SAMPLE CONTENT

Science & Technology Part - 2

IQB Important Question Bank

Based on New Paper Pattern of Maharashtra State Board

Target Publications Pvt. Ltd.

Written as per the latest syllabus prescribed by the Maharashtra State Bureau of Textbook Production and Curriculum Research, Pune.

Science and Technology Part - 2

IQB Important Question Bank

STD. X

Salient Features

- A compilation of Most Important Questions
- A great resource for quick revision
- Questions covered as per the flow of the Paper Pattern
- Answers framed as per mark allocation
- Includes Model Activity Sheet for self evaluation
- Inclusion of **QR Codes** for students to access videos on the 'Latest Paper Pattern' prescribed by the Board as well as to access the 'Answer Key' for the Model Activity Sheet.

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PREFACE

Std. X IQB Science and Technology Part - 2 is a treasure house of the most important questions that would help students to face the Board Examination confidently. This book is created in accordance with the latest syllabus and evaluation pattern as mentioned in the handbook 'Evaluation Pattern for Std. 9 and 10' by the Maharashtra State Bureau of Textbook Production & Curriculum Research, Pune.

IQB (Important Question Bank) covers all types of questions such as 'Fill in the Blanks, Find the odd one out, Complete the Table/Chart, Questions based on figures, Classify and explain, etc. along with answers as per the marks allotted to them. The flow of the contents is mapped according to the paper pattern and is presented in the most lucid manner. Moreover, the questions provided are arranged in a chapter-wise format so that students can easily prepare for the examination. We have provided One Model Activity Sheet at the end of the book that enables students to assess their level of preparation for the Board examination.

We have provided **QR Code** for students to access videos on the 'Latest Paper Pattern' as given by the Board. The **QR Code** also provides students an access to the 'Answer Key' given for the Model Activity Sheet.

Armed with an arsenal of choicest of the questions and relevant answers, we are confident that this book will cater to the needs of students effectively assist them to achieve their goal.

A book affects eternity; one can never tell where its influence stops.

Best of luck to all the aspirants!

From,
Publisher

Edition: First

Paper pattern
Std. X: Science and Technology – Part 2
(Total : 40 Marks)

Time : 2 Hours

- There will be separate question papers for Part 1 and Part 2 of 40 marks each.
- Duration of each paper will be 2 hours.

Question No.	Type of Questions	Total Marks
1.	(A) 5 Questions of 1 mark each (Objectives)	05
	(B) 5 Questions of 1 mark each (Practicals / Projects based MCQs)	05
2.	7 Questions of 2 marks each (solve any 5)	10
3.	7 Questions of 3 marks each (solve any 5)	15
4.	2 Questions of 5 marks each (solve any 1)	05

[**Reference**: महाराष्ट्र राज्य पाठ्यपुस्तक निर्मिती व अभ्यासक्रम संशोधन मंडळ, पुणे निर्मित मूल्यमापन आराखडा]

[**P.S.** Scan this **QR Code** to get a better understanding of the New Syllabus as well as Paper Pattern.]

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Note: Textual exercise questions are represented by * mark.

Question 1 (A)

Remember This

- This question carries 5 marks. In this question, there are 5 questions of 1 mark each. There is no option for this question. All questions are compulsory.
- It includes various question types such as 'Fill in the blanks', 'Find the odd one out', 'Find out the correlation', 'Find out the difference between two components', 'Make pairs', 'Right or wrong?', 'Give name', 'Question based on figure / picture' and 'Complete the flowchart'.
- In 'Fill in the blanks', students are expected to rewrite the complete statement and underline the answer.
- In 'Find the odd one out', students are expected to identify the odd one out of 4-5 components and give an appropriate explanation in one sentence.
- In 'Find out the correlation' students are expected to determine the correlation between two components and write an accurate explanation in one sentence.
- In 'Find out the difference between two components', students are expected to identify the difference between two concepts and write the accurate difference in one sentence.
- In 'Make pairs', students are expected to write the question as well as the answer.
- In 'Right or Wrong?', students are expected to mention whether the sentence is right or wrong. Don't forget to correct the wrong sentence.

In case the format of the question varies from those given above, students are expected to read the question carefully and attempt it accordingly, in the appropriate format.

Type 1 Fill in the blanks

Chapter 1: Heredity and Evolution

1. _____ principle of Hugo de Vries explained the causality behind sudden changes in DNA.

Ans: Mutation principle of Hugo de Vries explained the causality behind sudden changes in DNA.

2. George Beadle and Edward Tatum proved the fact that protein synthesis occurs through _____.

Ans: George Beadle and Edward Tatum proved the fact that protein synthesis occurs through gene.

3. _____ stores the information about protein synthesis.

Ans: DNA stores the information about protein synthesis

4. _____ refers to the process of transfer of information from a molecule of DNA to mRNA.

Ans: Transcription refers to the process of transfer of information from a molecule of DNA to mRNA.

5. tRNA has _____ with complementary sequence to the codon present on mRNA.

Ans: tRNA has anticodon with complementary sequence to the codon present on mRNA.

6. Evolution refers to _____ over the long period of time.

Ans: Evolution refers to gradual development over the long period of time.

7. _____ was the first record of human-like ape found in East Africa.

Ans: *Ramapithecus* was the first record of human-like ape found in East Africa.

[Note:** Answers for the first chapter have been provided in the appropriate format. Answers to the corresponding chapters are provided in a concise format. Students are however, expected to follow the appropriate format while answering questions in the examination.**]

Chapter 2: Life Processes In Living Organisms Part - 1

8. Oxidation of glucose is a type of _____respiration.
9. Process of glycolysis occurs in _____of the cell.
10. Tricarboxylic acid cycle occurs in _____of the cell.
11. _____ is the common step of aerobic and anaerobic respiration.
12. Gamete production and spore formation occurs by _____.

