



BJNP

Learning with the Speed of Mumbai and the Tradition of Kota



Max Marks: 40
Time:2 HRS

Date: 00.00.2022
Seat No.

(SSC)SCIENCE II : SAMPLE PAPER 1(Sol)

Q.1 A. Choose the correct alternative

(5)

- In _____ stage of mitosis, one can observe all the chromosome arranged parallel to the equatorial plane.
a) Anaphase **b) Metaphase**
c) Prophase d) Telophase
- _____ is a cold – blooded animal.
a) Bat **b) Snake**
c) Rabbit d) Elephant
- Which one of the following is a man- made disaster?
a) Earthquake b) Flood
c) Meteoroid **d) Leakage of toxic gases**
- Pteris vitata can absorb _____.
a) Radiations **b) arsenic**
c) Selenium d) uranium
- Implantation of embryo occurs in _____.
a) Ovary **b) Uterus**
c) Oviduct d) Vagina

B. Solve the following

1. Find co – related terms :

(1)

Musk deer : Rare species :: Lion – tailed monkey : _____

Ans. Endangered species

2. Identify me

(1)

I live in your small intestine . Pseudocoelom is present in my thread like body/. In which phylum will you include me?

Ans. Platyhelminthes

3. State true and false

(1)

Sacred groves are found only in western ghats in India. **false**

4. Match the following

(2)

'A'

'B'

1. Lycopene

a. Microbial restrictor

2. Nycin

b. Pigment

c. Edible colors

**Ans. Lycopene - Edible colors
Nycin - Microbial restrictor**

Q.2 A. Give scientific reasons: (Any 2)

(4)

1. Microbial enzyme are used instead of chemical catalysts in chemical industry.

Ans. 1. Microbial enzymes are active at low temperature , ph and pressure due to which energy is saved and erosion – proof instruments are also not necessarily

2. Enzymes carry out specific processes hence unnecessary byproducts are not formed due to which expenses on purification are unimised

3. In case of microbial enzymatic reaction, elimination and decomposition of waste material is avoided and enzymes can be reused. Such enzymes are eco- friendly

4. Hence Microbial enzyme are used instead of chemical catalysts in chemical industry

2. Fibers are one of the important nutrients

Ans. 1. We obtain fibers from leafy vegetables, fruits , cereals etc.

2. In fact, we cannot digest the fibers

3. However, they help in the digestion of other substances and egestion of undigested substances.

4. Hence Fibers are one of the important nutrients

3. The construction of turbine is different for different types of power plants

Ans. 1. Generators work on the principles of electromagnetic induction.

2. For this the generator must be rotated and in turn there is a turbine for each generator.

3. For rotation of a turbine, energy is needed.

4. The turbines are different according to the types of energy source that is used for it rotation.

5. Hence The construction of turbine is different for different types of power plants

B. Answer the following (Any 3)

(6)

1. Sate any four benefits of animal classification

Ans. 1. Study of animals becomes convenient.

2. Study of few animals from a group helps to understand about that entire animal group.

3. It gives idea about animal evolution.

4. Animals can be easily identified with great accuracy.

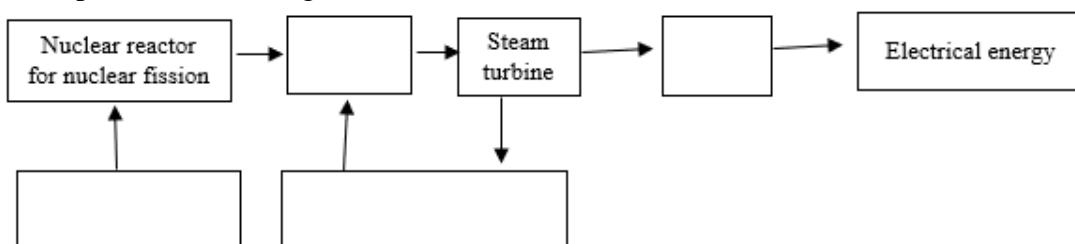
5. It helps to understand the relationship of animals with other living organisms.

