

**Sample Paper – 2014**  
**Class – X**  
**Subject – Biology**  
**How Do Organisms Reproduce?**

**TIME- 3 hrs**

**F.M-90**

**Q1 to 3= 1mark each Q4 to 7 = 2 marks each Q 8 to 19 = 3 marks each**

**Q20 to 24 = 5 marks each Q 25 to 42 = 1mark each**

**SECTION-A**

**Q1) Which type of reproduction involves only one parent?**

1mark

**Answer:** Asexual reproduction

**Q2) Give two examples of organisms that reproduce through budding.**

1mark

**Answer:** *Hydra* and Yeast

**Q3) Out of the following plants which two plants are reproduced by vegetative propagation?**

1mark

**jasmine, wheat, mustard, banana**

**Answer:** jasmine, banana

**Q4) Write the full form of IUCD**

2marks

**Answer:** IUCD stands for Intra Uterine Contraceptive Device - or Copper T - a mechanical barrier method used in females for birth control

**Q5) Why vegetative reproduction is practiced for growing some type of plants?**

2marks

**Ans-**Vegetative reproduction is practiced in some types of plants due the following reasons:

1. The plants which do not produce viable seeds are propagated by vegetative propagation such as banana, orange and rose.
2. Plants raised by vegetative propagation bear flower and fruit earlier than those produce from seeds.
3. Seedless fruits are produced by vegetative propagation

**Q6) What are the changes seen in girl's at the time of puberty?**

2marks

**Ans-**Various changes take place in girl's body at the time of puberty :

- a) Thick hair growth in the arm pit and genital area.
- b) Oily skin and appearance of pimples
- c) breast size begins to increase
- d) Girls begins to menstruates etc.

**Q7) What is the role of the seminal vesicles and the prostate gland?**

2 marks

**Ans—**The secretion of seminal vesicles activates and nourishes the sperms whereas the secretion of prostate gland contributes the mortality and fertility of sperms.

**Q8) Show by a series of labeled diagram, the manner in which reproduction in Hydra.**

3 marks

**Ans-**Hydra reproduces by budding using the regenerative cells. A bud develops as a outgrowth in hydra due to repeated cell division of specific site, when full mature, the bud detaches from the parent's body and develop into new individuals.

**Q9) What is 'vegetative propagation'? Write two examples where it is used. State two reasons of practicing vegetative propagation for giving same types of plants.**

3 marks

**Ans-**Vegetative reproduction means production of new plants from the parts of the old plant like stem roots and leaves without the help of reproductive organs.

**Reason of practicing vegetative propagation-**a .It is cheaper, easier more rapid method of propagation. b . The traits of a parents plants are preserved by vegetative propagation

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**Q10) What is advantages of sexual reproduction over asexual reproduction?**

3 marks

Ans-a) Sexual reproduction plays a prominent role in evolution of new species whereas asexual reproduction does not.

b) Sexual reproduction provides opportunity for new combination of gens and thus causes genetic variation. This is not applicable by asexual reproduction.

**Q11) Why does menstruation occur?**

3 marks

Ans. The removal of the inner, thick and soft lining of the uterus along with its blood vessels as well as blood in the form of vaginal bleeding is called menstruation. In humans after a girl attains puberty ovaries start producing mature ovum every month and also uterus lining gets thickened to receive zygote. When the uterus does not receive any zygote then menstruation occurs to excrete lining of uterus and degenerating ovum.

**Q12) What happens if the ovum does not fertilized in female body?**

3 marks

Ans-when the ovum does not get fertilized it lives for one day. As the preparations of the uterine lining are not needed any more, the lining breaks and comes out along with the unfertilized ovum through the vaginal path in form of blood discharge. This is known as menstruation as it happens once in a month and it lasts for 2-8 days.

