

class: XII

BIO. ZOOLOGY PTA - KEY ANSWERS, - ①

I. choose

8x1=8.

1. which is true regarding copper releasing IUDs? ③ They suppress sperm motility.
2. A haemophilic man marries a homozygous normal woman. what would be the condition of their children.
Both sons and daughters would be normal but daughters would be carrier.
3. UAA, UAG, and UGA codons - Nonsense codons.
③ Both ③ & ④ stops codon.
4.
 - ① cholera - Vibrio
 - 2 Typhoid - Mycobacterium
 3. Diphtheria - Corynebacterium.
 4. Bubonic plague - Yersinia
5.
 - ① cyclosporin-A - Immunosuppressant
 - ⑤ whisky - Fermented grain
 - ③ statins - Lower blood cholesterol level
 - ④ super bug - digest the hydrocarbons in oil spills.
6. Assertion: (A): Normal secretion of Insulin prevents diabetes mellitus.
Reason: (R): Insulin facilitates the cellular uptake of glucose.
④ Both (A) and (R) are correct (R) explains (A).
7. Kaziranga National park is protected for - Tiger
8. one of the not a ozone depleting substance. ② Nitrous oxide.

II. Marozoites

9. when multiple fission occurs in the schizont, the process is called schizogony and daughter merozoites.
- ③ when multiple fission occurs in the oocyte the process is called sporogony.

⑩ scrotum act as a thermoregulator for spermatogenesis why? page no. (14)
 → The scrotum is a sac of skin that hangs outside the abdominal cavity.
 → since viable sperms cannot be produced at normal body temperature
 → The scrotum is placed outside the abdominal cavity to provide a temperature 2-3°C lower than the normal internal body temperature.

11. symptoms of Hepatitis - B. page no. (37)
 Hepatitis-B - HBV.
 → Fatigue, Jaundice, fever, rash and stomach pain,
 → Liver cirrhosis, and liver failure occur in the later stage.

⑫ 2 key features of organic farming (150)
 → protecting soil quality using organic materials. & encouraging bio activity
 → Indirect provision of crop nutrients using soil microbes.
 → Nitrogen fixation in soils using legumes.
 → weed and pest control based on natural predators, organic manures etc.

⑬ positive phototaxis. page no. (174)
 → The movement of organism in response to light. → either towards the source of light as in moth (positive phototaxis).
 → away from the light (negative).
 Sp: Euglena, Volvox, earthworm.

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14. Biological effects of smog (216)

→ smog is a type of air pollution caused by tiny particles in the air.

→ It is mixture of smoke and fog.

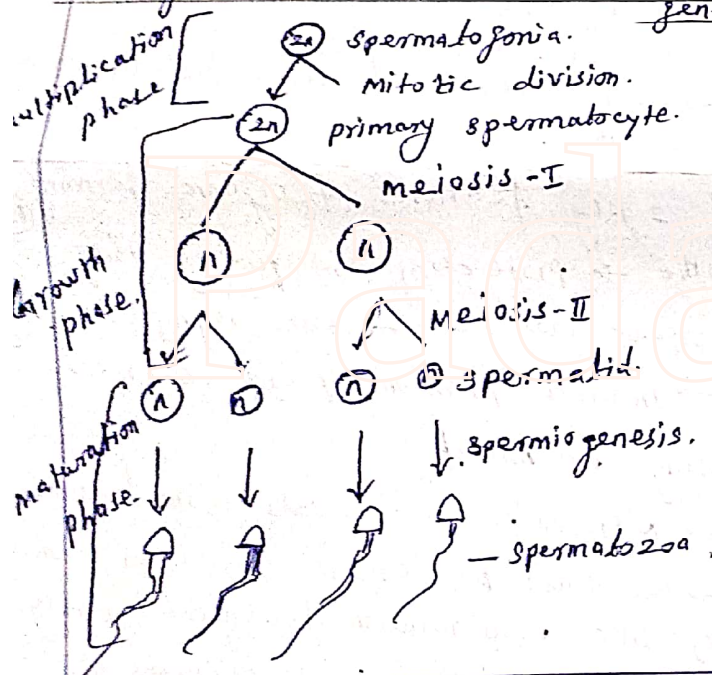
Effects:

→ Breathing more difficult, especially for people with asthma.

→ It also affects plants and animals.

→ It damages crops as well as causes health problems in pets, farm animals, and human.

→ It causes corrosive damage to buildings and vehicles.

