the pancreas in maintaining blood glucose levels.

3. Short Answer Type Questions (3-marks each):

1. Describe the main differences between the open and closed circulatory systems. Give two examples of each.

2. Represent the floral diagram and provide the floral formula for the given Potato family (Solanaceae) to demonstrate your understanding of floral morphology.

3. Elaborate on the role of chromosomes in transmitting genetic information during cell division and explain their significance in maintaining genetic stability.

4. Demonstrate your understanding of enzyme actions in biochemical reactions by outlining the catalytic mechanisms involved, emphasizing the role of enzymes as accelerators of chemical processes.

5. Explain the Electron Transport System (ETS) in cellular respiration, highlighting its crucial role in generating ATP energy. Provide a detailed illustration to support your explanation.

4. Case Based Questions (4-marks each):

1. Observe the flowchart given below and answer the questions that follow-

a) Name the parts labelled A, B, C and D.
b) Which type of phosphorylation is possible in this?
c) Name the exact site where this process occurs in the chloroplast.

2. Observe the given diagram and answer the questions that follow-

a) Oxygen   b) Water   c) Nitrogen   d) Hydrogen

13.. What is the role of the diaphragm in the process of breathing?

a) It pumps air into the lungs   b) It regulates the oxygen levels in the blood

c) It helps in the expansion and contraction of the chest cavity

d) It removes carbon dioxide from the body

1. Assertion-Reason type questions:

For the following questions, two statements are given-one labelled Assertion(A) and other labelled Reason(R). Select the correct answer to these questions and answer as follows-

- If both A and R are true and R is the correct explanation of A, then mark (a).
- If both A and R are true but R is not the correct explanation of A, then mark (b).
- If A is true, but R is false, then mark (c).
- If A is false, but R is true, then mark (d).

1. A: The formation of urine takes place in the glomerulus.

   R: Glomerulus is the site of ultrafiltration in the kidney.

2. A: Smooth muscles are under voluntary control.

   R: Smooth muscles are present in the walls of the intestine.

3. A: Mitochondria are called the powerhouse of the cell.

   R: Mitochondria are responsible for the synthesis of proteins.

4. A: Stomata are responsible for the exchange of gases in plants.

   R: Stomata are only present on the lower surface of leaves.

5. A: Porifera shows radial symmetry.

   R: The body plan of Porifera lacks any definite symmetry.

6. A: Insulin is released from the pancreas in response to high blood glucose levels.

   R: Insulin helps in the conversion of glycogen into glucose in the liver.

7. A: Gymnosperms bear flowers and fruits.

   R: Gymnosperms are seed-bearing plants without enclosed ovaries.

8. A: Dendrites conduct nerve impulses away from the cell body.

   R: Dendrites receive nerve impulses from other neurons.

9. A: Photosynthesis occurs only in the presence of light.

   R: Light energy is used to convert carbon dioxide and water into glucose.

10. A: Oxygen is transported by haemoglobin in red blood cells.

    R: Haemoglobin has a higher affinity for carbon dioxide than for oxygen.

2. Short Answer Type Questions(2-marks each):

A typical eukaryotic cell

a) Identify the parts labelled A, B, C and D and mention one function of each.
b) Name the following:
    i.   The longest cells in human body.
    ii.   The organisms with the smallest cells.

5. Long Answer type questions (5 marks each):

1. Why is meiosis called reductional division? Describe the key events of prophase I of meiosis I cell division. Write the significance of meiosis in cell division.

2. What is centromere? How does the position of centromere form the basis of classification of chromosomes? Support your answer with diagrams showing the position of centromere on different types of chromosomes.