**Q13) Differentiate between grafting and layering.**

Answer

-	Grafting	-	Layering
(i)	In this method, a stem cutting from the desired plant is placed on a rooted plant and is bound firmly by tape.	(i)	In this method, the branch of a plant is bent and covered with moist soil, called mound.
(ii)	The resultant plant has the characteristics of both the parents.	(ii)	The resultant plant is identical to the parent plant.
(iii)	Favourable characteristics can be incorporated by this method.	(iii)	Favourable characteristics cannot be incorporated by this method.
	Example: rose, mango		Example: jasmine, strawberry

**Q14) Explain the structure of sperm.**

3 marks

Answer



Sperm consists of a head, a middle piece and a tail. The head has a nucleus containing the chromosomal material. The middle piece has numerous mitochondria which provide energy to the moving sperm.

The tail facilitates the movement of sperm into the female body.

**Q15) How do sperms reach the female genital tract? where does fertilization and implantation of the embryo takes place. For how long does the embryo remain attached to uterine walls.**

3 marks

Ans-sperms travel upwards through uterus to oviduct where they may meet an ovum and hence fertilize it. Fertilization takes place in oviduct to give rise to single celled zygote. The zygote divides to become multicellular embryo which gets fixed in uterus. The embryo remains attached in uterine walls throughout gestation period which is 40 weeks in humans.

**Q.16) Mr. R. Sharma was suffering from various types of diseases presently. He went for thorough health checkups and was diagnosed as HIV+ve. Soon this news spread in his neighborhood and on account of this, he faced social isolation.**

3 marks

Comment upon:-

- i. Do you think people's indifference towards HIV+ve people is justifiable?  
What kind of approach should we have towards the persons suffering from AIDS.  
ii. How can one protect oneself from this diseases?

**Ans:** 1. Absolutely not.

Human approach/behavior

One should be aware about the mode of transmission of disease, danger of sharing needles etc.

**Associated Value :** The learners will understand that only a generous and improved mindset of society can help the people to fight HIV/AIDS related problems.

**Q.17) . Describe sexually transmitted diseases (STDs) and mention the ways to prevent them.** 3 marks

**Ans:** Those infectious diseases which are spread by sexual contact called sexually transmitted diseases (STDs)

Methods for prevention of STDs

- The people should be educated about various STDs
- Extra – marital relations should be avoided
- Sex without proper precaution should be avoided
- High standard of moral education should be give to the people.

**Q.18 What is the need of population control?**

3 marks

**ANS:** Overpopulation leads to a number of problems like – a) Unemployment – More number of people means more jobs and if sufficient numbers of jobs are not available, it leads to unemployment. b) Poverty – If there are more persons and the income is less, it becomes poorer with the addition of every child. c) Food supply – If the population increases and the food production does not increase; this will lead to shortage of food supply. d) Hygienic condition – more people in small area generally make the condition unhygienic for survival e) Educational problem – It becomes difficult for the government to provide education to all f) Housing problem – It also creates housing problem. g) Pollution – More pollution with increasing population. h) Decrease in natural resources – More people will decrease the natural resources quickly

**Q19. Why must pollination occur before fertilization? How is pollination different from fertilization? What does a pollen contain inside?**

3 marks

**Ans-** pollination must occur before fertilization as it has to reach the male gametes present in pollen grain which will germinate to form a pollen tube and carry the male gametes to the ovum. Pollination is different from fertilization Because here the pollen grain with its male gametes just reaches the stigma, whereas fertilization of male gamete to ovum results in formation of diploid zygote which is the foundation of new generation.

**Q20(a) List two reasons for avoiding frequent pregnancies by women. (b) Explain in brief the following method of contraception giving one example of each. (i) Barrier method (ii) Chemical method (iii) Surgical method.**

OR

**(a) Draw longitudinal section of a flower to show its male and female reproductive parts. Label the following on it. (i) Ovary (ii) Anther (iii) Filament (iv) Stigma (b) Distinguish between self-pollination and cross-pollination. (c) How does fusion of male and female gametes take place in plants?**

5 marks

**Ans:-** (a) 1. It has adverse effect on the health of women.

2. It increases the rate of the population of our country.

(b) (i) Barrier method ; In this method , a device is used to prevent the entry of sperms in the female genital tract during sexual intercourse.