Answers

8. Cellular
9. Cytoplasm
10. Mitochondria
11. Glycolysis
12. Meiosis

Chapter 3: Life Processes In Living Organisms Part - 2

*13. _____ type of reproduction occurs without fusion of gametes.
14. *Paramoecium* reproduces by _____ binary fission.
*15. Body breaks up into several fragments and each fragment starts to live as a new individual. This is _____ type of reproduction.
*16. Pollen grains are formed by _____ division in locules of anthers.
17. _____ is the union of sperm and ovum to initiate formation of a zygote.
*18. In humans, sperm production occurs in the organ _____.
*19. Implantation of embryo occurs in _____.
*20. In humans, _____ chromosome is responsible for maleness.
21. _____twins are exactly similar in their appearance and their gender is also same.

Answers

13. Asexual
14. longitudinal
15. fragmentation (asexual)
16. meiotic
17. Fertilization
18. testis
19. uterus
20. Y
21. Monozygotic

Chapter 4: Environmental Management

22. _____ is the basic functional unit used to study ecology.
23. Currently _____ % of the Earth has been left with hotspots.
24. _____ sanctuary in West Bengal is reserved for tigers.
25. Organisms that appear to be endangered due to their behavioural habits are classified as _____ species.
26. _____ prepares the 'Red list' that contains the names of endangered species.

Answers

22. Ecosystem
23. 2.3
24. Sundarbans
25. indeterminate
26. IUCN

Chapter 5: Towards Green Energy

27. An electric generator works on the principle of _____.
28. _____ cell converts solar energy into electrical energy directly.
29. Energy generated from sources which are unlimited and environmental friendly is called _____.
30. The machine which converts the kinetic energy of wind to electrical energy is called _____.
31. The power available from solar cells is _____ current.

Answers

27. electromagnetic induction
28. Solar photovoltaic
29. green energy
30. wind turbine
31. direct

Chapter 6: Animal Classification

32. _____ is the largest phylum is animal kingdom.
33. Presence of _____ is a typical character of class mammalia.
34. _____ is considered as a connecting link between non-chordates and chordates.
35. *Ascaris*, living in a small intestine of human belongs to phylum _____.
36. *Petromyzon* having jaw-less mouth provided with sucker belongs to class_____
37. _____ is a long rod-like supporting structure present dorsally in Chordates.

Answers

32. Arthropoda
33. Mammary glands
34. *Balanoglossus*
35. Aschelminthes
36. Cyclostomata
37. Notochord

Chapter 7: Introduction to Microbiology

38. An enzyme _____, obtained from alimentary canal of cattle was being traditionally used earlier for making cheese.
39. Ethanol, an alcohol is obtained by fermentation of carbon compounds with the help of the microbe _____.
40. Soy sauce is produced by fermentation of a mixture of wheat or rice and soybean with the help of the fungus _____.
41. _____ convert salts of uranium released from the atomic energy plant into insoluble salts.

Answers

38. rennet
39. *Saccharomyces cerevisiae* (yeast)
40. *Aspergillus oryzae*
41. *Geobacter*

Chapter 8: Cell Biology and Biotechnology

42. Stem cells are present in _____ stage of embryonic development.
43. The cells of the embryo undergo repeated _____ divisions.
44. _____ is an improved variety of rice developed for increased vitamin A content.
45. Paternity testing is performed by _____ technique.

Answers

42. blastocyst
43. mitotic
44. Golden rice
45. DNA fingerprinting

Chapter 9: Social Health

*46. Alcohol consumption mainly affects _____system.
*47. Laughter club is a remedy to drive away _____.

Answers

46. nervous
47. mental stress

Chapter 10: Disaster Management

48. Most of the disasters and related unprecedented situations of the world have happened in the Asian continent and region of _____.
49. Radiation leakage occurred after a blast in an atomic energy plant at _____in Russia.

50. _____ is the chairman of disaster management authority at the state level.

51. _____divisions of National Disaster Response Force are working in India.

Answers

48. Pacific Ocean
49. Chernobyl
50. Chief minister
51. 12

Type 2 Find the odd one out

Chapter 1: Heredity and Evolution

1. Coccyx, Intestine, Wisdom teeth, Appendix.

Ans: Intestine

Intestine is a fully functional organ in humans, whereas coccyx, wisdom teeth and appendix are vestigial organs.

2. Cro-Magnon man, *Australopithecus*, *Aegyptopithecus*, Neanderthal man.

Ans: *Aegyptopithecus*

Aegyptopithecus walked using four limbs whereas, Cro-Magnon man, *Australopithecus* and Neanderthal man had erect posture.

Chapter 3: Life Processes In Living Organisms Part - 2

3. *Hydra, Paramoecium, Euglena, Amoeba*

Ans: *Hydra*

Hydra reproduces asexually by budding, while others reproduce asexually by binary fission.

OR

Hydra is a coelenterate, whereas *Amoeba*, *Euglena*, *Paramoecium* are protozoans.

OR

Hydra is a multicellular organism rest all are unicellular organisms.

4. Style, Stigma, Ovary, Anther

Ans: Anther

Anther is the male reproductive part of a flower, rest all are female reproductive parts of a flower.

5. Ovary, Vas deferens, Uterus, Vagina

Ans: Vas deferens

Vas deferens is a part of male reproductive system, rest all are the parts of female reproductive system.

6. AIDS, Syphilis, Tuberculosis, Gonorrhoea

Ans: Tuberculosis

Tuberculosis is not transmitted sexually, whereas rest all are transmitted sexually.