6. It helps to understand the habitat of each animal and it's exact role in the nature.

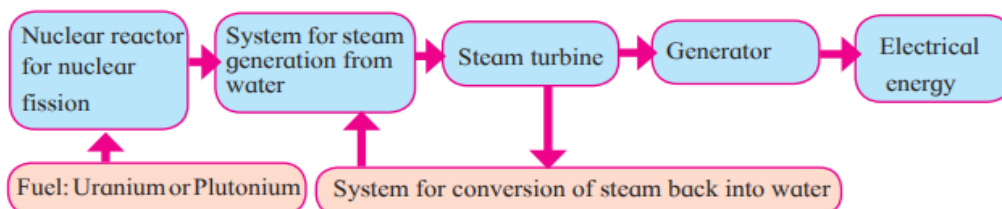
7. It helps to understand various adaptations shown by animals.

(Any 4 will do)

2. Complete the following flow chart :-



Ans.



3. Write a short note on :
Development and Birth in humans.

Ans. The zygote formed after fertilization in the oviduct, undergoes repeated mitotic divisions and embryo is formed. Meanwhile, it is pushed towards uterus. Once it reaches the uterus, it is implanted and further development occurs after implantation. An organ called as placenta is formed for supply of food material during the growth in uterus. Embryonic development is completed approximately within nine months after the fertilization.

4. What are the main objections raised for Darwin's theory of natural selection?

Ans. 1. Natural selection is not the only factor responsible for evolution.
2. Darwin did not mention any explanation about useful and useless modifications.
3. There is no explanation about slow changes and abrupt changes. Irrespective of all these objections, Darwin's work on evolution has been a milestone

5. Give example of each

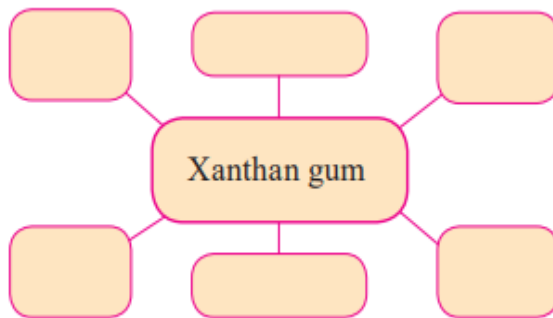
- a) Physical problem arising due to excessive use of mobile phones.
- b) Activities under the jurisdiction of cyber crime laws.

Ans. a) Tiredness , headache, insomnia, tinnitus, forgetfulness, joint , pains, problems in vision
b) 1. To do bank transactions by procuring PIN number of somebody
2. Misuse of written material of someone or illegal sale of same.
3. Hacking information of government institutes and companies.

Q.3 Answer the detail(Any 5)

(15)

1. Complete the following conceptual picture with respect to uses.



Ans. High quality paper, pigments, fertilizers, weedicides, textile pigments, Toothpastes,

2. Explain carbon dating method .What is it used for?

Ans. Carbon consumption of animals and plants stops after death and since then, only the decaying process of C-14 occurs continuously. In case of dead bodies of plants and animals, instead of remaining constant, the ratio between C-14 and C-12 changes continuously as C-12 is non-radioactive. The time passed since the death of a plant or animal can be calculated by measuring the radioactivity of C-14 and ratio of C-14 to C-12 present in their body. This is 'carbon dating' method. It is used in paleontology and anthropology for determining the age of human fossils and manuscripts.

3. Write a note on land – filling sites

Ans. Degradable waste being accumulated in urban areas is used for this purpose. Large pits are dug in open spaces far away from the residential area and those pits are lined with plastic sheets as a precaution against pollution of soil due to leaching of toxic and harmful materials. Compressed waste is dumped in the pit. It is covered with layers of soil, saw dust, leafy waste and specific biochemicals. Bioreactors are

