

**MAHARASHTRA STATE BOARD - STD 10 (SCIENCE & TECHNOLOGY PART 2) CHAPTERS: 8
(Cell Biology and Biotechnology) & 10 (Disaster Management) TIME: 1 HOUR MARKS: 20**

QUESTION PAPER SET 1

Q.1. Choose the correct option / Solve the following: (4 Marks)

1. Methods like artificial insemination and embryo transplant are mainly used for _____.
2. **Find the odd man out:** Drying, Salting, Cooking, Soaking.
3. **Complete the correlation:** White revolution : Dairy :: Blue revolution : _____.
4. **True or False:** The disease related with the synthesis of insulin is cancer.

Q.2. Answer the following questions (Any 4): (8 Marks) (Source: Textbook Exercises)

1. Write a short note on: Importance of medicinal plants.
2. Write a short note on: Mock drill.
3. Which precautions will you take during spraying of pesticides?
4. Which different methods are used for transportation of patients? Why?
5. Identify the type of disaster: (a) Terrorism (b) Soil erosion.

Q.3. Answer in brief (Any 2): (8 Marks) (Source: Textbook Exercises)

1. Write a comparative note on usefulness and harmfulness of biotechnology.
2. Give the reasons for increase in human disasters after the World War-II.
3. Explain the importance of fruit processing in human life.

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QUESTION PAPER SET 2

Q.1. Choose the correct option / Solve the following: (4 Marks)

1. _____ is the revolutionary event in biotechnology after cloning.
2. **Find the odd man out:** Transport by cradle, Carrying on back, Carrying on four hands, Ambulance.
3. **Complete the correlation:** Insulin : Diabetes :: Interleukin : _____.
4. **True or False:** The Government of India has enacted the Disaster Management Act in 2005.

Q.2. Answer the following questions (Any 4): (8 Marks) (*Source: Textbook Exercises*)

1. Write a short note on: Biotechnology: Professional uses.
2. Write a short note on: Disaster Management Act, 2005.
3. Why are some of the organs in the human body most valuable?
4. Explain the role of the district disaster control unit after the occurrence of any disaster.
5. Identify the type of disaster: (a) Hepatitis (b) Forest fire.

Q.3. Answer in brief (Any 2): (8 Marks) (*Source: Textbook Exercises*)

1. Explain why it is said that: Effective disaster management makes us well prepared for the future.
2. Which products produced through biotechnology do you use in your daily life? Explain.
3. Explain the objectives of disaster management.

QUESTION PAPER SET 3

Q.1. Choose the correct option / Solve the following: (4 Marks)

1. The disease related with the synthesis of insulin is _____.
2. **Find the odd man out:** Hydro-electric plant, Solar plant, Nuclear plant, Wind mill. (Context: Green Energy vs Pollution, though focused on Ch 8/10, Ch 10 involves environment. Let's stick strictly to Ch 8/10 terms). **Correction:** Earthquake, Floods, Tsunami, War.
3. **Complete the correlation:** Interferon : Viral infection :: Erythropoietin : _____.
4. **True or False:** Stem cells are preserved in liquid nitrogen at -135°C to -190°C.

Q.2. Answer the following questions (Any 4): (8 Marks) (Source: Textbook Exercises)

1. Write a short note on: Nature of disaster management.
2. Explain the meaning of vaccination.
3. Why is it essential to get the training of first aid?
4. Write a short note on: Disaster management Authority.
5. Identify the type of disaster: (a) Famine (b) Theft.

Q.3. Answer in brief (Any 2): (8 Marks) (Source: Textbook Exercises)

1. Explain why it is said that: Mock drill is useful.
2. Explain the importance of fruit processing in human life.
3. Explain the different aspects of disaster management that you would check for your school.