Chapter 4: Environmental Management

7. Plants, Tiger, Deer, Mushroom

Ans: Plants

Plants are autorophs, whereas tiger, deer and mushroom are heterotrophs.

8. Sunlight, Soil, Fungi, Air

Ans: Fungi

Fungi is a biotic factor, whereas the rest are abiotic factors of an ecosystem.

Chapter 5: Towards Green Energy

9. Water, wind, natural gas, biofuel.

Ans: Natural gas

Natural gas is not a green energy source while remaining are green energy sources.

10. Solar photovoltaic cells, wind turbine, hydroelectric power plant, solar thermal power plant.

Ans: Solar photovoltaic cells

Solar photovoltaic cell converts the solar radiation energy directly into electrical energy while the remaining produce electrical energy through various steps.

Chapter 6: Animal Classification

11. Sea anemone, Sea urchin, Brittle star, Sea cucumber

Ans: Sea anemone

It is a member of phylum Coelenterata, whereas sea urchin, brittle star and sea cucumber are the members of phylum Echinodermata.

OR

Sea anemone is an acoelomate, whereas others are eucoelomates.

12. Dolphin, Shark, Pomfret, Rohu

Ans: Dolphin

Dolphin belongs to class mammalia, whereas shark, pomfret, rohu belong to class pisces.

13. Pisces, Arthropoda, Mollusca, Echinodermata

Ans: Pisces

The animals that belong to class Pisces are Chordates, whereas members of Arthropoda, Mollusca and Echinodermata are non- chordates.

[Note:** Currently Pisces is considered as super class.**]

Chapter 10: Disaster Management

14. Volcano, Landslides, Soil erosion, Snowfall

Ans: Snowfall

Snowfall is classified under atmospheric disasters whereas volcano, landslides, soil erosion are classified under geological disasters.

15. Terrorism, Child labour, Locust attack, Bomb blast

Ans: Locust attack

Locust attack is a type of biological disaster, whereas terrorism, child labour and bomb blast are man-made disaster.

Type 3 Find out the correlation

Chapter 1: Heredity and Evolution

1. Synthesis of RNA : Transcription :: Synthesis of proteins : _____

Ans: Translation
Transcription is the process of synthesis of mRNA from DNA and translation is the process of synthesis of proteins after transcription.

2. Fossils : Paleontological evidence :: Flipper of whale and forelimb of bat : _____

Ans: Anatomical evidence
Fossils provide paleontological evidences about evolution and flipper of whale and forelimb of bat provide anatomical evidence.

Chapter 2: Life Processes In Living Organisms Part - 1

3. $NADH_2$: 3 molecules of ATP :: $FADH_2$: _____

Ans: 2 molecules of ATP
In ETC, each $NADH_2$ yields 3 molecules of ATP, whereas each $FADH_2$ yields 2 molecules of ATP.

4. Nicotinamide : $NADH_2$ :: Riboflavin : _____

Ans: $FADH_2$
Nicotinamide is necessary for the formation of $NADH_2$, whereas riboflavin is necessary for the formation of $FADH_2$.

5. Blood : _____:: Muscles: Myosin

Ans: Haemoglobin
Myosin is the protein present in muscles whereas, haemoglobin is a protein present in blood.

6. Cytokinesis: Cytoplasmic division :: Karyokinesis: _____

Ans: Nuclear division
Cytoplasmic division is called as cytokinesis, whereas nuclear division is called as karyokinesis.

7. Mitosis: Somatic cells :: Meiosis: _____

Ans: Germ cells

Mitosis occurs in somatic cells, whereas meiosis occurs in germ cells .

Chapter 3: Life Processes In Living Organisms Part - 2

8. Pedicel present : Pedicellate flower :: Pedicel absent : _____

Ans: Sessile flower

Flowers with stalk are called pedicellate flowers, whereas flowers without stalk are called sessile flowers.

9. Female reproductive part : Carpel :: Male reproductive part : _____

Ans: Stamen

Carpel is the female reproductive part of a flower, whereas stamen is the male reproductive part of a flower.

10. Ovary : Fruit :: Ovules : _____.

Ans: Seeds

After fertilization, ovary develops into fruit, whereas ovules develop into seeds.

11. Autosomes : 22 pairs :: Sex chromosomes : _____

Ans: 1 pair

Every diploid cell of a human body possesses 22 pairs of autosomes and one pair of sex chromosome (i.e. 44 + XX or 44 + XY).

Chapter 4: Environmental Management

12. Mango Tree : Producer :: Lion : _____

Ans: Secondary consumer

Mango tree is a producer and produces its own food, whereas lion is a secondary consumer and feeds on primary consumers (herbivores).

13. Vulnerable species: Lion :: _____: Lesser florican

Ans: Endangered species

Lion is a vulnerable species, whereas lesser florican is an endangered species.

Chapter 6: Animal Classification

14. Flatworms: Platyhelminthes:: Roundworms: _____

Ans: Aschelminthes

Flatworms belong to phylum Platyhelminthes,whereas roundworms belong to phylum Aschelminthes.

15. Porifera: Cellular grade Organization:: Cnidaria: _____

Ans: Cell-tissue grade organisation

Animals belonging to phylum porifera exhibit cellular grade body organisation, whereas, animals belonging to phylum Cnidaria exhibit cell-tissue grade organisation.

16. Pisces : Poikilotherms :: Aves : _____

Ans: Homeotherms

Members of class Pisces are poikilotherms (cold-blooded animals) and members of class Aves are homeotherms (warm-blooded animals).

