

Shiksha Classes, Bhandara

Biology

Reproduction In Organisms

(1.) A sexual reproduction is a method of reproduction in which participation of _____ taken place.

- (a.) One individual (b.) Two individual
(c.) Multi-individual (d.) Meiosis

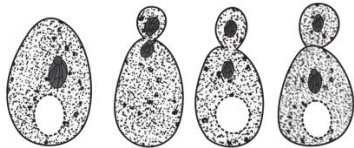
(2.) Transverse binary fission occurs in

- (a.) euglena (b.) amoeba
(c.) hydra (d.) paramecium images

(3.) There is no natural death in single-celled organisms like Amoeba and bacteria because

- (a.) they cannot reproduce sexually (b.) they reproduce by binary fission
(c.) parental body is distributed among the offspring (d.) they are microscopic

(4.) The given diagram refers to which type of reproduction in yeast?



- (a.) Layering (b.) Budding
(c.) Binary fission (d.) Fusion

(5.) Which one of the following is correctly matched?

- (a.) Onion – Bulb (b.) Ginger – Sucker
(c.) Chlamydomonas – Conidia (d.) Yeast – Zoospores

(6.) In oviparous individuals, the fertilized egg is covered by

- (a.) calcareous shell (b.) phosphorous shell
(c.) both (a) and (b) (d.) hard shell

(7.) Vegetative propagation in Pista occurs by

- (a.) stolon (b.) offset
(c.) runner (d.) sucker

(8.) Name the plant that shows adventive embryonic cells:

- (a.) Sunflower and mango (b.) Citrus and mango
(c.) Lemon and maize (d.) Lemon and palms

- (9.) In which one pair both the plants can be vegetatively propagated by leaf pieces?
- (a.) Agave and Kalanchoe (b.) Bryophyllum and Kalanchoe
(c.) Asparagus and Bryophyllum (d.) Chrysanthemum and Agave
- (10.) What is common between vegetative reproduction and Apomixis?
- (a.) Both occur round the year (b.) Both produce progeny identical to the parent
(c.) Both are applicable to only dicot plants (d.) Both bypass the flowering phase
- (11.) Large number of offspring produced in the case of
- (a.) fertilization on that occur in external medium (b.) fertilization on that occur in internal medium
(c.) either (a) or (b) (d.) both (a) and (b)
- (12.) Which type of reproduction is found in hydra?
- (a.) Polyembryony (b.) Asexual and sexual
(c.) Parthenogenesis (d.) Encystment
- (13.) Binary fission is found in
- (a.) amoeba (b.) paramecium
(c.) planaria (d.) all of these
- (14.) The chromosomes number in the tip cells of a shoot of maize plant is 20. The number of chromosomes in the microspore mother cells of the same plant shall be
- (a.) 20 (b.) 10
(c.) 40 (d.) 15
- (15.) Parthenogenesis is the process in which new organism is formed
- (a.) with fertilization (b.) without fertilization
(c.) through mitosis (d.) through meiosis
- (16.) New banana plants develop from
- (a.) rhizome (b.) sucker
(c.) stolon (d.) seed
- (17.) Select the wrong statement.
- (a.) Isogametes are similar in structure, function and behaviour. (b.) Anisogametes differ either in structure, function and behaviour.
(c.) In oomycetes female gamete is smaller and motile, while male gamete is larger and non-motile. (d.) Chlamydomonas exhibits both isogamy and anisogamy and Fucus shows oogamy.
- (18.) Appearance of vegetative propagules from the nodes of plants such as sugarcane and ginger is mainly because