15. Diagrammatic representation of spermatogenesis16. A thalassemia baby is born to a normal non thalassemic parents. Explain the possible causes.

→ It is an autosomal recessive disorder.

→ It is caused by gene mutation resulting in excessive "destruction" of RBCs due to the formation of abnormal Hb molecules.

Normal Hb composed of polypeptide chain α and β .

→ Thalassemia baby defects in either α (or) β globin chain causing the production of abnormal Hb results in anemia.

17. stem cell therapy will increase the longevity of human life. explain.

Because the ability to regenerate damaged and diseased organs.

→ These cells are capable of self-renewal and exhibit cellular potency.

→ It is used to test new drugs.

18. Mutualism

i) Interaction favorable to both and obligatory to both.

ii) Between crocodile and bird.

iii) (+ +)

commensalism.

i) population 1, the commensal benefits while 2 the host is not affected.

ii) sucker fish on shark.

iii) (+ 0)

Spread of agriculture is sometimes at the cost of wetlands, grasslands and forests.

→ It is based on a few high yielding varieties.

→ As a result, there is reduction in the genetic diversity.

→ It also increases vulnerability of the crop plants to sudden attack by pathogen and pest. There are only few varieties of traditional paddy strains today due to use to hybrid varieties in TN.

20. Explain the transformation experiment of Avery et al. - page no-65. (or).

Satellite DNA forms the basis of DNA fingerprinting. Explain.

21. What are the assumptions included in Hardy weinberg principle. Explain - (106).

or
Explain the role of immunity in prevention of cancer. - (133)

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Class: XII

Subject: Bio-zoology

PTA Key Answer (4)

Q1) In Hydra, the buds develop from - ectoderm and endoderm.

Q2) In correct statement for uterus. ^{Service.} through ^{coned.} ^{coned.}

Q3) The uterus opens into the vagina through ^{coned.} ^{coned.}

Q4) Assertion (A): Tubectomy is the surgical sterilisation in women.

Reason (R): It blocks the transport of the gametes and prevents conception.

Q5) (A) correct (R) explain (A)

The sex of Drosophila, which contains 12 autosomes and 3 'X' chromosomes?

The type of immunity, when interferons are produced by virus in our body - Natural immunity

During sporulation Bacillus thuringiensis produce a crystal protein called Delta endotoxin which is encoded by cry genes

Ecosphere means - all the biological organisms of the earth which interact with physical environment.

Rich biodiversity is seen near equator - reasons.

Most suitable temperature for metabolism of living things.

Why do we call perthenogenesis as a special type of sexual reproduction in animals.

These animals without the involvement of gamete formation

Development of an egg into a

complete organisms without fertilization is called parthenogenesis.

Tertiary stage symptoms of syphilis.

Syphilis - Treponema pallidum.

Symptoms - Appearance of chronic ulcer on nose, lower legs and palate, loss of movement, mental disorder, visual impairment, heart problems, gummas (soft non-cancerous growths) etc.

There are no tRNAs for stop codons why?

The termination factors are necessary to recognize stop codons (UAA, UGA and UAG) and to release the complete protein chain from the elongation tRNA preceding a stop codon.

No termination tRNA capable of recognizing stop codons by their anticodons is known.

The termination factors are thought to do this.

A 10 year old child is suffering from chicken pox. Is this infection good or bad? Give reason.

Bad

Reasons

→ chicken pox also known as varicella, it is a highly contagious disease caused by the initial infection with Varicella Zoster virus.

→ chicken pox easily infect respiratory tract, skin and nervous system through droplet infection and direct contact.

Symptoms - mild fever, itchy skin, rash and blisters.

So bad for 10 year old child.

13. why do we call some strains of bacteria as 'superbugs' - is a term used to the strains of bacteria that are resistant to the majority of antibiotics commonly used today.

14. Ecosan toilets are an excellent substitute for chemical fertilizers. How?
 → Ecosan toilets not only reduce wastewater generation but also generate the natural fertiliser from recycled human excreta, which forms an excellent substitute for chemical fertilisers.
 → This method is based on the principle of recovery and recycling of nutrients from excreta to create a valuable supply for agriculture - It is used several parts of India and Sri Lanka.