Chapter 7: Introduction to Microbiology

17. Yoghurt : Lactobacilli :: Bread : _____

Ans: *Saccharomyces cerevisiae*

Yoghurt is produced using Lactobacilli, whereas bread is made with the help of yeast i.e. *Saccharomyces cerevisiae.*

18. Natamycin : Microbial restrictor :: Xanthenes : _____

Ans: Edible colours

Natamycin is used as a microbial restrictor, whereas xanthenes are used as edible colours.

19. Vanillin: Essence:: Xylitol: _____

Ans: Artificial sweetener

Vanillin is used as essence, whereas Xylitol is used as artificial sweetener.

Chapter 8: Cell Biology and Biotechnology

20. Phenylketonuria : Gene therapy:: Polio: _____

Ans: Vaccination

Phenylketonuria can be treated by gene therapy, whereas polio needs to be prevented by vaccination.

***21. Insulin : Diabetes :: Interleukin : _____**

Ans: Cancer

Insulin is used to treat diabetes, whereas interleukin is used for cancer therapy.

***22. Interferon : _____ :: Erythropoietin : Anemia**

Ans: Viral infection

Erythropoietin is used for treating conditions like anemia, whereas interferons are used to treat viral infections.

***23. _____ : Dwarfism :: Factor VIII : Hemophilia**

Ans: Somatostatin

Factor VIII is used for treating conditions like hemophilia, whereas, somatostatin is used for treating dwarfism.

Type 4 Find out the difference between two components

Chapter 1: Heredity and Evolution

1. Difference between DNA and RNA.

Ans: i. DNA contains deoxyribose sugar, whereas RNA contains ribose sugar.

ii. Nitrogen bases in DNA are Adenine, Guanine, Cytosine and Thymine whereas nitrogen bases in RNA are Adenine, Guanine, Cytosine and Uracil.

[Any one point]

2. Difference between mRNA and tRNA.

Ans: mRNA carries message from DNA in the form of codons, whereas tRNA transports amino acids for protein synthesis.

Chapter 3: Life Processes In Living Organisms Part - 2

3. Write the difference between fragmentation and binary fission.

Ans: Fragmentation is a type of asexual reproduction which occurs in multicellular organisms like *Spirogyra* whereas binary fission is also a type of asexual reproduction which occurs in unicellular organisms like *Amoeba*, *Paramoecium*, *Euglena*, etc.

4. Write the difference between self pollination and cross pollination.

Ans: In self pollination, pollen grains from an anther are transferred to the stigma of the same flower or a different flower present on the same plant, whereas in cross-pollination pollen grains from an anther of one flower are transferred to the stigma of another flower of a different plant belonging to same species.

Chapter 4: Environmental Management

5. Mention any one difference between producers and consumers.

Ans: Producers prepare their own food in the presence of sunlight, whereas consumers feed on producers or other consumers to obtain energy.

6. What is the difference between genetic diversity and species diversity?

Ans: Genetic diversity is the occurrence of diversity among organisms of same species; whereas species diversity is the number of different species in a particular community.

Chapter 6: Animal Classification

7. What is the difference between grades of body organization and symmetry of body of animals?

Ans: Grades of body organization is the arrangement of smaller unit to larger ones, whereas body symmetry is the number of symmetrical parts the animal can be divided into.

Type 5 Make pairs

Chapter 1: Heredity and Evolution

1.

	Column I		Column II
i.	Cenozoic era	a.	Amphibians
ii.	Mesozoic era	b.	Aves
		c.	Reptiles
		d.	Pisces

Ans:

	Column I	Column II (Answer)
i.	Cenozoic era	Aves
ii.	Mesozoic era	Reptiles

2.

	Column I		Column II
i.	Connecting link between pisces and amphibians	a.	Lungfish
ii.	Connecting link between reptiles and mammals	b.	Duck-billed platypus
		c.	*Peripatus*
		d.	Snail

Ans:

	Column I		Column II (Answer)
i.	Connecting link between pisces and amphibians	a.	Lungfish
ii.	Connecting link between reptiles and mammals	b.	Duck-billed platypus

[Note:** Answers for the first chapter have been provided in the appropriate format. Answers to the corresponding chapters are provided in a concise format. Students are however, expected to follow the appropriate format while answering questions in the examination.**]

Chapter 3: Life Processes In Living Organisms Part - 2

3.

	Column I		Column II
i.	*Mucor*	a.	Multiple fission
ii.	*Hydra*	b.	Double fertilization
		c.	Budding
		d.	Spore formation

Ans: (i – d), (ii – c)

Chapter 5: Towards Green Energy

4.

	Column I		Column II
i.	Coal	a.	Wind electricity plant
ii.	Uranium	b.	Hydroelectric plant
		c.	Thermal plant
		d.	Nuclear power plant

Ans: (i – c), (ii – d)

Chapter 6: Animal Classification

5.

	Column I		Column II
i.	Kangaroo	a.	Reptilia
ii.	Tortoise	b.	Aves
		c.	Mammalia
		d.	Pisces

Ans: (i – c), (ii – a)

6.

	Column I		Column II
i.	Earthworm	a.	Mollusca
ii.	Octopus	b.	Pisces
		c.	Platyhelminthes
		d.	Annelida

Ans: (i – d), (ii – a)

Chapter 7: Introduction to Microbiology

7.

	Column 'I'		Column 'II'
i.	Citric acid	a.	Edible colours
ii.	Lycopene	b.	Essence
		c.	Impart acidity
		d.	Artificial Sweetener

Ans: (i – c), (ii – a)

Chapter 9: Social Health

8.