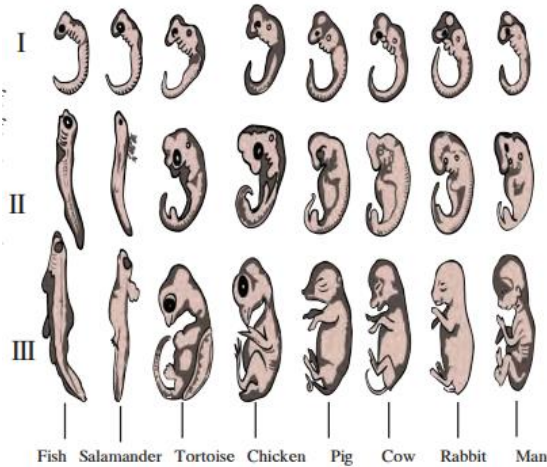
mixed at some places. Microbes present in soil and other top layers decompose the waste. Completely filled pit is sealed with soil slurry. Best quality compost is formed after few days. Such land filling sites can be reused after removal of compost.

4. Distinguish between – Non chordates and Chordates

Ans.

Non chordates	Chordates
1. Body is not supported by rod like notochord	1. Body is supported by notochord
2. Pharyngeal gill- slits are absent.	2. Pharyngeal gill-slits or lungs are present for respiration.
3. Nerve chord, if present it is on ventral side.	3. Nerve cord is present on dorsal side.
4. Heart, if present , it is one dorsal side	4. Heart is present on ventral side of body

5.



- Which evidence of evolution is shown in the picture?
- What can be proven with this proof?
- Give one more example of evidence of evolution

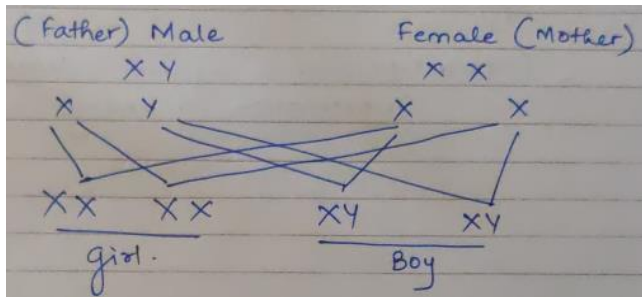
- Ans.
- Embryological evidence is shown in the picture.
 - Similarities in initial stages indicate the common origin of all these animals.
 - Morphological evidence, Anatomical evidence, connecting links, vestigial organs, paleontological evidence.

- What are stem cells?
 - Where are stem cells found?
 - How are stem cells preserved?

- Ans.
- Stem cells are primary type of undifferentiated cells with self- multiplying ability.
 - Stem cells are present in
 - Umbilical cord
 - Blastocyst stage of embryonic development
 - Red bone marrow
 - Adipose connective tissue.
 - Stem cells are kept in small, sterile vials in liquid nitrogen at - 135°C to - 190°C

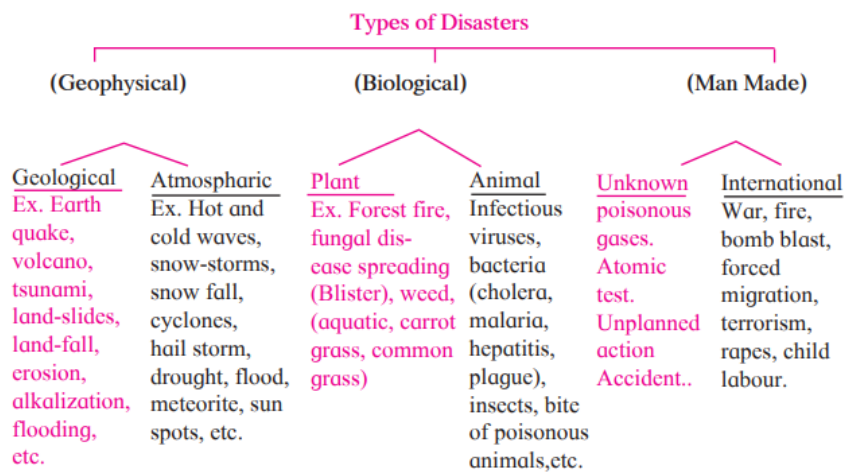
7. Gender of a child is determined by the male partner. Explain with reason whether this statement is true or false.

Ans. The man is totally responsible, whether the couple will have a boy or a girl child. During zygote formation, man contributes either X or Y chromosome to the next generation. But females transfer only X-sex chromosome to the next generation. At the time of fertilization, if X-chromosome comes from male, the child will be a girl and if Y-chromosome comes then the child will be a boy.



