

## QUESTION BANK (2011-12)

Class XII

Subject: Biology

### (ONE MARK QUESTION)

1. Name the process in living organisms that ensure the continuity of the species, generation after generation?
2. What is self fertilization?
3. Name the kind of asexual reproduction that involves the division of the nucleus followed by that of the cytoplasm breaking the body of an organisms into two young ones.
4. Name the factors responsible for the transitions between juvenile phase, reproductive phase and senescence (or old age).
5. Name the male and female gametes in organisms which produce heterogametes.
6. What will be the chromosome number in gametes if a diploid organism has 46 chromosomes in meiocyte. Name the organism.
7. Name the group of organisms which exhibit external fertilization.
8. Name oviparous animals in which the fertilized eggs are covered by hard calcareous shells.
9. Name the unicellular connecting link between the two generation of an organism.
10. Name the process that involves the development of embryo from the zygote.
11. Where are the embryo located in flowering plants?
12. Name a flowering plant in which the sepals remain attached in fruits.
13. Distinguish between syngamy and fertilization.
14. Name any two asexual reproductive structures found in algae and fungi. Give an example of each type.
15. Name the phenomenon when pollen is transferred from anther of a flower to stigma of another flower of the same plant.
16. Name the end products of sexual reproduction in flowering plants.
17. What is floriculture?
18. Name the two most important parts in a flower concerned with the development of the two reproductive units.
19. Give the technical term for - (i) Whorl of sepals, (ii) Whorl of petals, (iii) Whorl of stamens and (iv) The female reproductive organ.
20. Name the process of the formation of microspores from a pollen mother cell.
21. Name the resistant organic material that gives hardness to the outer wall layer (exine) of the pollen grain.
22. How many cells are present in the mature pollen grain at the time of dispersal? Name them.
23. Name the branch of science concerned with the study of pollen and spores.

24. Give the ploidy of the following parts of an ovule-  
(a) Nucleolus      (b) Egg cell      (c) Central cell      (d) Synergid
25. Name a marine sea-grass in which pollination occurs by water.
26. What is scutellum?
27. What is endosperm?
28. What are cleistogamous flowers?
29. What is colostrum?
30. Give alternative name(s) for identical twins and fraternal twins.
31. Which hormone maintains corpus luteum and stimulate it to secrete progesterone during pregnancy?
32. Name the part of sperm (male gamete) which contains hydrolytic enzymes (sperm lysins).
33. Name the usual site of fertilization in human female.
34. Briefly explain the term 'follicular atresia'.
35. Name the animals which depict menstrual cycle.
36. Which egg coat is secreted by the egg itself and is termed primary egg membrane in mammals?
37. List any one menstrual irregularity that may occur in human female.
38. Name the primary sex organs in male and female human being.
39. What is meant by seminal plasma or semen?
40. Which of the following is responsible for the secretion of androgen binding protein (ABP)?  
(a) Sertoli cells      (b) Leydig cells      (c) Corpus luteum.
41. Which hormone is responsible for uterine contractions during parturition and ejection of milk from mammary glands?
42. Define cleavage.
43. What are the technical terms used to provide a permanent and sure birth control in humans?
44. Name any chemical which is used as spermicide to prevent fertilization in human beings.
45. List two primary factors for the increase in human population.
46. What do you mean by STDs? Give one example.
47. 'What are Assisted Reproduction Technologies (ART)?' Give any one example.
48. Name any non-invasive technique to determine foetal condition.
49. Name any one chromosomal abnormality which results from non-disfunction during cell division.
50. Which technique can be used during 8<sup>th</sup> to 10<sup>th</sup> week of pregnancy when abortion is safe for the woman?
51. Name any intrauterine device commonly used by female to prevent fertilization.
52. Which technique helps in determining chromosomal and metabolic disorders in a foetus?
53. Which duct is partly removed during tubectomy in women?
54. In which year, government of India first started family planning programme?