	Type of addiction		Effects
i.	Alcoholism	a.	Person becomes solitary
ii.	Internet addiction	b.	Tuberculosis
		c.	Decreases efficiency of nervous system
		d.	Leprosy

Ans: (i – c), (ii – a)

Chapter 10: Disaster Management

9.

	Column I		Column II
i.	Redemption	a.	Review of impacts of disaster
ii.	Resurgence	b.	Plan for minimizing the damage to country
		c.	Measurement of intensity of various aspects of disaster
		d.	Important link between emergency measures and national progress

Ans: (i – b), (ii – d)

Type 6 Right or Wrong?

Chapter 1: Heredity and Evolution

1. Genes are carried via chromosomes.

Ans: Right

2. Mammals have evolved from reptiles.

Ans: Right

3. Darwin's theory of natural selection explained evolution with respect to useful and useless modifications.

Ans: Wrong
Darwin's theory of natural selection did not explain useful and useless modifications.

4. Geographical isolation leads to speciation.

Ans: Right

Chapter 2: Life Processes In Living Organisms Part - 1

5. ATP is called energy currency of the cell.

Ans: Right

6. Electron transfer chain is operated in cytoplasm only.

Ans: Wrong
Electron transfer chain is operated in mitochondria only.

7. Recombination during meiosis occurs between non-homologous chromosomes.

Ans: Wrong
Recombination during meiosis occurs between homologous chromosomes.

8. Muscle cells perform aerobic respiration while exercising.

Ans: Wrong
Muscle cells perform anaerobic respiration while exercising.

9. Total 34 ATP molecules are generated through complete oxidation of glucose.

Ans: Wrong
Total 38 ATP molecules are generated through complete oxidation of glucose.

Chapter 3: Life Processes In Living Organisms Part - 2

10. Daughter cells produced by asexual reproduction are genetically identical to the parent cells.

Ans: Right.

11. Asexual reproduction is a fast process i.e. rate of reproduction is fast.

Ans: Right

12. Binary fission is usually performed by *Amoeba* when there is lack of food or any other type of adverse condition.

Ans: Wrong.
Binary fission is usually performed by *Amoeba* during favourable conditions i.e. availability of abundant food material.

13. Sexual mode of reproduction generates greater diversity.

Ans: Right.

14. Androecium and gynoecium are called accessory whorls of flower.

Ans: Wrong.
Androecium and gynoecium are called as essential whorls of flower.

OR

Calyx and Corolla are called as accessory whorls of flower.

15. Gender of dizygotic twins is always same.

Ans: Wrong.
Gender of dizygotic twins may be same or different.

Chapter 4: Environmental Management

16 Predators prevent the overpopulation of herbivores.

Ans: Right.

17. X-rays and radiations emitted from atomic energy plants are natural radiations.

Ans: Wrong.
X-rays and radiations emitted from atomic energy plants are artificial radiations.

18. The forests protected or conserved in the name of God and considered to be sacred are known as biodiversity hotspots.

Ans: Wrong.
The forests protected or conserved in the name of God and considered to be sacred are known as Sacred Groves.

19. Giant squirrel is classified as a rare species.

Ans: Wrong.
Giant squirrel is classified as an indeterminate species.

Chapter 5: Towards Green Energy

20. Power generation based on coal has higher efficiency than power generation based on natural gas.

Ans: Wrong.
Power generation based on coal has lower efficiency than power generation based on natural gas.

21. In power generation based on natural gas, the combustion chamber is used to burn the natural gas in the presence of pressurized air.

Ans: Right.

22. When solar panels are connected in parallel, they form a solar string.

Ans: Wrong.
When solar panels are connected in series, they form a solar string.

23. Petroleum has the least consumption for electrical power generation in the world.

Ans: Right.

Chapter 6: Animal Classification

24. Starfish shows radial body symmetry.

Ans: Right

25. Animals belonging to phylum Hemichordata are also called as flat worms.

Ans: Wrong

Animals belonging to phylum Hemichordata are also called as acorn worms.

OR

Animals belonging to phylum Platyhelminthes are also called as flat worms.

26. Honey bees are hermaphrodites.

Ans: Wrong.
Honey bees are unisexual.

27. Mollusca is the second largest phylum in animal kingdom.

Ans: Right

Chapter 8: Cell Biology and Biotechnology

28. *Escherichia coli* is used for the production of interferons.

Ans: Right.

29. Phenylketonuria is caused due to genetic changes in the hepatocytes.

Ans: Right.

30. All cells of the body except sperm and ova are called germ cells.

Ans: Wrong
All cells of the body except sperm and ova are called somatic cells.

31. Production of a new organism by reproductive cloning requires both ovum and sperm.

Ans: Wrong
Production of a new organism by reproductive cloning requires ovum but no sperm.

32. The DNA sequence pattern of every individual is unique.

Ans: Right.

Chapter 9: Social Health

33. Government does not categorise any website, movies or cartoon films as being inappropriate for children.

Ans: Wrong
Government bans any website, movies or cartoon films which it deems inappropriate for children.

34. By diverting the energy and mind towards positive thinking, negative thoughts are automatically neutralized.

Ans: Right

Chapter 10: Disaster Management

35. Rehabilitation phase involves bringing normalcy in lives of people and reducing mental stress.

Ans: Right.

36. The headquarter of National Disaster Response Force is located in New Mumbai.

Ans: Wrong
The headquarter of National Disaster Response Force is located in New Delhi.

Type 7 Give name

Chapter 1: Heredity and Evolution

1. The process by which ribosome moves on mRNA by one triplet codon.
2. Technique used to determine the age of fossils.

Answers

1. Translocation 2. Carbon dating

Chapter 2: Life Processes In Living Organisms Part - 1

3. Cell organelle responsible for harvesting cellular energy in human body.
4. Acid formed at the end of glycolysis.
5. Most abundant protein found in nature.
6. Process by which four haploid cells are formed from one diploid cell.
7. Protein is present in bones.