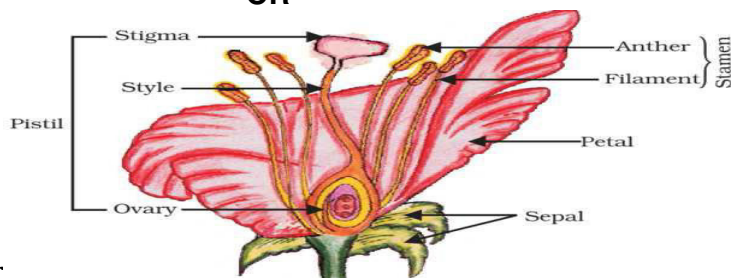
Example : Condom, diaphragm and cervical cap.

(ii) Chemical method ; It involves the use of specific drugs by females.

Example: Oral pills, vaginal pills, OC.

(iii) Surgical method ; surgical removal or ligation of vas deferens in males and the fallopian tube in females there by preventing production of male and female gametes.

OR



(a) longitudinal section of flower

(b) Self-pollination is the transfer of pollen grains from anthers flower to the stigma of the same flower or another flower of the same plant.

Occurs in bi sexual flowers.

Cross pollination is the transfer of pollen grains from anthers to the stigma of another flower borne on another plant of the same species.

Occurs in unisexual flowers as well as bi sexual flowers.

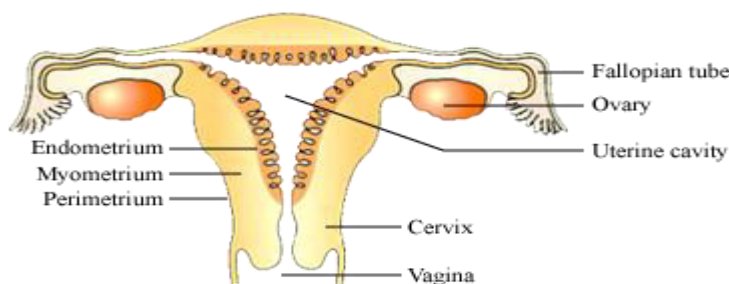
(c) The pollen tube which carries male gamete, travels through the style to reach the ovary. The ovary contains ovules. Each ovule has an egg cell. The fusion of male gamete and female gamete, called fertilization, gives rise to the zygote.

The zygote is capable of growing into a new plant.

**Q21) Draw a labelled diagram to explain the female Reproductive system.**

5 marks

**Ans:- Female reproductive system:-**It consists of a pair of ovaries, a pair of oviducts, uterus, and vagina.



The ovaries are located on each side of the lower abdomen. It produces thousands of eggs in the female body. It also produces a hormone called **oestrogen**, which brings about secondary sex characteristics in the female body.

The eggs produced in the ovary start maturing on reaching puberty. One egg from each ovary grows and matures, and is carried from the ovary to the **uterus** by a thin **oviduct** or the **fallopian**

**tube**. Sperms from the male reproductive system enter the body of the female through the **vagina**

**Q22) Describe the changes taking place in female reproductive organs every month**

**Or What will happen if ovum is not fertilized? Describe the events in a sequence wise manner.**

5 marks

**Ans-**Cyclic changes taking place in the reproductive organs of non pregnant women are termed as menstrual cycle. They take place if the ovum is not fertilized .Important events in sexual cycle of females:

**Ovulation** -Release of mature ovum from the ovary.

**Menstruation** -Degeneration and removal of inner thickened lining of uterus along with blood after every 28 days, through the vaginal canal Both these events stop if pregnancy occurs and are resumed after the child birth: If fertilization does not occur, both the processes keep occurring periodically every month.

**Q23) What are the different methods of contraception?**

5 marks

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**Ans.** The different methods of controlling the child birth are –

**(1) Hormonal methods:** Various kinds of pills containing hormones which prevent the release of egg from the ovary, without interfering with other phases of menstrual cycle, are taken orally.

**(2) Barrier method:** These are the physical and chemical barriers which prevent the sperms meeting the egg. Physical devices such as condoms, diaphragms and cervical caps are used.

**(3) Intrauterine Devices:** Commonly called as I.U.Ds, they are the devices made of plastics and come in different shapes. The most commonly among these is copper- 'T'. These devices are placed inside the uterine cavity and permanently kept there. It prevents the implantation in the uterus.