55. What is the marriageable age for male and female human being in India?
56. What do you mean by birth control?
57. What are two major reasons of growth of human population?
58. What is mutant?
59. Mohan is colorblind. What is the chance of his son inheriting colorblindness from him?
60. What is a mutagen?
61. Name the organism chosen by Mendel to explain the laws of inheritance.
62. What is the meaning of - (i)  $F_1$ , (ii) P and (iii)  $F_2$ .
63. When and where Mendel conducted breeding experiments on garden peas?
64. Give reason why an organism gets a few characters of paternal parent and a few characters of maternal parent.
65. What is the relationship between linkage and crossing over?
66. How many dominant genetic disorders are known to occur in human beings?
67. What are the advantages of genetic variation and mutation?
68. What is the meaning of gene locus?
69. Give two examples of genetic disorders caused by autosomal gene mutation.
70. What is the meaning of genetic recombination? Name the person who discovered this phenomenon.
71. Distinguish between linked genes and unlinked genes.
72. Name the organism in which 'One gene-one enzyme relationship' was established.
73. The length of DNA molecule greatly exceeds the dimensions of the nucleus in eukaryotic cells. How is this DNA accommodated?
74. What is translation?
75. Name the Scientists who gave operon concept.
76. Alteration of which genes leads to cancer?
77. A codon consists of 3 bases and there are 4 different kinds of bases in a nucleic acid altogether. How many codons will be there?
78. What are histones?
79. What are non-histone chromosomal proteins?
80. What is heterochromatin?
81. Which molecule is regarded as first genetic material (DNA or RNA) during the course of chemical evolution?
82. Write the full forms of (a) ESTs (b) HGP.
83. Write the full forms of (a) SNP and (b) VNTR.
84. Distinguish between CNAs and DNase.
85. Which types of RNA carry amino acid to protein synthesizing apparatus?
86. Name the direct ancestor of the living man (*Homo sapiens*).
87. When did the primates originate and from which creatures?
88. Name the pieces of cosmic material thrown out by big explosion which later became organized slowly into groups of stars called galaxies.

89. Which inorganic gases compounds were used as a mixture in an apparatus by Miller and Urey to show synthesis of organic compounds by stimulating conditions of primitive earth?
90. When did first cellular form of life probably originate?
91. Homology and analogy are based on which types of evolution.
92. Cephalopod eye and mammalian eye are examples of homologous or analogous organs. Name the branch of science that deals with the study of past life based on fossil record.
93. Which missing link, that lived in the Jurassic period, shows characters of reptiles and birds?
94. Give any one example that reveals evolutionary process which produces new species by divergence from a single ancestral form and their adaptation to new invaded habitats and to modes of life necessary there.
95. Is evolution a continuous or discontinuous process?
96. Name the scientists who independently developed a method to relate evolutionary changes and population genetics.
97. Define speciation.
98. Name the earliest fossils of the prehistoric man found in the Shivalik hills of Himalayas in India.
99. What is deaddiction?
100. Give chemical name of brown sugar.
101. What do you mean by a 'speed ball'?
102. In which form phencyclidine piperidine (PCP), also called 'angel dust', is available for use.
103. Name the special type of defence system that works specially against viral infections.
104. Name the specific mechanism which provides protection against specific foreign materials.
105. Expand AMIS and CMIS.
106. What are congenital diseases?
107. List any two diseases transmitted by house fly.
108. Name causative organism of tuberculosis disease.
109. NMEP stands for what?
110. Give zoological name of filarial worm.
111. Physical and physiological barriers form which live of defence in our body?
112. Name various components of immune system in our body. Define animal husbandry.
113. Define animal husbandry.
114. Name the important sources of animal food production.
115. What is inbreeding?
116. What is outbreeding?
117. What is inbreeding depression?
118. What is out crossing?

119. What is artificial insemination.
120. Name any two animals, other than fishes, which are included in fisheries.
121. Write full form of : (a) MOET and (b)SCP
122. What cross leads to the production of sugar cane variety with high yield, thick stem, high sugar and ability to grow in North India?
123. Name the common microorganism used in the production of Single Cell Protein.
124. What is blue revolution?
125. What are somaclones?
126. What do you mean by explant.
127. What are microbes?
128. What kinds of organisms are included under microbes?
129. Name the bacteria responsible for production of curd from milk.
130. What is the role of lactic acid bacteria in our stomach?
131. Name the microorganisms responsible for fermentation dough, which is used for making bread, and formation of CO<sub>2</sub>.
132. What are fermentors?
133. Name the raw materials used in the production of ethanol.
134. Name the organism responsible for the production of cyclosporine A. write its uses.
135. What is the role of sewage treatment plant?
136. Name common methanogenic bacterium.
137. What does the greater value of BOD in water sample indicate?
138. Where is the activated sludge pumped for further treatment?
139. Name any two free-living and nitrogen fixing bacteria.
140. Name any two nitrogen-fixing cyanobacteria.
141. What is the common name of TATAAT?
  