By- 28/12/23

Ramesh Kumar Singh

PGT Biology,

K. V. CTPS, Chandrapura

Name of chapters

- Thermodynamics
- Chemical Equilibrium

1. Do the following mcqs.

Q1. A thermodynamic state function is a quantity

(a) used to determine heat changes

(b) whose value is independent of path

(c) used to determine pressure volume work

(d) whose value depends on temperature only

Q2.The enthalpies of elements in their standard states are taken as zero. The enthalpy of formation of a compound

(a) is always negative   (b) is always positive

(c) may be positive or negative   (d) is never negative

Q3.The work done in case of isothermal free expansion is

(a) maximum   (b) minimum   (c) zero   (d) positive

Q4.The enthalpies of all elements in their standard states are equal to:

(a) unity   (b) zero   (c) < 0   (d) different for each element

Q5.Thermodynamics is not related to

(a) energy changes involved in a chemical reaction

(b) the extent to which a chemical reaction proceeds

(c) the rate at which a reaction proceeds

(d) the feasibility of a chemical reaction

Q6.Enthalpy of sublimation of a substance is equal to

(a) enthalpy of fusion + enthalpy of vapourisation

(b) enthalpy of fusion

(c) enthalpy of vapourisation

(d) twice the enthalpy of vapourisation

Q7.If the volume of gas is reduced to half of its original volume then the specific heat will be

(a) reduce to half   (b) be doubled   (c) remain constant   (d) increase four times

Q8.Which of the following is not correct?

(a) ΔG is zero for a reversible reaction

(b) ΔG is positive for a spontaneous reaction

(c) ΔG is negative for a spontaneous reaction

(d) ΔG is positive for a non-spontaneous reaction

Q9.The enthalpies of combustion of methane, graphite and dihydrogen at 298 K are, -890.3 kJ mol-1, -393.5 kJ mol-1, and -285.8 kJ mol-1 respectively. Enthalpy of formation of CH4(g) will be

(a) -74.8 kJ mol-1 (b) -52.27 kJ mol-1 (c) $+74.8$ kJ mol-1 (d) $+52.26$ kJ mol-1

Q10.Which of the following is an extensive property?

(a) Molar heat capacity   (b) Temperature   (c) Enthalpy   (d) All of these

Q11. According to Lewis concept, an acid is:

(a) proton donor   (b) electron pair donor   (c) electron pair acceptor   (d) proton acceptor

Q12. Ostwald's dilution law is applicable to:

(a) Strong electrolytes only   (b) Weak electrolyte only

(c) Non-electrolytes   (d) Strong and weak electrolytes

Q13. The pH of a solution of hydrochloric acid is 4. The molarity of the solution is:

(a) 4.0   (b) 0.4   (c) 0.0001   (d) 0.04

Q14. The strong conjugate base is

(a) NO_3^{2-} (b) Cl^- (c) SO_4^{2-} (d) CH_3COO^-

Q15. Which of the following pairs constitutes a buffer ?

(a) NaOH and HCl   (b) HNO_3 and NH_4NO_3

(c) HCl and KCl   (d) HNO_2 and $NaNO_2$

Q16. Le Chatelier's principle is applicable to:

(a) only homogeneous chemical reversible reactions

(b) only heterogeneous chemical reversible reactions

(c) only physical equilibria

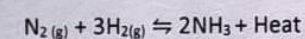(d) all systems, chemical or physical in equilibrium.

Q17. Which of the following is the weakest base?

(a) NaOH   (b) $Ca(OH)_2$ (c) NH_4OH (d) KOH

Q18. When NH4Cl is added to NH4OH solution the dissociation of ammonium hydroxide is reduced. It is due to:

(a) common ion effect   (b) hydrolysis   (c) oxidation   (d) reduction

Q19. For the reversible reaction

$N_{2(g)} + 3H_{2(g)} \leftrightharpoons 2NH_3 + Heat$

The equilibrium shifts in forward direction

(a) by increasing the concentration of $NH_{3(g)}$

(b) by decreasing the pressure

(c) by decreasing the concentration of N_2 and H_2

(d) by increasing pressure and decreasing temperature.

Q20. A base according to Bronsted concept is a substance which can:

(a) lose pair of electron   (b) donate protons

(c) gain a pair of electrons   (d) accept protons

2. Make formula sheet of both chapter.

3. Complete NCERT exercise of both chapter.

4. Write and learn all basic terms and definitions used in the chapter.

Note:- All this should be done in a separate home assignment notebook.

Jyoti
23/12/2023

WINTER HOLIDAY HOME WORK-2023
CLASS- XI GEOGRAPHY.