15. Wiener hypothesis for Rh^+ phenotype.
 → Wiener proposed the existence of eight alleles ($R^1, R^2, R^3, R^4, R^5, R^6, R^7, R^8$) at a single Rh locus.
 → All genotype carrying a dominant R allele ($R^1R^2, R^1R^3, R^1R^4, R^1R^5, R^1R^6, R^1R^7, R^1R^8$) will produce Rh^+ positive phenotype.

16. 5'—3' direction of a nucleic acid. write the meaning of 5' and 3' in the above statement.

$$\log_{10} \frac{C}{A} = \log_{10} \frac{C}{A} + 2 \log_{10} \frac{C}{A}$$

$$\frac{C}{A} = \frac{C}{A} \times \frac{C}{A} = \frac{C^2}{A^2}$$

$$\log_{10} \frac{C^2}{A^2} = 2 \log_{10} \frac{C}{A}$$

$$\log_{10} \frac{C}{A} = \frac{1}{2} \log_{10} \frac{C^2}{A^2}$$

The symbol 5' refers to carbon in the sugar to which a phosphate (PO_4), functional group is attached.
 The symbol 3' refers to carbon in the sugar to which hydroxyl (OH) functional group is attached.

why is typhoid called as enteric fever.

→ Typhoid also known as enteric fever
 → It is a common worldwide bacterial disease caused by the ingestion of contaminated food or water
 → It is caused by salmonella typhi
 Symptoms - Headache, abdominal discomfort, fever and diarrhoea.

How are the different fish communities living in a pond ecosystem?

→ In a pond ecosystem, where catla, Rohu, and mrigal are present, the ecological niche of the catla is a surface feeder
 → The ecological niche of Rohu is a bottom feeder
 → Their mouths are designed to suit their niche and have different positions in their habitat.

Describe sps. - ple. check p. no. 197.
 The relationship between species richness and area for a wide variety of taxa turned out to be the rectangular hyperbola.
 → on a logarithmic scale, the relationship is described by the equation

$$S = \frac{C}{A^z}$$
 where S = species richness, A = area, C = constant, z = slope of the line.

20. Placenta during pregnancy - (25)
 or RNA world - (68)
 21. Industrial melanism - (102)
 or per clinical diagnosis (164)

Bio-2000logy. 6-PTA-Model - Key Answer

I. Four children of a couple have blood groups A, B, AB and O. What could be the genotype of the parents.

Ⓐ $I^A I^O \times I^B I^O$

2. Write correct order of human evolution.

Ⓐ Hominid $\rightarrow$ Homohablis $\rightarrow$ Homo erectus $\rightarrow$ Homo sapiens.

3. Ⓐ African sleeping sickness - Tsetse fly.

Ⓑ Amoebiasis - House fly

Ⓒ Kala azar - sand fly

Ⓓ malaria - Female Anopheles.

4. To control the growth of strangular vine in citrus crop, mycoherbicide is obtained from - Ⓓ phyto phthora palmivora.

5. Saccharomyces cerevisiae is more suitable for the production of recombinant interferences than E. coli. The reason is

Ⓒ E. coli does not have machinery for glycosylation of proteins.

6. Which is the stenotherms Ⓐ Lizard.

7. Assertion (A): India is one of the 17 mega biodiversity countries of the world

Reason (R): India's geographical location is most suitable for the organisms.

Ⓒ (A) and (R) correct and (R) explains (A)

8. Air quality index number 200 denotes
Ⓒ Bad, unhealthy pollution.

II. Ⓐ Y linked genes are non homologous why?

$\rightarrow$ The Y linked genes have no corresponding allele in X chromosome.

$\rightarrow$ The Y linked genes inherit along with Y chromosome and they phenotypically express only in the male sex.

Ⓐ one-gene-one enzyme hypothesis.

$\rightarrow$ The experiments of George Beadle and Edward Tatum in the early 1940s on Neurospora crassa (red bread mould) led them to propose one gene one enzyme hypothesis

$\rightarrow$ which states that one gene controls the production of one enzyme.

Ⓐ PET plastics are no more environmental hazardous. Why?