Answers

3. Mitochondria
4. Pyruvic acid
5. RUBISCO
6. Meiosis
7. Ossein

Chapter 3: Life Processes In Living Organisms Part - 2

8. The structural unit of sexual reproduction in plants.
9. Members of calyx.
10. The process by which seeds develop into seedlings.
11. The type of division by which gametes are formed.

Answers

8. Flower
9. Sepals
10. Germination
11. Meiosis

Chapter 4: Environmental Management

12. The world's largest organization engaged in environmental activities.
13. Geographical areas with high species diversity which needs maximum protection.

Answers

12. Green Peace
13. Biodiversity hotspots

Chapter 8: Cell Biology and Biotechnology

14. The study of the structure, types and organelles of the cell.
15. Small sized protein molecules produced in blood that can be used for the treatment of viral diseases.
16. Bacterium highly resistant to radiation.
17. Method of soil-less farming.
18. Commercial method of bee-keeping for harvesting honey.

Answers

14. Cytology
15. Interferons
16. *Deinococcus radiodurans*
17. Hydroponics
18. Apiculture

Chapter 10: Disaster Management

***19. Identify the type of disaster.**

i. Terrorism
ii. Hepatitis
iii. Soil erosion

Answers

19. i. Intentional, man-made disaster
ii. Biological disaster caused by viruses
iii. Geological disaster

Type 8 Answer in one sentence

Chapter 1: Heredity and Evolution

1. Write the components of a DNA molecule.

Ans: The components of a DNA molecule are nitrogen base, pentose sugar (Deoxyribose) and phosphoric acid.

2. What is the central dogma?

Ans: Central dogma is the process of synthesis of proteins by DNA, through RNA.

3. What is the triplet codon?

Ans: Three nucleotides which code for each amino acid is known as triplet codon.

4. What is mutation?

Ans: Mutation is any sudden change that occurs in nucleotide sequence of a gene, causing either a minor or considerable change in the characters of an individual.

5. What are connecting links?

Ans: Connecting links are some plants or animals that show morphological characters by which they can be related to two different groups of organisms.

6. What is speciation?

Ans: Speciation is the formation of new species of plants and animals as an effect of evolution.

Chapter 2: Life Processes In Living Organisms Part - 1

7. What is respiration?

Ans: Respiration involves taking in oxygen-rich air and giving out air containing carbon dioxide with the help of respiratory organs.

8. Define fermentation.

Ans: Fermentation is the process of conversion of pyruvic acid into organic acids or alcohols by anaerobic respiration.

9. Why is Krebs cycle also known as citric acid cycle?

Ans: In Krebs cycle, the first stable compound formed is the citric acid, hence it is also known as citric acid cycle.

10. What is cell division?

Ans: Cell division is the property of cells of living organisms due to which a new organism is formed from an existing one, or a multicellular organism grows up.

Chapter 3: Life Processes In Living Organisms Part - 2

11. What is reproduction?

Ans: Reproduction is formation of new organism of same species by earlier existing organism.

12. What is asexual reproduction?

Ans: The process of formation of new organism by an organism of same species without involvement of gametes is called as asexual reproduction.

13. Write any one disadvantage of asexual reproduction.

Ans: The new organisms formed by asexual reproduction are genetically identical to the parent cells. i.e., genetic recombination does not occur. Thus, there is a lack of genetic variations.

14. What is meant by 'cyst' in *Amoeba*?

Ans: During unfavourable conditions *Amoeba* forms a protective covering around its plasma membrane to form a cyst.

15. Write the organs of male reproductive system which are not paired?

Ans: Urinogenital duct, penis, and prostate gland are the male reproductive organs which are not paired.

16. Where does the physiological maturation of sperms takes place?

Ans: Physiological maturation of sperm takes place in head of epididymis.

17. Secretion of which glands constitute the semen?

Ans: Secretion of seminal vesicles, prostate glands and Cowper 's gland constitute the semen.

18. Which are the hormones related to male reproductive system?

Ans: The hormones related to male reproductive system are Follicle Stimulating Hormone (FSH), Luteinizing Hormone (LH), testosterone.

19. Mention the hormones secreted by ovary of female reproductive system.

Ans: The hormones secreted by ovary of female reproductive system are progesterone, estrogen.

20. What is menopause?

Ans: The natural cessation of menstruation that occurs between the age of 45-50 years is known as menopause.

21. What is the characteristic feature of Siamese twins?

Ans: Siamese twins have some parts of body joined to each other and also share some organs.

22. Define health.

Ans: A person's state of physical, mental and social well being is called health.

Chapter 4: Environmental Management

23. Define Ecosystem.

Ans: Ecosystem is the definite geographical area formed by biotic and abiotic factors and their interactions with each other.

24. What is ecology?

Ans: Ecology is the science which deals with the study of interactions between biotic and abiotic factors of the environment.

25. What is environment?

Ans: The physical, chemical and biological factors which influence an organism are collectively called as environment.

26. What is environmental pollution?

Ans: Unnecessary and unacceptable changes in the environment due to natural events or human activities is known as environmental pollution.

OR

Direct or indirect changes in physical, chemical and biological properties of air, water and soil that are harmful to humans and other living beings is called as environmental pollution.

27. Which factors contribute to environmental pollution?

Ans: Population explosion, rapid industrialization, deforestation and unplanned urbanization are factors that contribute to environmental pollution.

28. Define radioactive pollution.

Ans: Radioactive pollution is the presence of radioactive substances in the environment.