142. Name the bacteria that is most widely used in gene transfer in plants.
  
143. Which bacteria is commonly employed as vector in plant genetic engineering?
  
144. What is recombinant DNA (rDNA)?
  
145. List the tools of recombinant DNA technology.
  
146. Name the technique used for separation of DNA fragments.
  
147. Name two common cloning vectors.
  
148. What do you mean by transformation?
  
149. Name the plasmid of *Agrobacterium tumefaciens* which has been modified into cloning vector.

150. What is the use of polymerase chain reaction (PCR)?
151. Name the three steps of each cycle of polymerase chain reaction (PCR).
152. Name the bacterium from which a thermostable DNA polymerase has been isolated.
153. Give an example of selectable marker for *E. coli*.
154. What is a recombinant protein?
155. Name two industrial products obtained by genetic engineering.
156. What are genetically modified organisms?
157. Name the first transgenic animal. Who created these animals?
158. What does the short form-Bt stands for?
159. In which form the Bt toxin occurs inside the bacterium?
160. In which form the human insulin is synthesized?
161. What is human gene therapy?
162. Give the first example of gene therapy.
163. Name a technique used to detect HIV in suspected AIDS patients.
164. Name an organization set up by the Indian Government which looks after the validity of GM research and the safety of introducing GM organisms/products for public services.
165. Recently several attempts have been made to patent the products obtained from Indian traditional herbs. Name any two such herbs.
166. What is a transgene?
167. What is the difference between a transgenic plant and a normal plant (non-transgenic)?
168. What is the advantage of recombinant therapeutic drugs?
169. What do you mean by a habitat?
170. Define niche.
171. What are xerophytes?
172. Give technical term for the shallow coastal zone of an aquatic habitat such as pond or a lake.
173. What is meant by winter sleep (hibernation)?
174. What is humus?
175. Give one major difference between heliophytes and sciophytes.
176. Define mimicry.
177. How does Kangaroo rat adapt to desert conditions?
178. What is age pyramid?
179. Define commensalism.
180. Cattle egrets and cattle depict which type of interspecific population interaction?
181. Define principle of competitive exclusion.
182. What are parasitoids?
183. What are chemoautotrophs?

184. Give one example each of producer and decomposer.
185. Define humification.
186. Give name of symbiotic bacteria which live in the root nodules of leguminous plants and fix atmospheric nitrogen.
187. What do you mean by productivity?
188. What are biomes?
189. What do you mean by nutrient cycling?
190. What are trophic levels?
191. How many trophic levels usually occur in the food chain?
192. What is the significance of food webs in the ecosystem?
193. Name any one example of nitrifying bacteria.
194. The term 'global sink of carbon dioxide' is referred to .....
195. Name any one sedimentary cycle.
196. What is photosynthetic efficiency?
197. In which layer of atmosphere ozone is maximum concentrated?
198. Why cloudy, dusty and humid nights are warmer than the clear, dust-free and dry nights?
199. In which year environment (protection) act came into force?
200. What do you mean by noise?
201. Among green house gases, which gas is the most abundant contributing maximum to the green house effect?
202. What do you mean by primary pollutants?
203. List any one cause of natural air pollution.
204. Name the largest source of carbon monoxide in the air.
205. What is smog?
206. Name the air pollutant which results in decrease in atmospheric temperature thereby reversing the warming effect CO<sub>2</sub>.
207. Name two acids commonly found in acid rain.
208. Name the heavy metal which is responsible for minimata disease in human beings.
209. What is deforestation?
210. What is e-waste?
211. What do you mean by biodiversity?
212. Name the group of animals which make up more than 70% of the total known and described animals.
213. Define the terms 'species richness' and 'species evenness'.
214. How many countries in the world have been assigned the status of megadiversity nations?
215. India has been divided into different biogeographical regions. How many are such regions?
216. In which state of India would you find Sunderban national park?
217. What do you mean by coextinction of species?
218. What are rare species?