QUESTION PAPER SET 4

Q.1. Choose the correct option / Solve the following: (4 Marks)

1. Government of India has encouraged _____ for improving the productivity by launching NKM-16.
2. **Find the odd man out:** Volcanic eruption, Earthquake, Tsunami, Bomb blast.
3. **Complete the correlation:** Dwarfness : Somatostatin :: Haemophilia : _____.
4. **True or False:** Laughter club is a remedy to drive away stress.

Q.2. Answer the following questions (Any 4): (8 Marks) (*Source: Textbook Exercises*)

1. Write a short note on: Importance of medicinal plants.
2. Which problems does the common man face due to incidences of cyber crime? (Note: Ch 9 touches this, but Ch 10 deals with disasters. Let's swap for Ch 10 specific). **Swap:** Identify the type of disaster: (a) Cyclone (b) Strike.
3. Which precautions will you take during spraying of pesticides?
4. Write a short note on: Disaster Management Act, 2005.
5. Which different methods are used for transportation of patients?

Q.3. Answer in brief (Any 2): (8 Marks) (*Source: Textbook Exercises*)

1. Write a comparative note on usefulness and harmfulness of biotechnology.
2. Give the reasons for increase in human disasters after the World War-II.
3. Explain the role of the district disaster control unit after the occurrence of any disaster.

QUESTION PAPER SET 5 (MARATHI MEDIUM)

विषय: विज्ञान आणि तंत्रज्ञान भाग २ प्रकरणे: ८ (पेशीविज्ञान व जैवतंत्रज्ञान) आणि १० (आपत्ती व्यवस्थापन) वेळ: १ तास गुण: २०

प्रश्न १. खालील प्रश्न सोडवा: (४ गुण)

१. रिकाम्या जागी योग्य शब्द भरा: इन्सुलिन तयार होण्याच्या क्षमतेशी संबंधित विकार म्हणजे _____ होय.
२. वेगळा शब्द ओळखा: वाळवणे, खारवणे, शिजवणे, साखर घालणे (फळप्रक्रिया).
३. सहसंबंध पूर्ण करा: धवल क्रांती : दुग्ध उत्पादन :: नील क्रांती : _____.
४. चूक की बरोबर ते लिहा: आपत्ती व्यवस्थापन कायदा २००५ मध्ये संमत करण्यात आला.

प्रश्न २. खालील प्रश्नांची उत्तरे लिहा (कोणतेही ४): (४ गुण) (स्क्रोत: पाठ्यपुस्तकातील स्वाध्याय)

१. टीप लिहा: औषधी वनस्पतींचे महत्त्व.
२. टीप लिहा: रंगीत तालीम (Mock Drill).
३. फवारणी करताना कोणती काळजी घ्याल?
४. रूग्ण वाहून नेण्यासाठी कोणत्या पद्धती वापरल्या जातात? का?
५. खालील आपत्तींचे प्रकार ओळखा: (अ) दहशतवाद (ब) जमिनीची धूप.

प्रश्न ३. थोडक्यात उत्तरे लिहा (कोणतेही २): (४ गुण) (स्क्रोत: पाठ्यपुस्तकातील स्वाध्याय)

१. जैवतंत्रज्ञानाचे फायदे आणि तोटे यांवर तुलनात्मक टीप लिहा.
२. दुसऱ्या महायुद्धानंतर मानवी आपत्तींमध्ये वाढ होण्याची कारणे द्या.
३. फळप्रक्रियेचे मानवी जीवनातील महत्त्व स्पष्ट करा.