$\rightarrow$ Ideonella sakaiensis is currently tried for recycling of PET plastics

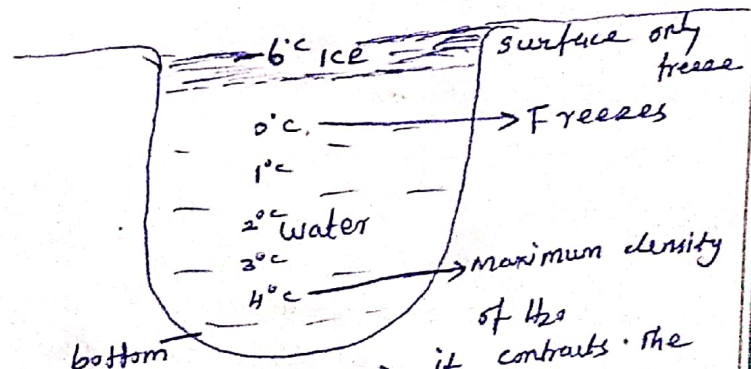
$\rightarrow$ These bacteria use PETase and MHETase enzymes to breakdown PET plastic into terephthalic acid and ethylene glycol.

Ⓐ photokinesis:

$\rightarrow$ A change in the speed of locomotion in a motile organism or cell which is made in response to a change in light intensity is called photokinesis.
 $\rightarrow$ It involves undirected random movement in response to light.

Thermal zone in cold water bodies

-6°C.



when H₂O freezes (0°C), it contracts. The maximum density of liquid H₂O occurs at 4°C. Below that, it expands markedly. This enables ice to float on the top of the bodies.

14) control eutrophication.

→ In order to control eutrophication 1st you need to identify the sources waste

→ Depending on the sources, you have to decide your management strategy.

→ And also reducing the usage of fertilizer

→ Bioremediation of waste H₂O includes the aerobic and anaerobic treatment.

→ Increase the

15) multiple fission

i) The parent body divides into many similar daughter cells simultaneously.

ii) During unfavourable conditions Amoeba withdraws its pseudopodia and secretes a 3 layered, protective chitinous cyst wall around it and become inactive. This is encystment

→ when condition favours, the encysted Amoeba divides by multiple fission and produce many minute amoebae.

→ The cyst wall absorbs H₂O and breaks off liberating the young pseudopodiospores each with 4 flagella. They feed and grow rapidly to lead an independent life.

sporulation in Amoeba.

During unfavourable conditions Amoeba multiplies by sporulation without encystment.

→ Nucleus breaks

into several small fragments

→ Each fragment develops a nuclear membrane, become surrounded by cytoplasm and develops a spore case around it.

→ when condition favours the parent body disintegrate and the spores are liberated each hatching into a young amoeba.

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sample of the amniotic fluid that surrounds the fetus to diagnose for chromosome abnormalities.

→ It is generally performed in a pregnant woman between the 15th and 20th weeks of pregnancy by inserting a long thin needle through the abdomen into the amniotic sac to withdraw a small sample of amniotic fluid

→ The amniotic fluid contains cells shed from the fetus.

(17) Translation in protein synthesis - 3rd phase.

→ Termination is the 3rd phase of translation.

→ It occurs when one of the 3 stop codons appears in the A site of the ribosome.

→ The terminal codon signals the action of GTP-dependent release factor which cleaves the polypeptide chain from the translational complex.

→ The tRNA is then released from the ribosome, which then dissociates into its subunits (stop 2)

(18) schematic representation for the production of human growth hormone. page (157)(19) write about the three indices of sps diversity.

① Alpha - It is measured by counting the number of taxa within a particular area community or ecosystem.

② Beta - It is sps diversity between 2 adjacent ecosystems and is obtained by comparing the number of sps unique to each of the ecosystem.

③ Gamma - It refers to the diversity of the habitats over the total landscape

(20) Mechanism of Fertilisation and Implantation page no - (23)

(or)
Finger printing technique - (86)

(21) modern synthetic theory (102)

(or)
Various types of Innate Immunity - (120)

16) How to do amniocentesis

→ It involves taking a small

Bio-Zoology.PTA Question No-5.

I. The primary and secondary hosts of tape worm - ① Man and pig.

2. It is not a cause for infertility - High body fat.

3. Find out incorrect pair.

① Neisseria gonorrhoeae - Affects urethra.

② HB virus - Liver cirrhosis.

③ HIV - Enlarged lymph.

④ candida albicans - Inflammation of heart.
(Correct)
Attach mouth, throat etc.

4. It is a true statement regarding sex chromosome of mammals.

① Both ♂ and ♀ have only one functional x-chromosome per cell.

5. Match, Ans: ① i) c ii) D ③ A ④ B

① Tertiary period. - Mammals and birds

② Jurassic period - Golden age of Reptiles

③ Devonian period - Age of fishes

④ Ordovician period - Dominance of Invertebrates.