219. Expand IUCN.  
 220. What are biosphere reserves?  
 221. What do you mean by sacred grooves?  
 222. Name any one hot spot of biodiversity located in India.  
 223. What is cryopreservation?  
 224. Name any one organization which provides financial assistance to promote conservation programmes to different countries.

**(TWO MARK QUESTION)**

225. What types of binary fission occur in – (a) Euglena and (b) Paramecium.  
 226. Write about the role of bulbils in vegetative propagation?  
 227. Give advantage of hermaphroditism in animals.  
 228. What are meiocytes? Give their role.  
 229. Explain why the male gametes are produced in very large number as compared to female gamete.  
 230. What is the site of origin of the new plantlets in – (a) Potato tuber, (b) Rhizomes of ginger, (c) Leaves of Bryophyllum, (d) Stem cuttings of sugar cane.  
 231. Define asexual reproduction. Write about its advantages and disadvantages.  
 232. Name the organisms in which:  
     a. Male gametes are non-flagellated.      b. Flowering occurs only once in their life time.  
     c. Flowering occurs once in twelve years.      d. Diploid chromosome number is 380.  
 233. Give the meaning of  
     (a) Syncarpous      (b) Apomixes.  
 234. Write what you know about pollen bank.  
 235. How do pollen grains affect the life of human beings?  
 236. Explain why the microspores are produced in the group of tetrads inside the microsporangia.  
 237. How many cells and nuclei are there in a typical angiosperm embryo sac? Write the function of synergids.  
 238. What is the role of pollination in fruit development?  
 239. Write an account of development of seed in flowering plants.  
 240. Give the names of important factors and their role in germination of pollen grains on compatible pistil.  
 241. Name the two hormones secreted by anterior pituitary which regulate the growth, maintenance and functions of seminiferous tubules and Leydig cells.  
 242. Differentiate between menstrual cycle and oestrous cycle.  
 243. What is artificial insemination? Give its uses.  
 244. Briefly explain capacitation of sperms.  
 245. What is the need for the development of foetal membrane in land vertebrates?  
 246. What is polyembryony? Name the animal which regularly depicts this phenomenon.  
 247. Give two important differences between vasa efferentia and vasa deferentia.



248. Give location of primary sex organs in adult human male and female.
249. Give two major aims and objectives of RCH programmes.
250. List any two natural methods of birth control in humans.
251. Name the contraceptive pill which has been developed by CDRI, Lucknow and is taken up by women on weekly basis. What does it contain?
252. When and why government of India legalized MPT (Medical Termination of Pregnancy)?
253. Describe in brief mother's role in family.
254. Explain gamete Intra Fallopian Transfer (GIFT).
255. Write note on Chorionic Villus Sampling (CVS).
256. What is linkage group? Explain the limitation of linkage group.
257. Define (a) Synapsis and (b) Chiasmata.
258. Why Mendel missed linkage?
259. What is aneuploidy?
260. What are - (a) Super males and (b) Super females?
261. What are the symptoms of phenylketonuria?
262. Tall (TT) and dwarf (tt) homozygous pea plants were crossed. In F<sub>2</sub> generation 75 tall and 25 dwarf plants were obtained. Which law of Mendel is followed in this case? Draw a flow chart to depict phenotypic and genotypic ratio of the plant.
263. Briefly mention the conclusion drawn from Mendel's Dihybrid cross.
264. What is the advantage of DNA fingerprinting?
265. What is Chargaff's rule?
266. Define genome.
267. Define Variable Number Tandem Repeats.
268. Differentiate between induction and repression.
269. Write what you know Okazaki fragments.
270. Write about the degeneracy of genetic code.
271. What are the important goals of human genome project?
272. Give the Salient features of human genome project.
273. What do you mean by founder effect and bottle neck effect?
274. Briefly explain the following: (a) Genetic drift (b) Reproductive isolation
275. How age of rocks and fossils is determined?
276. Differentiate between homologous and analogous organs.
277. Differentiate between connecting links and missing links.
278. Give examples of missing links between:
- (a) Amphibians and reptiles
  - (b) Reptiles and birds
279. List sources of energy that were available on the primitive earth for chemical evolution to take place.
280. Briefly describe biogenetic law.
281. Differentiate between antigens and antibodies.
282. What do you mean by active and passive immunity?