ANSWER KEYS (ALL SETS)

SET 1 KEY

Q.1. Objectives

- **Answer 1:** Animal husbandry
- **Answer 2:** Cooking (Others are preservation methods)
- **Answer 3:** Fishery / Aquatic production
- **Answer 4:** False (It is Diabetes)

Q.2. Short Answers

- **Medicinal Plants:** 1. Conservation of natural forests. 2. Cultivation due to depletion. 3. Uses in Ayurveda (e.g., Adulsa for cough). 4. Economic importance.
- **Mock Drill:** 1. Simulation of disaster. 2. Check preparedness. 3. Identify loopholes. 4. Improve response time.
- **Spraying Pesticides:** 1. Wear mask/gloves. 2. Avoid inhaling. 3. Keep away from food. 4. Wash hands thoroughly after use.
- **Patient Transport:** 1. Cradle method (for children/underweight). 2. Carrying on back (conscious patient). 3. Carrying on four hands (needs support). 4. Stretcher (unconscious).
- **Disaster Types:** 1. Terrorism: Man-made (Intentional). 2. Soil erosion: Geophysical (Geological).

Q.3. Long Answers

- **Biotech Compare:** * *Usefulness:* Yield increase, disease resistance, medical cures (insulin), environmental cleaning.
 - *Harmfulness:* Genetic loss, ethical issues, long-term ecosystem effects, unforeseen allergies. (Must provide 6 points total for 4 marks).
- **Human Disasters:** * 1. Industrialization.
 - 2. Atomic energy/tests.
 - 3. Social conflicts/Terrorism.
 - 4. Population explosion.
 - 5. Resource depletion.
 - 6. Environmental imbalance.
- **Fruit Processing:** * 1. Prevention of spoilage.
 - 2. Year-round availability.
 - 3. Value addition (Jams/Jellies).
 - 4. Employment generation.
 - 5. Export potential.
 - 6. Nutritional preservation.

SET 2 KEY

Q.1. Objectives

- **Answer 1:** Stem cell research
- **Answer 2:** Ambulance (It is a vehicle, others are manual methods)
- **Answer 3:** Cancer
- **Answer 4:** True

Q.2. Short Answers

- **Biotech Uses:** 1. Crop improvement (Bt cotton). 2. Medicine (Vaccines). 3. Industry (Alcohol). 4. Environment (Bioremediation).
- **DM Act 2005:** 1. Passed by Indian Govt. 2. Established NDMA/SDMA. 3. Guidelines for disaster handling. 4. Empowered local authorities.
- **Valuable Organs:** 1. Brain/Heart/Kidney vital for life. 2. Can be donated. 3. Can save lives. 4. Cannot be regenerated easily naturally.
- **District Control Unit:** 1. Review of disaster. 2. Co-ordination with agencies. 3. Resource mobilization. 4. Implementation of rescue.
- **Disaster Types:** 1. Hepatitis: Biological (Animal/Viral). 2. Forest Fire: Biological (Plant) or Environmental.

Q.3. Long Answers

- **Effective DM:** * 1. Reduces loss of life.
2. Minimizes property damage.
3. Helps in rehabilitation.
4. Creates awareness.
5. Reduces panic.
6. Ensures quick recovery.
 - **Daily Biotech Products:** * 1. Dairy products (Yoghurt/Cheese).
2. Vaccines.
3. Hybrid fruits/vegetables.
4. Bio-fertilizers.
5. Insulin (for diabetics).
6. Processed foods.
 - **DM Objectives:** * 1. Saving lives.
2. Supply of essential commodities.
3. Restoration of systems.
4. Rehabilitation.
5. Removing fear/trauma.
6. Reducing intensity of future disasters.
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SET 3 KEY

Q.1. Objectives

- **Answer 1:** Diabetes
- **Answer 2:** War (Man-made, others are natural)
- **Answer 3:** Anaemia
- **Answer 4:** True

Q.2. Short Answers

- **Nature of DM:** 1. Pre-disaster planning. 2. Post-disaster execution. 3. Rehabilitation. 4. Long-term mitigation.
- **Vaccination:** 1. Antigen introduction. 2. Immunity development. 3. Protection from pathogens. 4. Biotechnological production (safe).
- **First Aid:** 1. Immediate relief. 2. Prevents condition worsening. 3. Saves life before doctor arrives. 4. Reduces pain.
- **DM Authority:** 1. Structure from National to Village level. 2. PM is chairman of NDMA. 3. CM is chairman of SDMA. 4. Collector leads district.
- **Disaster Types:** 1. Famine: Geophysical (Climatic). 2. Theft: Man-made (Intentional).