6. Why dendritic cells are called so

① Because they look like dendrites of nerve cells.

7. Which contain maximum amount of alcohol - Gin.

8. Which is not true regarding stem cells.

① They are differentiated cells.

9. Why do we call tRNA as an adapter molecules.

→ The transfer RNA (tRNA) molecule of a cell - acts as a vehicle that picks up the amino acids scattered through the cytoplasm and also reads specific codes of mRNA molecules is called adapter molecules.

→ This term was postulated by Francis Crick.

mention the 4 types malaria and their causative agents.

1. Tertian, benign tertian or

vivax malaria - P. vivax - 48 hrs.

2. Quartan malaria - P. malariae - 72 hrs

3. mild tertian malaria - P. ovale - 48 hrs.

4. malignant tertian (or) quotidian malaria - P. falciparum - 36-48 hrs.

① Metastasis.

→ when a tumour continues to grow and invades healthy tissue, it is called cancer.

→ They spread to other parts of the body from the tumour and give rise to secondary tumour is called metastasis.

12. write the role of viruses in biological control of pathogens.

→ Biocontrol is a method of controlling pest by use of viruses by naturally occurring substances derived from plants and animals.

Role:
Sp: Bucleoviruses are pathogens that attack insects and other arthropods.

The genus nucleopolyhedrovirus is used as a biocontrol agent - these viruses are specific and have narrow spectrum insecticidal applications.

13. coextinction give an example.

→ coextinction of a species is the loss of a species as a consequence of the extinction of another

Sp: orchid bees and forest trees by cross pollination.

Extinction of one will automatically cause extinction of the other. Sp: calceola tree Do do bird

14. Red list of Red Data book consists of 8 categories of sps.
- ① Extinct ② Extinct in wild
 - ③ critically Endangered ④ Endangered
 - ⑤ vulnerable ⑥ Lower risk
 - ⑦ Data deficiency ⑧ Not evaluated.

III 15 why sexual method of reproduction is better than asexual reproduction.

→ Sexual reproduction is more advanced than asexual reproduction

→ as it involves the fusion of 2 different gametes. This leads to genetic variation in which organ helps the organisms to evolve and survive new changes.

→ Asexual reproduction without involvement of gamete formation.

→ offspring produced are genetically identical.

16. Phenylketonuria is related to albinism. Give reasons. Page no - 56 write full heading.

[Yes, Both diseases caused due to an autosomal recessive gene]

→ Affected individual lacks of enzyme

phenylalanine hydroxylase - This enzyme is essential for the conversion of phenylalanine to tyrosine.

Albinism - Lack of Tyrosinase enzyme required for conversion of dihydroxy phenylalanine (DOPA) into melanin inside the melanocytes.

[Both diseases characters Lack of melanin pigment in their skin, hair]

17. Gene flow can be a strong agent of evolution Explain how?

→ movement of genes through gametes in and out of a population is called gene flow.

→ organisms and gametes that enter the population may have new alleles (or) may bring in existing alleles but in different proportions than those already in the population.

18. PCR technique in the field of forensic medicine.

A single molecule of DNA from blood stains, hair, semen of an individual is adequate for amplification by PCR.

→ The amplified DNA is used to develop DNA fingerprint which is used as an important tool in forensic science.

→ PCR is very useful for identification of criminals.

19. Role of woman in conservation of forest in India. - Chapter - 12 - Q. No - 2.4 Book back refer.

IV. 20 Explain the anatomy of testis with the help of a diagram. Page No - 15.

(or)

write about the applications and future challenges of HGP. - page no - 86.

21 Discuss the properties of genetic material page no - 68

(or)

Discuss the various responses of living organisms towards abiotic factors.

page no - 182

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BIO-ZOLOGY PTA - Key Answer - 3

- I. Human beings are unisexual animals
the type of syngamy in human - exogamy.
2. Right order of reproductive events.
- ③ Gametogenesis → fertilization → blastocyst
← gastrulation
← parturition.
3. It is not true regarding cervical cancer.
- ① practicing polygamy (correct) monogamy.
4. ① Live attenuated vaccine - Measles
⑤ Killed vaccine - Salk's polio vaccine.
③ Toxoids - DPT vaccines
② second generation vaccine - HBV.
5. In correct pair.
- curd - *Saccharomyces cerevisiae*.
correct: → *Lactobacilli*
cheese - *Lactococcus*.
Idli - *Leuconostoc mesenteroides*
Bread - yeast.
6. Insulin ②1 A chain - 3 chain ③0 units.
7. Periyar wild life sanctuary in Kerala
famous for - Indian tiger and Asiatic elephant.
8. Forest man of India - Jadav payeng.