**(4) Surgical methods.** The surgical methods are safe and permanent.

(i) **Vasectomy.** In this operation, a small piece of vas deferens is cut and removed and the two ends of the cut vas deferens are tied.

(ii) **Tubectomy.** In this operation, fallopian tubes are cut, tied with nylon thread to close the passage, which prevents the passage of eggs

**Q24) Diagrammatical represent how are spores produced in sporangium of Rhizopus?**

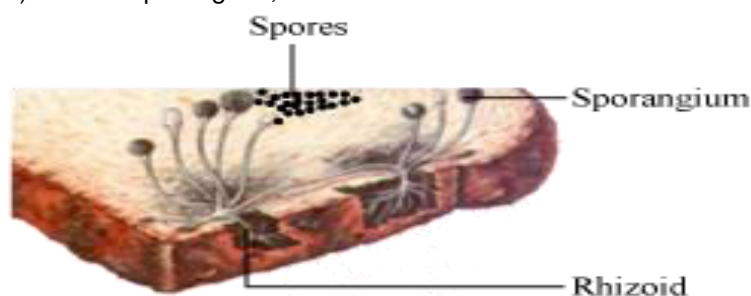
**Ans:-** a) A spore is a small microscopic structure with a thick wall.

5 marks

b) Spores are generally formed in a structure called sporangium which reassembles formed in a structure called sporangium which resemble blob on – a – stick.

c) Sporangia are formed at the tip of erect fungal hyphae.

d) In each sporangium, a nucleus



divides several times producing a large number of nuclei. Nuclei get surrounded by a little cytoplasm and develop into thick – walled cells or spores.

e) The wall of sporangium breaks to release the spores in air.

f) On germination in the presence of moist surface, each spore gives rise to a new organism.

## SECTION-B (1 x 18 = 18 )

**Q25) Condom is a method of birth control that falls under the following category:**

(a) Surgical Method (b) Hormonal Method (c) **Mechanical method** (d) Chemical Method

**Q26) The common passage for sperms and urine in the male reproductive system is:**

(a) Ureter (b) Seminal Vesicle (c) **Urethra** (d) Vas deferens

**Q27) In sperm, mitochondria occurs at**

(a) In acrosome (b) In tail (c) In head (d) **In middle piece**

**Q28) In general a fruit is**

(a) a thickened style. (b) an enlarged ovule. (c) **a mature ovary.** (d) a modified root



Q29) Mature sperms are stored in

- (a) **epididymis** (b) vas deferens (c) seminiferous (d) seminal vesicles

Q30) Binary fission in some organisms occurs in definite orientation in relation to the cell structures. One such organisms is:

- (a) Leishmania (b) Plasmodium (c) **Amoeba** (d) Bacteria

Q32) Plants that have lost their capacity to produce seeds, reproduce by

- (a) Spores (b) **Vegetative propagation** (c) Fission (d) Regeneration

Q33) A stamen consists of two parts namely:

- (a) Anther and style (b) **Anther and filament** (c) Stigma and style (d) Filament and style

Q34) A bisexual flower contains

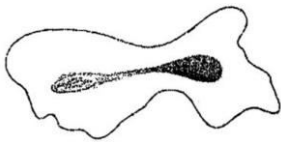
- (a) Stamens only (b) Carpels only (c) Either stamens or carpels (d) **Both stamens and carpels**

Q35) The anther contains

- (a) sepals. (b) ovules. (c) carpel. (d) **pollen grains.**

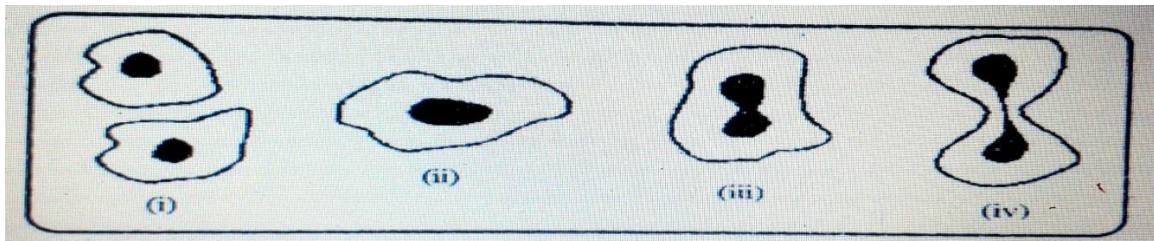
Q36) The diagram given below illustrates