29. What is biodiversity?

Ans: Biodiversity is the richness of living organisms in nature due to presence of varieties of organisms, ecosystems and genetic variations within a species.

30. Mention the endangered heritage places in India.

Ans: Western Ghats, Manas wildlife sanctuary and Sundarban sanctuary are some endangered heritage places in India.

Chapter 6: Animal Classification

31. Who proposed the five kingdom system of classification?

Ans: Robert Whittaker proposed the five kingdom system of classification.

32. Write the criteria used for classification of organisms.

Ans: Living organisms are classified on the criteria such as cell structure, body organization, mode of nutrition and reproduction.

Chapter 7: Introduction to Microbiology

33. What is applied microbiology?

Ans: Applied microbiology is a branch of biology in which study of enzymes related to some prokaryotes and eukaryotic microbes, proteins, applied genetics, molecular biology, etc., is performed.

34. Define industrial microbiology.

Ans: Industrial microbiology is related to commercial use of microbes in which various economic, social and environment related processes and products are included.

35. What are antibiotics?

Ans: Carbon compounds obtained from some bacteria and fungi for destroying or preventing the growth of harmful micro-organisms are called 'antibiotics'.

36. Which species of bacteria can decompose the chemical substance PET ?

Ans: Species like *Vibrio*, *Ideonella sakaiensis* can decompose the chemical substance PET.

37. Which species of bacteria can be used to control soil pollution caused due to acid rain?

Ans: *Acidophillium* spp. and *Acidobacillus ferrooxidans* can be used to control soil pollution caused due to acid rain.

Chapter 8: Cell Biology and Biotechnology

38. Define stem cells.

Ans: Stem cells are specialised cells that give rise to all other types of cells present in the body of multicellular organisms.

39. What is pluripotency?

Ans: Pluripotency is the self-multiplying ability of undifferentiated stem cells by which they are capable of giving rise to all types of human cells.

40. Define biotechnology.

Ans: The technique of bringing about improvements in living organisms by genetic modifications and hybridization, for the welfare of human beings is called biotechnology.

41. Define bioremediation.

Ans: Bioremediation is the technique of absorption or destruction of toxic chemicals and harmful pollutants with the help of plants and microorganisms.

42. What is the disadvantage of using edible vaccines like transgenic potatoes?

Ans: Transgenic potatoes containing edible vaccines cannot be cooked, as heating would denature the proteins and reduce the vaccine potential.

43. What is white biotechnology?

Ans: Industrial biotechnology that employs living cells or microbes to produce industrially useful products through a less expensive process is known as white biotechnology.

44. What is green revolution?

Ans: Green revolution is the agricultural revolution that took place in India by application of various methods for harvesting maximum yield from minimum land.

Chapter 9: Social Health

45. What is social health?

Ans: Social health can be defined as the ability of a person to establish good relations with other persons.

46. What is selficide?

Ans: The act of a person indulging in clicking selfies without being aware of the world around and the risks involved is known as selficide.

47. What are laughter clubs?

Ans: The newly popularized concept wherein, people come together in a public place like park or garden and laugh loudly for fixed time duration to relieve mental stress is known as laughter club.

Chapter 10: Disaster Management

48. What is disaster?

Ans: The unpredictable dangerous events which occur many times in the environment are known as disasters.

OR

According to United Nations, disaster is defined as 'the sudden event that leads to the huge loss of life and property.'

[Note: *According to UNISDR, disaster is defined as- 'A serious disruption of the functioning of a community or a society at any scale due to hazardous events interacting with conditions of exposure, vulnerability and capacity, leading to one or more of the following: human, material, economic and environmental losses and impacts'.****]***

49. How are disasters are classified?

Ans: Disasters are classified as geophysical disasters, biological disasters and man-made disasters.

50. What do you mean by disaster management?

Ans: Disaster management is either preventing disasters or making arrangement to face it or at least achieving the abilities to face it.

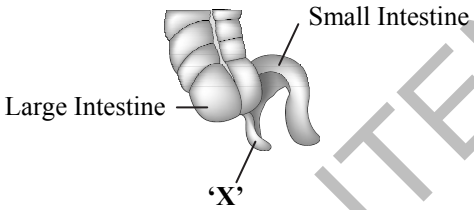
51. What is mock drill?

Ans: The practice of checking the preparedness of facing the disaster by creating a virtual or apparent situation of disaster.

Type 9 **Question based on figure / picture**

Chapter 1: Heredity and Evolution

1. Identify the part labelled as 'X'.

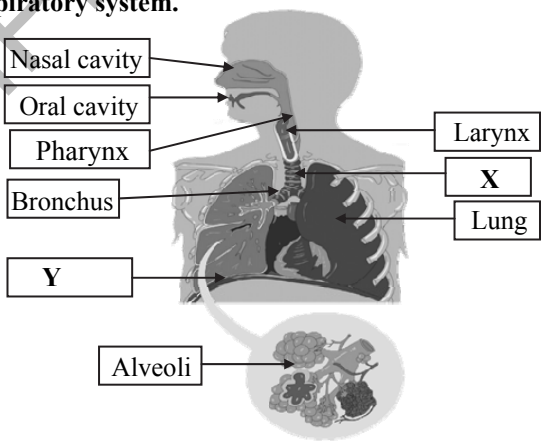


Ans: The part labelled as 'X' is appendix.