- (a.) nodes are shorter than internodes (b.) nodes have meristematic cells
 (c.) nodes are located near the soil (d.) nodes have non-photosynthetic cells
- (19.) Which one of the following generates new genetic combinations leading to variation?
 (a.) Vegetative reproduction (b.) Parthenogenesis
 (c.) Sexual reproduction (d.) Nuclear polyembryony
- (20.) Vegetative reproduction of Agave occurs through
 (a.) rhizome (b.) stolon
 (c.) bulbils (d.) sucker
- (21.) Syngamy means
 (a.) fusion of gametes (b.) fusion of cytoplasm
 (c.) fusion of two similar spores (d.) fusion of two dissimilar spores
- (22.) Identify the incorrect statement.
 (a.) In asexual reproduction, the offspring produced are morphologically and genetically identical to the parent. (b.) Zoospores are sexual reproductive structures
 (c.) In asexual reproduction, a single parent produces offspring with or without the formation of gametes. (d.) Conidia are sexual structures in Penicillium.
- (23.) A population of genetically identical individuals obtained from asexual reproduction is
 (a.) callus (b.) clone
 (c.) deme (d.) aggregate
- (24.) A multicellular, filamentous alga exhibits a type of sexual life cycle in which the meiotic division after the formation of zygote. The adult filament of this alga has
 (a.) haploid vegetative cells and diploid gametangia (b.) diploid vegetative cells and diploid gametangia
 (c.) diploid vegetative cells and haploid gametangia (d.) haploid vegetative cells and haploid gametangia
- (25.) The term 'clone' cannot be applied to offspring formed by sexual reproduction because
 (a.) offspring do not possess exact copies of parental DNA (b.) DNA of only one parent is copied and passed on to the offspring
 (c.) offspring are formed at different times (d.) DNA of parent and offspring are completely different
- (26.) Inoogamy, fertilization involves
 (a.) a small non-motile female gamete and a large motile male gamete (b.) a large non-motile female gamete and a small motile male gamete

- (c.) a large non-motile female gamete and a small motile male gamete (d.) a large motile female gamete and a large non-motile male gamete
- (27.) In sexual reproduction, offsprings exhibit more variation than those formed by asexual reproduction because
- (a.) sexual reproduction is a lengthy process (b.) gametes of parents have qualitatively genetic composition
- (c.) genetic material comes from parents of two different species (d.) greater amount of DNA is involved in sexual reproduction
- (28.) The process of series of changes from larva to adult after embryonic development is called
- (a.) regeneration (b.) metamorphosis
- (c.) growth (d.) ageing
- (29.) Menstrual cycle
- (a.) seasonal hormonal ovarian change (b.) conditional hormonal ovarian change
- (c.) periodic hormonal ovarian change (d.) habitual hormonal ovarian change
- (30.) Amoeba and yeast reproduce asexually by fission and budding respectively, because they are
- (a.) microscopic organisms (b.) heterotrophic organisms
- (c.) unicellular organisms (d.) uninucleate organisms
- (31.) During regeneration modification of an organ to other organ is known as
- (a.) morphogenesis (b.) epimorphosis
- (c.) morphallaxis (d.) accretionary growth
- (32.) Oestrous cycle is cyclic changes in the activities of ovaries and accessory duct during
- (a.) reproductive (seasonal) period (b.) maturation period
- (c.) ageing period (d.) juvenile period
- (33.) There are various types of reproduction. The type of reproduction adopted by an organism depends on
- (a.) the habitat and morphology of the organism (b.) morphology of the organism
- (c.) morphology and physiology of the organism (d.) the organism's habitat, physiology and genetic makeup
- (34.) Parameters of old age are
- (a.) end of reproductive phase (b.) concomitant change in the body
- (c.) slowing down of vital process (d.) all of these
- (35.) The male gametes of rice plant have 12 chromosomes in their nucleus. The chromosome number in the female gamete, zygote and the cells of the seedling will be, respectively