283. What is autoimmunity?
284. Write major differences between benign tumour and malignant tumour.
285. Name any two diseases that result from smoking.
286. Is alcohol a stimulant? Explain.
287. What is drug dependence?
288. Very briefly explain 'sleeping pills' and their effects on body.
289. Who is known as father of green revolution and why?
290. What is callus?
291. What is the meaning of sterilization?
292. Why conservation of germplasm is important for plant breeders to develop novel varieties.
293. Give examples of some improved varieties of wheat, rice, sugar cane and maize.
294. What do you know about multiple cross in reference to plant breeding.
295. How is single cell protein utilized in enhancing food production?
296. Give the role of mutation in the development of resistant varieties.
297. What is the role of methanogenic bacteria in production of biogas?
298. What is the composition of biogas? Which one is highly inflammable?
299. Name the microbes for the production of the following:  
a. Citric acid, b. Acetic acid, c. Butyric acid d. Lactic acid
300. Give the most effective uses of - (a) Streptokinase (b) Statins
301. What are antibiotics? Name any two microorganisms used in the production of antibiotics.
302. Give the basis of obtaining the quality and characteristic tastes of different types of cheese.
303. What are the harmful effects of Sewage?
304. Write a note on cyanobacterial biofertilizers.
305. What does EcoRI stands for?
306. Distinguish between endonucleases and exonucleases.
307. What are sticky ends? Under what conditions they get joined.
308. What is a selectable marker?
309. The DNA fragments are not coloured. How are they visualized after their separation by gel electrophoresis?
310. Give the characteristic feature of cloning sites in a cloning vector.
311. How will you obtain pure DNA molecule free from other macro-molecules (such as RNA, proteins, etc.)?
312. Explain how restriction enzyme digestions are performed?
313. What is molecular pharming (farming)?
314. What is gene targeting?
315. What is the affect of biopiracy on India?
316. Write about the success in campaign against biopiracy.
317. Write about the insecticidal protein present in *Bacillus thuringiensis*.
318. Differentiate between cry and Cry.

319. Write the role of genetic engineering in development of such crops which are resistant to herbicides.
320. Give some examples of transgenic plants.
321. What are hyperparasites? Give one example.
322. Name inter-specific population interaction wherein one species derives benefit by killing the other species. Give one example.
323. Differentiate between natality rate and mortality rate.
324. What are population growth forms? Give two contrasting types of growth forms?
325. What are abiotic and biotic factors? Give one example of each.
326. Differentiate between ephemeral xerophytes (drought escapers) and annual xerophytes (drought evaders).
327. How is hibernation different from aestivation?
328. What do you mean by intra-population dispersion?
329. Differentiate between gaseous and sedimentary biogeochemical cycles.
330. What is meant by nitrification?
331. How do industries cause rise and fall in the global temperature?
332. Distinguish between primary succession and secondary succession.
333. What are the causes of ecological succession?
334. Name fossil fuels.
335. Briefly explain the phenomenon of non-biological fixation.
336. Differentiate between primary productivity and secondary productivity.
337. Distinguish between primary and secondary pollutants.
338. Differentiate between photochemical smog and classical smog.
339. List any two equipments used to remove particulate matter from the air.
340. What is biomagnification?
341. What is thermal pollution? List any two methods to check it.
342. Briefly explain primary treatment of waste water.
343. Name the pollutants that are removed by tertiary treatment of waste water.
344. List various sources that generate solid wastes.
345. Distinguish between a national park and a wild life sanctuary.
346. Explain briefly the concept of biosphere reserves.
347. List main objectives of the conservation of wildlife.
348. List any two factors which are responsible for extinction of species?
349. Name the drug which is extracted from the bark of Cinchona plant.
350. Explain briefly patterns of biodiversity as we move from poles towards equator.
351. What do you mean by beta diversity?
352. List any two natural world heritage sites of India.