- (a) bud formation in yeast (b) **binary fission in Amoeba.** (c) formation of daughter cells in yeast.  
(d) pseudopodia formation in amoeba



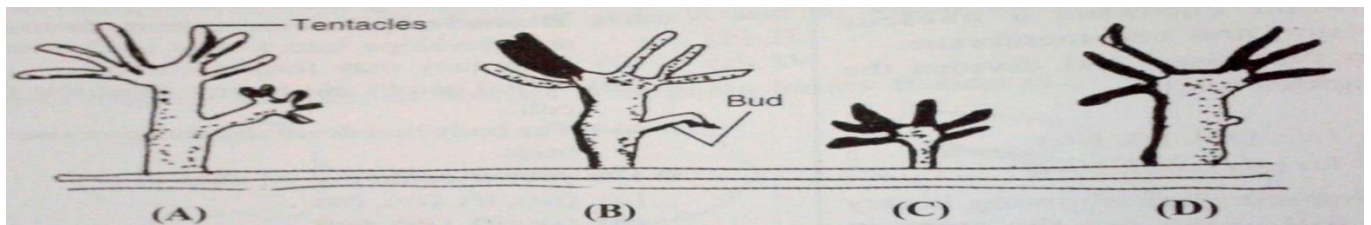
Q37) The figures given below illustrate binary fission in Amoeba but the steps are not in proper sequence.

The correct sequence of the process is:



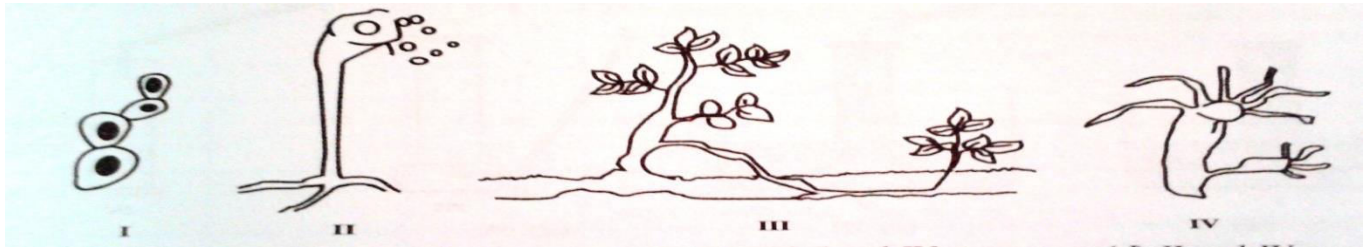
- (a) IV, II, I, III (b) **II, III, IV, I** (c) IV, I, II, III (d) II, I, IV, III

Q38) Give the correct sequence of the following figures:-



- a) D,A,C,B (b) **D,B,A,C** (c) B,C,A,D (d) C,D,B,A

Q39) Two of the following four figures that illustrate budding are:-



- a) I and II                      b) I and III                      c) **I and IV**                      d) II and IV

**Q40) A common feature of reproduction in Amoeba, spirogyra and yeast is that –**

- a) They reproduce only sexually                      b) They are all unicellular  
c) **they reproduce asexually**                      d) They are all multicellular

**Q41) Which of this is seminal fluid?**

- a) Prostate gland                      b) Cowper's gland                      c) **Seminal vesicle**                      d) all of these

**Q42) Which among the following diseases is not sexually transmitted?**

- a) syphilis                      b) Gonorrhoea                      c) HIV – AIDS                      d) **Hepatitis**

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FROM

Mob:-9934086854

Paper Submitted by:

Name                      Ashok kumar  
Email                      ashokpatory@gmail.com  
Phone No.                      9934086854