1. MCQ questions from each chapter

2. Very short answer type questions of 02 marks each from each chapter.

4. Short answer type questions of 03 marks each from each chapter.

5. long answer type questions of 05 marks each from each chapter.

6. Competency based questions from each chapter.

7. Mapwork questions of 04 marks each from each chapter.

Q1. Which one of the following gases is transparent to incoming solar radiation and opaque to outgoing terrestrial radiation?
(a) Oxygen   (b) Nitrogen   (c) Helium   (d) Carbon dioxide.

Q2. Which of the following layer of atmosphere is most important for life?
(a) Nitrogen   (b) Oxygen   (c) Ozone   (d) Carbon dioxide.

Q3. The air in contact with the earth rises vertically on heating in the form of currents and further transmits the heat of the atmosphere. This process of vertical heating of the atmosphere is called what?
(a)Conduction   (b) Convection   (c) Advection   (d) Air drainage.

Q4. What is normal lapse rate at 1000 metre?
(a) 4 degree Celsius (b) 2 degree Celsius (c) 1 degree Celsius (d) 6.5 degree Celsius.

Q5. Which of the following has longest day and nights?
(a) Poles   (b) Equator   (c) Tropic of Cancer   (d) Tropic of Capricorn.

Q6. Where is Sunderbans biosphere reserve located?
(a) In Ganga river delta   (b) Orissa   (c) Chhattisgarh   (d) Madhya Pradesh.

Q7. Tidal and deltai forests are found in which region of India?
(a) Eastern Coast (b) Western Coast (c) Rann of Kachchh (d) Bay of Mannar.

Q8. Which forests can develop in sweet as well as saline water?
(a) Deciduous forests (b) Evergreen forests (c) Tidal forests (d) Thorny forests.

Q.9 Describe the composition of the atmosphere,

Q10. What would happen if there is no ozone in the atmosphere?

Q11. Atmosphere gets heated up indirectly by terrestrial radiation and not directly by s nrays. Explain.

Q12. Explain about spatial distribution of insolation on the earth's surface.

Q13. Write about elements of weather and climate in detail.

Q14. Discuss the processes through which the earth-atmosphere system maintains heat balance.

Q15. Natural vegetation is an outcome of climate." Substantiate the statement by taking example of Indian vegetation.

Q16. How do the latitude and the tilt in the axis of rotation of the earth affect the amount of radiation received at the earth's surface?

Q17. How does the energy received in upper layer of the atmosphere keep changing at different times of the year?

Q18. Explain the factors affecting insolation at the surface of earth.

Q19. What is inversion of temperature? When | and in what regions does it take place?

Q. Why does sun look red during rising and setting and why does sky look blue?

Q20. How can people's participation be effective in conserving forests and wildlife?

Q21. What steps have been taken up to conserve forests? j

Q.22 On an outline map of the world, locate the distribution of surface air temperature in the month of January.

Q23. On an outline map of India, mark and label the following:
(i). Areas having Mangrove forests.
(ii) Biosphere reserves of Nanda Devi, Sunderbans, Gulf of Mannar and Nilgiri.
(iii) Mark the location of Forest Survey of India Head Quarter.

By- Hira Paswan 13|12|23

PGT- Geography

KV CTPS CHANDRAPURA

CLASS – 11 SESSION(2023 24)

SUBJECT - MATHS

WINTER HOLIDAY HOMEWARK

Q.1 An arch is in the form of a semi – ellipse. It is 8m wide and 2m high at the centre. Find the height of the arch at a point 1.5 m from one end.

Q.2 A rod of length 12cm moves with its ends always touching the coordinate axes. Determine the equation of the locus of a point P on the rod, which is 3 cm from the end in contact with the x- axis.

Q.3 Find the ratio in which the YZ – plane divides the line segment formed by joining the points (-2,4,7) and (3, -5, 8).

Q.4 Find the lengths of the medians of the triangle with vertices A (0,0,6), (0, 4, 0) and (6, 0, 0).

Q.5 Find the derivative of cosx, secx, tanx, cotx, cosecx, sinx by first principle.