[Note:** Answers for the first chapter have been provided in the appropriate format. Answers to the corresponding chapters are provided in a concise format. Students are however, expected to follow the appropriate format while answering questions in the examination.**]

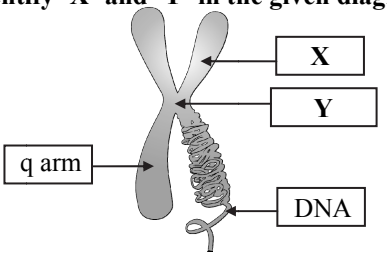
Chapter 2: Life Processes In Living Organisms Part - 1

2. Identify 'X' and 'Y' in the given diagram of Human respiratory system.



Ans: 'X' : Trachea 'Y' : Diaphragm

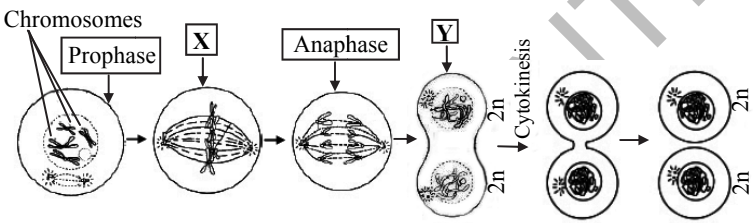
3. Identify 'X' and 'Y' in the given diagram of chromosome.



Chromosome

Ans: 'X' : p arm 'Y' : Centromere

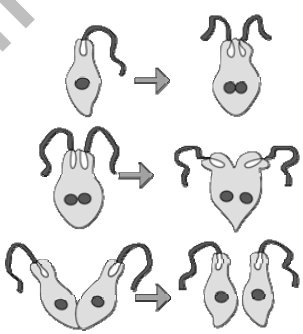
4. Identify 'X' and 'Y' in the given diagram of mitosis.



Ans: 'X' : Metaphase 'Y' : Telophase

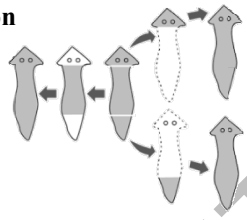
Chapter 3: Life Processes In Living Organisms Part - 2

5. Identify the method of reproduction given in the figure.



Ans: The given figure represents longitudinal binary fission in *Euglena*.

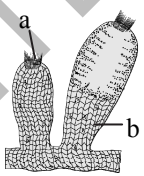
6. Identify the method of reproduction given in the figure.



Ans: The given figure represents regeneration in Planaria.

Chapter 6: Animal Classification

7. Identify 'a' and 'b' in the given figure of *Sycon.*



Ans: a. Osculum b. Ostia.

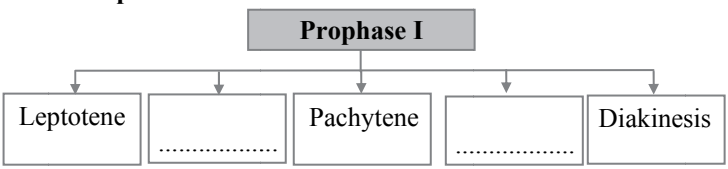
8. Identify the given figure of animal and write the phylum from which it belongs to.

Ans: The given figure is of liverfluke and it belongs to phylum Platyhelminthes.

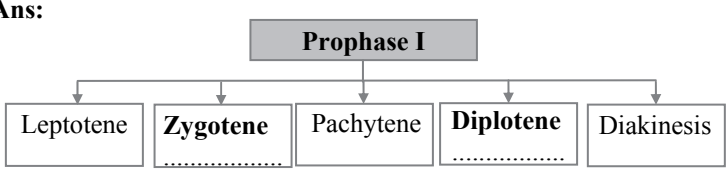
Type 10 Complete the flow chart

Chapter 2: Life Processes In Living Organisms Part - 1

1. Complete the flow chart.



Ans:



[Note:** Answers for the above chapter have been provided in the appropriate format. Answers to the corresponding chapters are provided in a concise format. Students are however, expected to follow the appropriate format while answering questions in the examination.**]

Chapter 4: Environmental Management

2. Complete the given aquatic food chain:

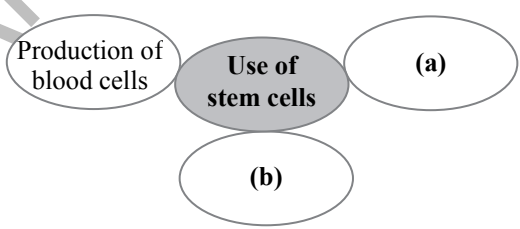
(a) ..... → Zooplanktons → **(b)** ..... → Birds

Ans: (a): Phytoplanktons

(b): Fishes

Chapter 8: Cell Biology and Biotechnology

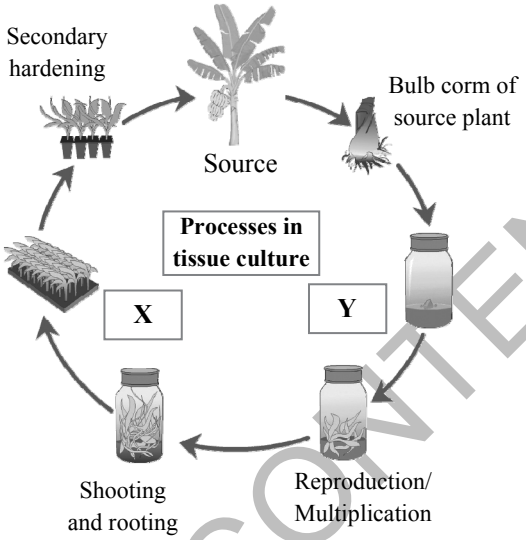
***3.**



Ans: (a): Cell therapy

(b): Organ transplantation

4. Identify labels 'X' and 'Y' in the given diagram.



Ans: X: Primary hardening
Y: Primary treatment

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