II. causes for ♂ infertility.

- Undescended testes and swollen veins in scrotum.
- Tight clothing in men may raise the temperature in the scrotum and affect sperm production.
- Under developed testes
- Males may develop an autoimmune response to their own sperm.

10. RNA world. Refer - Page no - 68 - Full heading
→ 3 molecular biologist in the early 1980s (Leslie Orgel, Francis Crick, and Carl Woese) independently proposed the RNA world.

The RNA world as the first stage in the evolution of life.
→ A stage when RNA catalysed all molecules necessary for survival and replication.
→ The term RNA world first used by Walter Gilbert in 1986.
hypothesizes RNA as the 1st genetic material on earth.

11. Relative dating	absolute dating
It is used to determine a fossil by comparing it to similar rocks and fossils of known age.	It is used to determine the precise age of a fossil by using radiometric dating to measure the decay of isotopes.

- ⑫ Bio reactor ⑪ Fermentor.
- It is a closed vessel with adequate arrangement for aeration, agitation temperature, pH control and drain
① overflow vent to remove the waste biomass of cultured microorganisms along with their products.

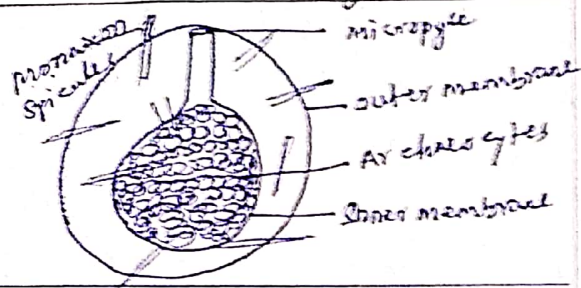
- ⑬ List out the fauna of Trans Himalayan.
- Richest wild sheep, goat
→ chiru and Black rockd crane.

14. Bio magnification.

- Food chains are components of all ecosystem.
- producer and consumer forms trophic levels in a chain through which energy flow is carried out by the process of eating being eaten.

- usage, storage and transformation of food and biomolecules by metabolism are a normal process.
- Degradation (or) breakdown is an essential part of any food chain and hence all naturally occurring substances are degradable.

15. Draw labelled diagram of a gamete



16. Penetration mechanism of a sperm into an egg.

→ Before a sperm can enter the egg it must penetrate the multiple layers of granulosa cells which are around the ovum forming the corona radiata.

→ The follicular cells are held together by an adhesive cementing substance called hyaluronic acid.

→ The acrosomal membrane disintegrates releasing the proteolytic enzyme hyaluronidase during sperm entry through the corona radiata and zona pellucida. This is acrosomal reaction.

→ Once fertilisation is accomplished cortical granules from the cytoplasm of the ovum form a barrier called fertilisation membrane around the ovum preventing further penetration of sperm.

Connecting links in evolution

→ The organisms which possess the characters of two different groups are called connecting links.

Ex: Peripatus - connecting link between Annelida and Insecta.

Archaeopteryx - connecting link between Reptiles and Birds.

Pluripotency

It refers to stem cells that can differentiate into few cell types.

Ex: Lymphoid and myeloid.

Stem cells can differentiate into B and T cells but not RBC.

Unipotency

It refers to the ability of the stem cells to differentiate into only one cell type.

19.

HGP is useful tracing human history. Scientists have identified about 10 million locations where single base DNA differences (SNPs - single nucleotide polymorphism) occur in humans.

Identification of SNPs is helpful in finding chromosomal locations for disease associated sequence and tracing human history.

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20. Explain gene switch on and off mechanism in E. coli

(a) sexlinked inheritable disease mostly affect men. Explain with an Ex. page 23

(b) AIDS is not a disease but it facilitates attack by other organisms. Explain why.

(c) Explain properties of periplasm. (7.5)

1. plasmotomy means

② multinucleated parent divides into many multinucleated daughter individuals.

2. Gonorrhoea - 2-5 days

Syphilis - 10-90 days

Genital warts - 1-8 months

Hepatitis-B - 30-80 days.

3. Before coming out of nucleus, in RNA is added methyl guanosine triphosphate as capping and adenylate residues as tailing.