- (a.) 12, 24, 12 (b.) 24, 12, 12
(c.) 12, 24, 24 (d.) 24, 12, 24
- (36.)** Choose the correct statement from amongst the following
- (a.) Dioecious (hermaphrodite) organisms are seen only in animals. (b.) Dioecious organisms are seen only in plants.
(c.) Dioecious organisms are seen in both plants and animals. (d.) Dioecious organisms are seen only in vertebrates.
- (37.)** Which of the following pairs is not correctly matched? Mode of reproduction Example
- (a.) Offset Water hyacinth (b.) Rhizome Banana
(c.) Binary fission Sargassum (d.) Conidia Penicillium
- (38.)** The condition, in which both male and female reproductive organs are found on the same plant, is called
- (a.) unisexual (b.) bisexual
(c.) monoecious (d.) both (b) and (c)
- (39.)** Which of the following is a post-fertilization event in flowering plants?
- (a.) Transfer of pollen grains (b.) Embryo development
(c.) Formation of flower (d.) Formation of pollen grains
- (40.)** Which one of the following statement is not correct?
- (a.) Offspring produced by the asexual reproduction are called clone. (b.) Microscopic, motile asexual reproductive structures are called zoospores.
(c.) In potato, banana and ginger, the plantlets arise from the internodes present in the modified stem. (d.) Water hyacinth, growing in the standing water, drains oxygen from water that leads to the death of fishes.
- (41.)** In earthworm, self-fertilization does not occur due to
- (a.) hypogynae (b.) protogynae
(c.) protandry (d.) epigynae
- (42.)** Juvenile phase in plants is
- (a.) vegetative phase (b.) reproductive phase
(c.) growth phase (d.) senescence phase
- (43.)** Which of the following situations correctly describe the similarity between an angiospermic egg and a human egg?
- (I) Eggs of both are formed only once in a lifetime.
(II) Both the angiosperm egg and human egg are stationary.
(III) Both the angiosperm egg and human egg are motile transported.
(IV) Syngamy in both results in the formation of zygote. Choose the correct answer from the options given below.

- (a.) II and IV
(c.) III and IV
- (b.) Only IV
(d.) I and IV
- (44.) Bamboo species flower only in
(a.) 50–100 years
(c.) 75–100 years
- (b.) 25–50 years
(d.) 60–80 years
- (45.) An example of corm is
(a.) ginger
(c.) onion
- (b.) colocasia
(d.) potato
- (46.) Which of the following statements is not correct?
(a.) Offspring produced by the sexual reproduction are called clones.
(c.) In potato, banana and ginger, the plantlets arise from the internodes present in the modified stem.
- (b.) Microscopic motile asexual reproductive structures are called zoospores.
(d.) Water hyacinth growing in the standing water drains oxygen from water that leads death to fishes.
- (47.) Events in the sexual reproduction
(I) pre-fertilization
(II) fertilization
(III) post-fertilization
The sequential order of their occurrence is
(a.) I → III → II
(c.) III → II → I
- (b.) II → I → III
(d.) I → II → III
- (48.) Gemmule formation is a common mode of reproduction in Paramecium? The above statement is
(a.) Correct
(c.) Incomplete
- (b.) Incorrect
(d.) None of these
- (49.) Common mode of reproduction in Penicillium is
(a.) conidia
(c.) gemmules
- (b.) buds
(d.) zoospores
- (50.) Why is vivipary an undesirable character for annual crop plants?
(a.) It reduces the vigour of the plant.
(c.) The seeds exhibit long dormancy.
- (b.) It adversely affects the fertility of the plant.
(d.) The seeds cannot be stored under normal conditions for the next season.

ANSWER

(1.)	a	(2.)	d	(3.)	c	(4.)	b	(5.)	a
(6.)	a	(7.)	b	(8.)	b	(9.)	b	(10.)	b
(11.)	a	(12.)	b	(13.)	d	(14.)	a	(15.)	b
(16.)	b	(17.)	c	(18.)	b	(19.)	c	(20.)	c
(21.)	a	(22.)	b	(23.)	b	(24.)	d	(25.)	a
(26.)	b	(27.)	b	(28.)	b	(29.)	c	(30.)	c
(31.)	b	(32.)	a	(33.)	d	(34.)	d	(35.)	c
(36.)	c	(37.)	c	(38.)	d	(39.)	b	(40.)	c
(41.)	c	(42.)	a	(43.)	b	(44.)	a	(45.)	b
(46.)	b	(47.)	d	(48.)	b	(49.)	a	(50.)	d