Q.3. Long Answers

- **Mock Drill Useful:** * 1. Evaluates response time.
 2. Identifies coordination gaps.
 3. Trains people/students.
 4. Checks equipment functionality.
 5. Increases confidence.
 6. Improves planning.
 - **Importance of Fruit Processing:** (Same as Set 1).
 - **School DM Aspects:** * 1. Safe structure/building.
 2. Fire extinguishers.
 3. First aid kit.
 4. Emergency exit plan.
 5. Awareness/Training.
 6. Emergency contact numbers.
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SET 4 KEY

Q.1. Objectives

- **Answer 1:** Aquaculture (Pisci-culture) / Blue Revolution schemes (Specifically NKM-16 refers to Neel Kranti Mission/Aquaculture).
- **Answer 2:** Bomb blast (Man-made, others natural geophysical).
- **Answer 3:** Factor VIII
- **Answer 4:** True

Q.2. Short Answers

- **Medicinal Plants:** (Same as Set 1).
- **Disaster Types:** 1. Cyclone: Geophysical (Atmospheric). 2. Strike: Man-made (Social).
- **Precautions Spraying:** (Same as Set 1).
- **DM Act 2005:** (Same as Set 2).
- **Patient Transport:** (Same as Set 1).

Q.3. Long Answers

- **Biotech Compare:** (Same as Set 1).
 - **Human Disasters:** (Same as Set 1).
 - **District Control Unit:** (Same as Set 2).
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SET 5 (MARATHI) KEY

प्रश्न १. वस्तुनिष्ठ

- **उत्तर १:** मधुमेह (Diabetes)
- **उत्तर २:** शिजवणे (Cooking - प्रक्रिया, इतर टिकवण्याच्या पद्धती)
- **उत्तर ३:** मत्स्य उत्पादन (Fishery)
- **उत्तर ४:** बरोबर (True)

प्रश्न २. थोडक्यात उत्तरे

- **औषधी वनस्पती:** १. जंगलांचे संवर्धन. २. दुर्मिळ वनस्पतींची लागवड. ३. आयुर्वेदातील महत्त्व (उदा. अडुळसा). ४. आर्थिक फायदा.
- **रंगीत तालीम (Mock Drill):** १. आपत्तीचा सराव. २. तयारी तपासणे. ३. कमतरता शोधणे. ४. प्रतिसाद वेळ सुधारणे.
- **फवारणी काळजी:** १. मास्क/हातमोजे वापरणे. २. श्वासावाटे आत जाणे टाळणे. ३. अन्नापासून दूर ठेवणे. ४. स्वच्छ हात धुणे.
- **रुग्ण वहन:** १. पाळणा पद्धत (लहान मुले). २. पाठीवर घेणे. ३. चार हातांची बैठक. ४. स्ट्रेचर (बेशुद्ध रुग्ण).
- **आपत्ती प्रकार:** १. दहशतवाद: मानवनिर्मित. २. जमिनीची धूप: भूभौतिक.

प्रश्न ३. सविस्तर उत्तरे

- **जैवतंत्रज्ञान तुलना:** (फायदे: उत्पन्न वाढ, रोगप्रतिकार, औषधे. तोटे: जनुकीय रुस, नैतिक प्रश्न - ६ मुद्दे).
- **मानवी आपत्ती:** (औद्योगिकीकरण, अणुऊर्जा, दहशतवाद, लोकसंख्या स्फोट - ६ मुद्दे).
- **फलप्रक्रिया:** (नासाडी टाळणे, वर्षभर उपलब्धता, मूल्यवर्धन, रोजगार, निर्यात - ६ मुद्दे).