

KENDRIYA VIDYALAYA, PANGODE

JUNE MONTHLY TEST-2015

CLASS:XII

BIOLOGY

Marks:50

Time:90mts

SECTION A

1. What is the major difference you observe in the offspring produced by asexual reproduction and in the progeny produced by sexual reproduction? 1
2. Name the type of cell division that takes place in the zygote of an organism exhibiting haplontic life cycle. 1
3. The microscopic pollen grains of the past are obtained as fossils. Mention the characteristic of the pollen grain that makes it happen. 1
4. Normally one embryo develops in one seed, but when an orange seed is squeezed, many embryos of different shapes and sizes are seen. Mention how it has happened. 1
5. How is continuity of species maintained generation after generation? 1

SECTION B

6. Why is it difficult to get rid of water hyacinth from a water body? Name one abiotic component and one biotic component of the ecosystem that gets affected by its spread in the water body. 2
7. Cucurbits and papaya plants bear staminate and pistillate flowers. Mention the categories they are put under separately on the basis of the type of flowers they bear. 2
8. Explain how geitonogamy is functionally similar to cross-pollination and genetically similar to autogamy. 2
9. Name the muscular and glandular layers of uterus. Which one of these layers undergoes cyclic changes during menstrual cycle? Name the hormone essential for the maintenance of this layer. 2
10. Draw a sectional view of a human blastocyst and label trophoblast and inner cell mass. Mention the fate of the trophoblast after the implantation of the blastocyst. 2

SECTION C

11. In Yeast and Amoeba, the parent cell divides to give rise to two new individual cells. How does the cell division differ in these organisms? How does penicillium reproduce asexually? 3
12. In an angiosperm, the embryo sac is haploid, zygote is diploid and endosperm is triploid. Justify giving reasons for each stage. 3
- 13.a) Mention any four strategies adopted by flowering plants to prevent self-pollination.

b) Name the part of the plant that contributes to fruit formation in strawberry. 3

14. Mention the target cells of luteinizing hormone in human males and females. Explain the effect and the changes which the hormone induces in each case. 3

15.a) Draw a sectional view of seminiferous tubule of a human. Label the following cells in the seminiferous tubule.

(i) cells that divide by mitosis to increase their number

(ii) cells that undergo meiosis I

(iii) cells that undergo meiosis II

(iv) cells that help in the process of spermeiogenesis.

b) Write the composition of seminal plasma. 3

#### SECTION D

16. Give reasons:-

a) Most zygotes in angiosperms divide only after certain amount of endosperm is formed.

b) Groundnut seeds are exalbuminous and castor seeds are albuminous.

c) Micropyle remains as a small pore in the seed coat of a seed.

d) Integuments of an ovule harden and the water content is highly reduced, as the seed matures.

e) Apple and cashew are not called True fruits. 5

17. How does the megaspore mother cell develop into 7 celled, 8 nucleate embryo sac in an angiosperm.

Draw a labeled diagram of a mature Embryo sac. 5

18. a) Give a schematic representation of oogenesis in Humans.

b) At what stage of life does gametogenesis begin in human males and female respectively?

c) Name the organs where gametogenesis gets completed in human male and female respectively. 5

19. Describe the post zygotic events leading to implantation and placenta formation in Humans. Mention any two functions of placenta. 5

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JULY MONTHLY TEST-2015

BIOLOGY-ANSWER KEY

1. Asexually produced organisms are genetically and morphologically identical. Sexually produced offspring show genetic variation.  $\frac{1}{2}+\frac{1}{2}$
2. Meiosis-1
3. Presence of sporopollenin which can withstand high temperatures and action of strong acids and alkalis- $\frac{1}{2}+\frac{1}{2}$
4. Orange shows polyembryony, some of the nucellar cells divide and protrude into embryo sac- $\frac{1}{2}+\frac{1}{2}$
5. Reproduction-1
6. They propagate vegetatively at a rate faster than we could remove them. It drains oxygen from water, leads to fish mortality- $1+\frac{1}{2}+\frac{1}{2}$
7. Cucurbits are monoecious, male and female flowers found in the same plant. Papaya plants are dioecious and bear either male or female flowers- $\frac{1}{2}+\frac{1}{2}+\frac{1}{2}+\frac{1}{2}$
8. Geitonogamy and cross-pollination involve different flowers and a pollinating agent. Geitonogamy involves two different flowers of the same plant, it is genetically similar to autogamy and do not result in genetic variation. 1+1
9. Myometrium-muscular layer, endometrium-glandular layer, endometrium undergoes cyclic changes, progesterone is the hormone- $\frac{1}{2}+\frac{1}{2}+\frac{1}{2}+\frac{1}{2}$
10. Page No.52 Fig.3.11g, labeling-1+1
11. In yeast by budding( $\frac{1}{2}$ )Explanation ( $\frac{1}{2}$ ) In amoeba by binary fission ( $\frac{1}{2}$ ) Explanation ( $\frac{1}{2}$ ) conidia-1
12. Embryo sac develops from megaspore formed after meiosis so haploid. Zygote formed by the fusion of male and female gamete so diploid. Endosperm formed by triple fusion so triploid-1+1+1
- 13.a) Any four strategies, thalamus- $\frac{1}{2}+\frac{1}{2}+\frac{1}{2}+\frac{1}{2}$
14. In males-Leydig cells-stimulates leydig cell to secrete androgens which controls spermatogenesis. In females-follicles-stimulates ovulation, formation of corpus luteum, secretion of progesterone- $\frac{1}{2}+\frac{1}{2}+\frac{1}{2}+\frac{1}{2}$
- 15.a) P.No.47 Fig:3.5 - $\frac{1}{2}+\frac{1}{2}+\frac{1}{2}+\frac{1}{2}$ 
  - b) fructose, calcium, certain enzymes-1
16. a) Zygote starts dividing only after a certain amount of endosperm is formed for providing nutrition to the developing embryo.
  - b)In ground nut developing embryo utilizes the endosperm completely. In castor ,not completely utilized, some amt. left in the seed.

c) helps entry of water and oxygen into the seed.

d) Loss of water reduces the metabolic activity and seeds can enter a state of dormancy during unfavourable environment.

e) Thalamus forms fruit.

17. Megasporogenesis- MMC- Meiosis- 4 megaspores- 3 degenerate- 1 develops into female gametophyte (embryo sac)- 2,4,8 nucleate,3 antipodals, egg apparatus with 1 egg and 2 synergids,2 polar nuclei in large central cell.  $1/2 \times 6 = 3$ . Page No. 26 Fig2.8 © -2

18.a) P.No. fig 3.8 (b) -3 b) In males at puberty , in females at embryonic development stage ( $1/2 + 1/2$ )

c) in males in testes, in females in fallopian tube  $1/2 + 1/2$

19. Zygote undergoes cleavage, 8 to 16 celled blastomeres called morula, blastocyst- trophoblast and inner cell mass- blastocyst embedded in the endometrium of uterus- trophoblast form chorionic villi along with uterine tissue form placenta.  $1/2 \times 8 = 4$ . Any two functions  $1/2 \times 2 = 1$

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