Shiksha Classes, Bhandara

EXPLANATION

- (1.) (a) Participation of one individual. Morphologically and genetically similar organisms are called clones. These are produced through asexual reproduction which is the type of reproduction where there is the participation of only single organism.
- (2.) (d) The transverse binary fission occurs in Paramecium. It is a protozoan unicellular eukaryote animal.
- (3.) (c) There is no natural death in single-celled organisms like Amoeba and bacteria because parental body is distributed among the offspring. In such organisms, reproduction occurs by cell division where a cell (parent) divides into two halves and each rapidly grows into an adult (offspring).
- (4.) (b) The figure shows process of asexual reproduction by the process of budding in yeast. It is a unicellular fungus.
- (5.) (a) The correctly matched pair is onion-bulb. Onion is a simple tunicated layered bulb while ginger is a straggling rhizome having uniparous cyme
- (6.) (a) As we know oviparous individuals lay eggs with white hard shell around it and this white hard shell made up of calcium. The phosphorous shell may also be hard.
- (7.) (b) Vegetative propagation in Pistia occurs by offset. Offset are branches originated from the main stem and upper portion of each branch is curved bearing a group of leaves while lower portion bearing roots. Each branch when separates can grow independent forming a new plant.
- (8.) (b) The citrus and mango show adventive embryonic cells.
- (9.) (b) Marginal notches in Kalanchoe and Bryophyllum possess adventitious buds in their leaves for vegetative propagation.
- (10.) (b) In both processes, i.e., vegetative reproduction and apomixis, progeny is identical to the parent.
- (11.) (a) Large number of offsprings produced in case of externally fertilized animals because there is no direct protection from the environment.
- (12.) (b) Both sexual and asexual type of reproduction are found in Hydra.
- (13.) (d) Binary fission occurs in Amoeba, Paramecium, and Planaria.
- (14.) (a) The every cell of maize plant is in diploid ($2n$) condition. As the microspore mother cell is a part of reproductive organ, the chromosome number in these cells will remain same as the individual, i.e., $2n = 20$
- These microspore mother cells are further responsible for producing male gametes, i.e., haploid (n) by reduction division.
- (15.) (b) New organism without fertilization is called parthenogenesis, e.g., ant, bees, termites.
- (16.) (b) New banana plants develop through sucker. Sucker is the sub-aerial modification of stem which originates from the basal and underground portion of main stem. It grows obliquely upwards giving rise to leafy short or a new plant. It also occurs in mint, Chrysanthemum, etc.
- (17.) (c) Oomycetes include water moulds, white rusts and downy mildews. In these, female gamete is larger and non-motile, whereas, male gamete is smaller and motile. Isogametes are found in algae like Ulothrix, Chlamydomonas, Spirogyra, etc., which are similar in structure, function and behaviour. Anisogametes are found in Chlamydomonas in which one gamete is larger and non-motile and the other one is motile and smaller. Oogamy is the fusion of non-motile egg with motile sperm. The gametes differ both morphologically as well as physiologically. It occurs in Chlamydomonas, Fucus, Chara, Volvox, etc.
- (18.) (b) Appearances of vegetative propagules from the nodes of plants such as sugarcane and ginger is mainly because of the nodes having meristematic cells. These cells are responsible to control the growth and development of tissues and organs in plants. Nodes (present in the

modified stems) when come in contact with damp soil or water, they produce roots and give rise to new plants.

(19.) (c) Sexual reproduction leads to variation because of genetic recombination of genes through gametes formation and random fertilization.

(20.) (c) Vegetative propagation of Agave occurs by bulb. These are condensed axillary bud capable of giving rise to shoots, i.e., independent plant.

(21.) (a) Syngamy refers to the fusion of male and female gametes or compatible gametes. It is also known as fertilization. In seed plants, fertilization syngamy occurs with the help of pollen tube and is known as siphonogamy.

(22.) (b) Asexual reproduction occurs usually in unicellular organisms by various ways like binary fission, budding, sporulation, etc. In this method, a single parent produces offspring with or without the involvement of gametes. Members of the kingdom fungi and simple plants reproduce through special asexual reproductive structures like conidia (Penicillium), buds (Hydra), etc. The most common of these structures are zoospores that are microscopic motile structures. All other options are correct.

(23.) (b) Clone refers to the population of genetically identical individuals obtained from asexual reproduction or produced vegetatively from single organisms. An individual member of a clone is called ramet.