Q.6 If the lines y = 3x + 1 and 2y = x + 3 are equally inclined to the line y = mx + 4 , find the value of m.

Q.7 Show that the equation of the line passoing through the origin and making an angle with the line y = mx + c is $y/x = \frac{m \pm Tan\theta}{1 \mp Tan\theta}$.

Manisha

MANISHA RANI

PGT-MATHS

1. अभिव्यक्ति एवं माध्यम

* दो आवेदन पत्र — औपचारिक एवं अनौपचारिक
  a) कार्यालयी पत्र
  b) सामान्य विषय पर आधारित आवेदन पत्र

* किसी भी पाठ्यपुस्तक से अपठित बोध पर आधारित एक गद्यांश एवं एक पद्यांश।

* प्रश्नोत्तरी NCERT के पुस्तकों पर आधारित।
  अब तक के पढ़ाये गये अध्यायों के NCERT में वर्णित अध्याय के प्रश्न एवं उत्तरों का गृहकार्य।

  a) आरोह (गद्य एवं पद्य खंड)
     वितान (गद्य खंड)
     └→ i) साथ ही, वितान के अध्याय प्रथम से MCQ (दोनों कक्षाओं हेतु)
        ii) Sec. B के लिए → सिल्वर की राजत बूँदे। (MCQ)
        iii) Sec. C के लिए → आलो-आँधारि (MCQ)

  अतिरिक्त :–
* i) फिल्म :– 3G, किशोरे, ओह माय गॉड (1 & 2)
  ii) किताबें :– प्रेमचंद की कहानियाँ, (आपकी अपनी पसंद पर आधारित कोई पुस्तक) या
     (दूँढ़कर) उपन्यास → बक हाय या ग्यारहवें A के लड़के

  23/12/23

IMPORTANT TOPICS FOR PT-2 EXAMINATION

1. Derivation of Gravitaional potential and Gravitational potential energy.

2. Derivation of orbital speed and escape speed and relation between them.

3. expression for "g' ,acceleration due to gravity.

4. Total energy of satellite.

5. Variation of acceleration due to gravity.

6. Hooke's Law ,strees vs strain curve for a typical metal

7. Types of Elastic modulii and Numericals related to it.

8. Pascal's law and its appilication.

9. Derivation of equation of continuity.

10. Derivation of Bernoulli's Theorem and its application.

11. Derivation of capillary rise .

12. Derivation for excess pressure inside liquid drop and soap bubble.

13. Establish the relation between Surface energy and surface tension.

14. Derivation of Terminal velocity and Stoke's law.

15. Explain the different coefficient of thermal expansion and relation among them.

16. Anomolus behaviour of water.

17. Numericals related to thermal expansion.

18. Numericals related specific heat capacity.

Class - IX A

1. All Numericals from the following topics
   a) Gravitation
   b) Work Energy & Power
   c) Sound

Satyendra
23/12/2023.

Class 11 English Holiday Homework

Q.1 You are Ajay or Anu and you have to write an advertisement for the newspaper '
Dainik Jagran' informing the tenants about your newly constructed 3 BHK flat in Malti
Luxuria, Bokaro.Give all the necessary details.

Q.2 You are Madhu/ Madhav and you have to deliver a speech on the topic '
Importance of positive attitude towards life' in the morning assembly. Write in about
150 words.

Q.3 Question- Answers(Answer in about 40 - 50 words)
1. What do you think is responsible for the distance between the father and the
   son ?
2. Explain the catastrophe theory with reference to the transition of Professor
   Gangadharpant as explained by Rajendra Deshpande.
3. What can you say about the nature or character of Tsetan ? (Silk Road)
4. Was Dr. Andrew a good doctor ? How can you say so ?

Q.4 Write about 10 hard words from the lesson The Adventure and 10 words
from the Silk Road and make sentences with them.

Q.5 Learn and revise all the lessons well. (Father to Son, Silk Road, The
Adventure & Birth)

Write everything in your English Literature copy . Complete the previous notes
if not completed. Submit your copy on the re- opening day of the school.

Surbhi PGT (English)
23/12/23