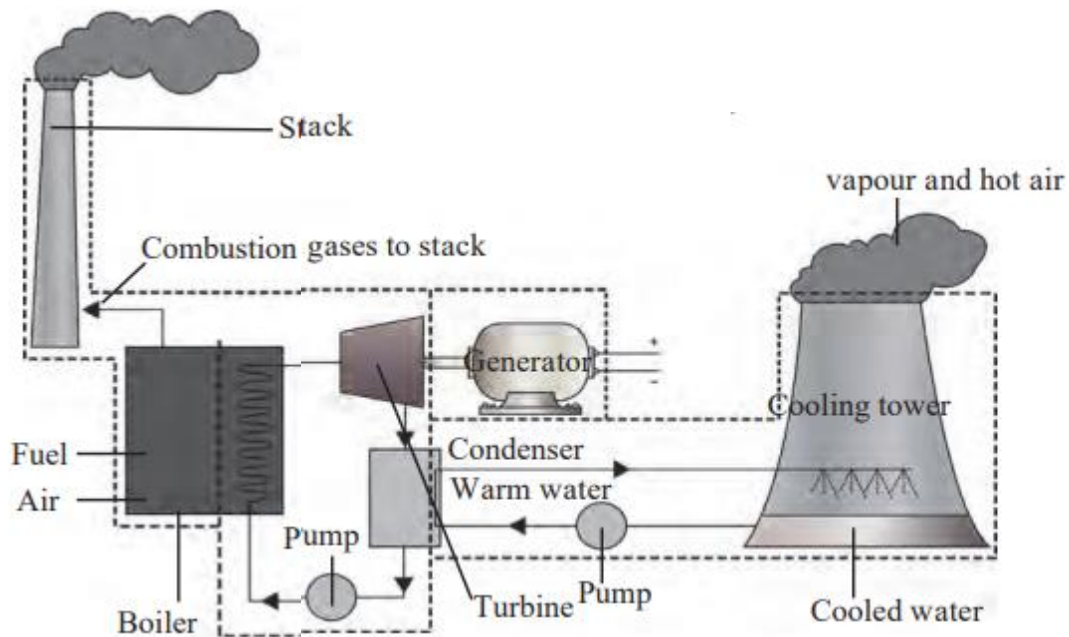
8. Give 2 examples each of these types of disaster: 1) Geophysical 2) Biological 3) Manmade

Ans.



Q.4 Answer any one of the following

(5)



- Which power plant is shown in the above picture?
- What is the source of energy used in the given power plant?
- What happens in the cooling tower?
- What leads to the movement of turbine?

e) Give any two gases emitted from the stack?

- Ans.
- a) Thermal power plant is shown in the picture.
 - b) Fuel coal is the source of energy used in the given plant.
 - c) The water in the cooling tower is circulated through the condenser because of which the steam condenses back to water.
 - d) The steam formed leads to the movement of turbine.
 - e) Carbon dioxide, Sulphur dioxide and nitrogen oxide are some gases emitted from the stack.

2. What is menstrual cycle? Describe it in brief.

- Ans. Female reproductive system undergoes some changes at puberty and those changes repeat at the interval of every 28 – 30 days. These repetitive changes are called as menstrual cycle. Menstrual cycle is a natural process, controlled by four hormones. Those four hormones are follicle stimulating hormone (FSH), luteinizing hormone (LH), estrogen and progesterone. One of the several follicles in the ovary starts to develop along with the oocyte present in it, under the effect of follicle stimulating hormone. This developing follicle secretes estrogen. Endometrium of the uterus starts to develop (during first cycle) or regenerate (during subsequent cycles) under the effect of estrogen. Meanwhile, developing follicle completes its development. It bursts under the effect of luteinizing hormone and oocyte is released. This is called as ovulation. Remaining tissue of the burst follicle forms the corpus luteum. Corpus luteum starts to secrete progesterone. Endometrial glands secrete their secretion under the effect of progesterone. Such endometrium is ready for implantation of embryo.
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