(24.) (d) A multicellular gametophyte (gametangia), which is haploid (n) alternates with a multicellular sporophyte, which is diploid ($2n$). A mature sporophyte produces spores (haploid cells) by meiosis, a process which reduces the number of chromosomes to half, from $2n$ to n .

(25.) (a) The offsprings that are produced as a result of asexual reproduction are not only identical to one another but are also exact copies of their parent. So, such individuals are called clones. While, in the case of sexual reproduction, DNA of both parents, (i.e., male and female gametes) is copied and passed on to the offspring after fusion. The offspring, thus formed do not possess exact copies of parental DNA.

(26.) (b) In oogamous type of sexual reproduction, the female gamete (ovum/egg) is big, passive while male gametes (spermatozoa) are smaller, active and motile.

(27.) (b) The offspring that are produced are not only identical to the parent but are also exact copies of their parent. It is because in asexual reproduction. In this case, the genetic variation is not created. While, in sexual reproduction genetic variation is created and inherited. In sexual reproduction, two parent (opposite sex) having different genetic composition participate in the reproductive process and also involve fusion of male and female gametes, which gives rise to the new individual having genetic composition of both.

(28.) (b) Metamorphosis is a process by which an animal undergoes a comparatively rapid change from larval to adult form. Regeneration is regrowth of the part of body which has been removed due to the injury or other causes. Growth is an increase in dry mass of an organism. Ageing is progressive deterioration in activity of cell, tissue, organs, etc.

(29.) (c) Menstrual cycle is the periodic hormonal ovarian change. It takes place in every month in the primates. Stopping of menstrual cycle is called menopause.

(30.) (c) Unicellular organisms have relatively simple organizations. So, the asexual mode of reproduction is common in them. It is so because by asexual reproduction unicellular organisms can multiply very fast. In Amoeba it occurs by binary fission and in yeast by budding to be described first. In the sexual reproduction, both male and female gametes have to fuse, while in asexual reproduction, cell division takes place. Heterotrophic organisms (humans, animals and decomposers) can reproduce either asexually or sexually, e.g., in bacteria sexual reproduction occurs via conjugation and asexual reproduction occurs via binary fission. Uninucleate organisms, like Ulva (algae) reproduce asexually by zoospores and sexually by the fusion of gametes.

(31.) (b) Epimorphosis is the replacement of a lost organ of the body by proliferating new cells from the surface of the wound or injured part. Morphogenesis (Gr. Morphe = form and genesis = origion) is the growth, shaping and arrangement of body parts according to genetically predefined patterns. The extant direction and rate of morphogenesis depend on genetic controls and environmental factors.

(32.) (a) Generally, the oestrus cycle takes place in the seasonal breeders. It is the cyclic change in the activity of ovaries and accessory duct during reproductive (seasonal) period.

(33.) (d) There is a large diversity in the biological world and each organism has evolved its own mechanism to multiply and produce offspring. The type of reproduction adopted by an organism depends on the organism's habitat, its internal physiology and several other factors.

(34.) (d) Old age is the phase in life span which occur before death and after maturity period. In old age almost all of the vital processes start slowing down. Gamete formation also stops in old age.

(35.) (c) In female gamete, the chromosome number will be same as that of the male gamete (12). A zygote is a fertilized egg/seed which means gametes from the parents have been combined (diploid) and thus, the chromosome number will be 24 (2n).

A seedling is a young plant sporophyte developing out of a plant embryo from a seed. So, the chromosome number in the cells of the seedlings will be 24 (2n), which will further give rise to new diploid individual.

(36.) (c) Dioecious is the term used to describe unisexual condition. Dioecious organisms are seen in both plants and animals. Example of dioecious plant – Marchantia Example of dioecious animal – Cockroach (invertebrate)

(37.) (c) The plant body Sargassum is a diploid sporophyte. It does not multiply asexually by means of spores. Instead it reproduces by vegetative means, i.e., fragmentation which is the only known method of vegetative reproduction in the free floating species of Sargassum.