4. The non-infectious diseases, which is the major cause for death. ① cancer.

5. Not true regarding antibiotics.

② penicillin is a fungicidal antibiotics ^{correct-antibacterial}

6. which technique can be used to amplify the smallest DNA? ③ PCR technique.

7. Indian desert - Gujarat

Trans Himalayan - Lachala Ziti

Western Ghats - Gujarat to Kerala.

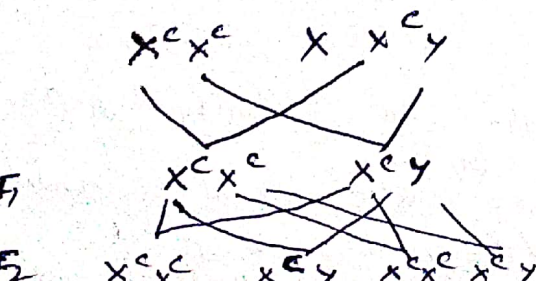
North East India - Indo-malayan biogeographical region.

Assertion (A) Forest act as O_2 sinks and heart of the planet.

Reason (R): Forest animals consume lot of O_2 for their respiration.

⑤ A wrong (R) correct.

Draw the F_1 & F_2 generation flow chart.



⑦ zygote is not formed during the conjugation of paramecia, but we call it as sexual reproduction why?

paramecium undergoes sexual reproduction

Reason:

paramecium cannot produce gametes so zygote formation is not formed.

→ It involve conjugation.

→ It is the temporary union of the 2 individuals of the same species. During their union both individuals called the conjugants exchange certain amount of nuclear material (DNA) and then get separated.

⑩ GIFT

i) As in IVF, the zygote upto 8 blastomere stage is transferred to the fallopian tube by Laproscopy.

ii) The zygote continues its natural divisions and migrates towards the uterus where it gets implanted.

ZIFT

i) Transfer of an ovum collected from a donor into the fallopian tube.

ii) In this the eggs are collected from the ovaries and placed with the sperms in one of the fallopian tube.

iii) The zygote travels toward the uterus and get implanted in the inner lining of uterus.

12. Theory of chemical evolution.

According to the theory of chemical evolution, primitive organisms in the primordial environment of the earth evolved spontaneously from inorganic substance and physical forces such as lightning, UV radiations, volcanic activities etc.

e.g. coacervates.

13. Uses of methanobacterium

- methane producing bacteria are called methanogens.
- It is also present in anaerobic sludge and rumen of cattle.
- In rumen these bacteria help in the breakdown of cellulose.
- The excreta of cattle called dung is called biogas.
- It contains methane, CO_2 , some hydrogen, nitrogen and other gases.

14. Extinction of a Keystone Sp.

- Keystone species is a species that has an excessively large effect on its natural environment.
- It leads to the extinction of other organisms.
- eg: orkney bees and forest trees by cross pollination.
- Extinction of one will automatically cause extinction of the other.
- eg: Dodo in Mauritius Island.
- There is a direct relationship between calvaria tree and the extinct bird of Mauritius island, the dodo.
- calvaria tree is dependent on the dodo bird for completion of its life cycle etc.

15. Meiosis cell division does not occur

- during gamete formation of drones.
- ① Meiosis cell division only occurs in sexual reproduction.
- ② Drone involve parthenogenesis, unfertilized eggs develop into drones.
- Reason: In this process.

16. Ribozyme - significance

- RNA has the ability to act as both genetic material and catalyst.
- There are several biochemical reactions in living systems that are catalysed by RNA.
- This catalytic RNA is known as ribozyme.

17. Evolutionary significance of Archaeopteryx

- It is important in the study of organic evolution because it forms connecting link between Reptiles and Aves.
- These organisms which possess the characters of 2 different groups are called connecting link.
- birds have evolved from the reptiles.

18. controlling measures of noise pollution

- Lubrication of machinery and regular servicing minimize noise levels.
- Regulations should be imposed to restrict the usage of loudspeakers in crowded areas and public places.
- workers should be provided with ear plugs and earmuffs at work sites that generate high noise levels.

19. A diabetic patient wants to 1 time treatment / p. care for diabetes. If possible explain.

No, a continuous program of insulin dependence is required to treat insulin deficiency.

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20. Explain the role of hormone in fertility

- ① DNA is the genetic material, but evolved RNA. 66, 68.
- ② Personal / public hygiene ① 2 spp of population. - 188.