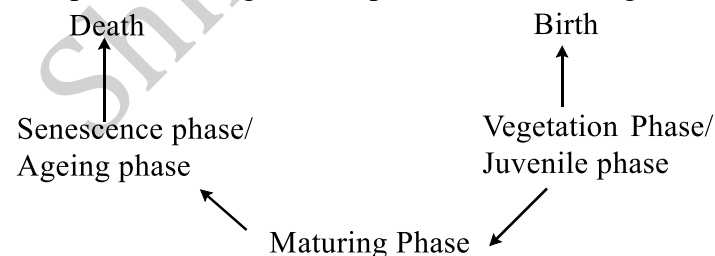
(38.) (d) Hermaphrodite/bisexual/monoecious/homothallic term used when both sexes are present in some organism. Term 'hermaphrodite' is used in the case of animals. Bisexual and monoecious used in both (animal/plant).

(39.) (b) Embryo development takes place after the fertilization, i.e., fusion of male and female gametes (n) result in the formation of zygote (2n). Thus, it is a post-fertilization event. Rest of the events takes place before occurrence of fertilization, hence are pre-fertilization events.

(40.) (c) Statement (c) is incorrect as in potato, banana and ginger new plantlets always arise from the nodes of modified stems. Internodes are the area between two nodes.

(41.) (c) Earthworms are bisexual but self-fertilization does not occur because their testes ripe first. They are protandrous.

(42.) (a) Juvenile phase is the phase of life span in which growth of body and full development of reproductive organ takes place. It is called vegetative phase in plants.



(43.) (b) In case of many terrestrial organisms (including both angiosperms and humans) which exhibit internal fertilization, syngamy occurs inside the body of the organism to form zygote. Both the angiosperm and human remains reproductively active throughout their reproductive phase. It means the formation of egg takes place not only once but many times in a lifetime. In humans, once an egg has been released from ovary, the beating of cilia in the

Fallopian tube moves the egg from the ovary to the uterus. So, the egg is considered as motile not stationary. In flowering plants (angiosperms), the gametes are non-motile cells within gametophytes, but for the fusion to take place the non-motile male gametes are carried to female gamete by pollentubes.

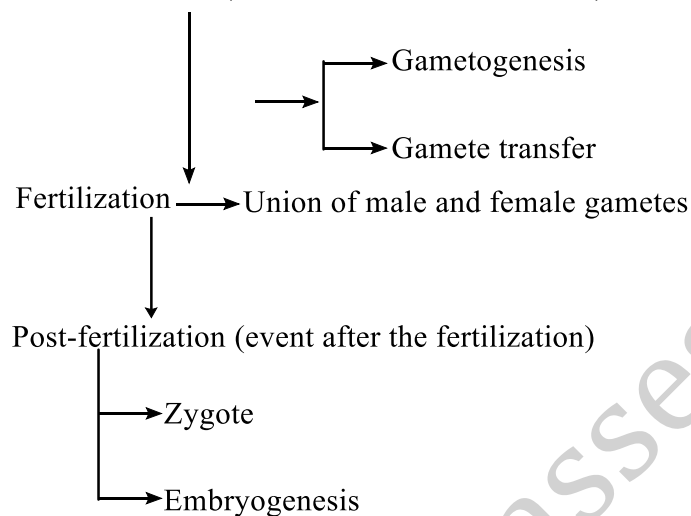
(44.) (a) Bamboo is the monocarpic plant, which reproduce once in their life time. They reproduce once in 50–100 years after their birth and after flowering they die.

(45.) (b) Corms are the unbranched rounded underground stems. They have buds for daughter plants. Axillary buds occur at places. Their base contains a number of adventitious roots.

(46.) (c) The statement (c) is not correct. The potato is a tuber, reproduce by eyes (axillary buds). Banana and ginger reproduce by internodes and nodes present on rhizomes.

(47.) (d) Sequential events in the sexual reproduction are Pre-fertilization (event before the fertilization)

Pre-fertilization (event before the fertilization)



(48.) (b) Incorrect because, gemmule formation is the type of asexual reproduction in which the buds are formed with in the parent body, e.g., Sponge.

(49.) (a) Conidia are non-motile gametes found singly or in chain on the parent body, e.g., Penicillium.

(50.) (d) Vivipary is the condition when seeds germinate on the plant. It is an undesirable character for annual crop plants because germinated seeds cannot be stored under normal conditions for the next season.

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