**(THREE MARK QUESTION)**

353. Differentiate between unisexual and bisexual flowers. Give two examples of each category.

354. Write the post-fertilization changes in flowering plants.
355. Give the role of the following:  
a. Pollen grain      b. Zygote      c. Fruit
356. Give the important basic features of sexual reproduction.
357. Describe the pre-fertilization events in sexual reproduction of organisms.
358. Explain what do you know about the phenomenon of sexual incompatibility.
359. Describe the structure of a bilobed and dithecous anther as seen in transverse section.
360. With the help of illustrated diagrams describe the structure of an anatropous ovule.
361. Write short notes on:  
(a) Polyembryony      (b) Parthenogenesis      (c) Apogamy.
362. Write a detailed account of microsporogenesis.
363. Write an account of the development of male gametophyte.
364. What is scrotum? How it maintains the testes at a temperate lower than that of the body?
365. Briefly describe the structure of seminiferous tubules in human.
366. Explain the structure of human ovum.
367. Define cleavage. Write its significance.
368. What is parturition? Briefly explain its 3 stages.
369. Write note on infertility.
370. Describe briefly physiological (oral) devices of birth control.
371. List three important sexually transmitted diseases and their causative agents.
372. Who is responsible for the child's sex? Explain
373. Write what you know about amniocentesis technique.
374. Establish a parallelism between Mendel's factors and chromosomes.
375. Differentiate between incomplete dominance and codominance.
376. Differentiate between genotype and phenotype.
377. Describe the sex determination in human beings. Which parent (the male or the female) is largely responsible for giving birth of male or female child?
378. What is incomplete linkage during meiosis? What kind of gametes are produced in such cases?
379. What is central dogma? Draw a flow sheet to describe it.
380. What are carrier end and recognition end in t RNA and their uses?
381. Why DNA replication starts from 5' end?
382. Why are DNA and ribosomes are located at different sites?
383. Explain Louis Pasteur experiment to refute theory of spontaneous generation.
384. How the reducing atmosphere on the primitive earth helped in the origin of life?
385. Explain the phenomenon of industrial melanism.
386. Why has abnormal allele that causes sickle cell anaemia not been eliminated by natural selection?

387. Explain Lederberg and Lederberg replica planting experiment to demonstrate the genetic basis of adaptation.
388. What are stimulant? Explain briefly any two of them.
389. How direct transmission of diseases occurs?
390. Name any three diseases caused by mosquitoes. Also give genus of mosquito vectors.
391. Write in detail about modes of transmission and symptoms of pneumonia disease.
392. Explain briefly preventive measures against communicable diseases.
393. Give the role of plant tissue culture in production of disease free crops.
394. Write a brief account of somatic hybridization.
395. Write an explanatory note on controlled cattle breeding.
396. Write notes on : (a) Apiculture (b) Aquaculture
397. Name some common poultry birds. Write the methods for producing good quality eggs and chicken meat.
398. What are the advantages of using biofertilizers in agriculture?
399. Describe the process involved in the conversion of milk into curd.
400. Write short notes on the following:  
(a) Baker's yeast (b) Brewer's yeast (c) Alcoholic fermentation
401. Give two examples of bioinsecticides.
402. Write about the commercial production of biogas.
403. Discuss how the technique of rDNA technology is more advantageous than sexual reproduction to bring about variations in living organisms.
404. Give three reasons of using plasmids and bacteriophages as cloning vectors.
405. How do the bacterium-Agrobacterium tumifaciens deliver genes in eukaryotic cells to force them to do what the bacterium wants?
406. Write a method of introducing the ligated DNA into recipient cells.
407. What are the requirements of PCR to amplify the molecule of DNA? What is the function of enzyme in the process?
408. Write the method of producing human insulin using rDNA technology.
409. Write what you know about Bt cotton.
410. Give one specific case each of biopiracy and biopatent.
411. Tabulate the transgenic plants and list their useful characters.
412. Write a brief account of the methodology of gene therapy.
413. Distinguish between climate, habitat and niche.
414. Name the kind of interaction between the following:  
(i) Flower and insects (ii) Sucker fish and shark (iii) Tiger and deer
415. Distinguish between predators and parasites.
416. List any three population characteristics.
417. Differentiate between endotherms and ectotherms.
418. Describe three major steps which operate simultaneously and in the process of decomposition of detritus.
419. Explain main characteristics of food chains.

420. Give three differences between grazing food chain and detritus food chain.
421. What are food webs? Give their significance.
422. Briefly describe second law of thermodynamics and its role in flow of energy in an ecosystem.
423. What is green house effect?
424. How is ozone depleted in the atmosphere?
425. Briefly explain Montreal protocol.
426. Explain any three afforestation programmes that run in our country at present.
427. What is salination? How does it occur?
428. What do you mean by genetic biodiversity? Explain.
429. Briefly explain any three factors which may contribute to extinction of species.
430. Distinguish between natural extinction, mass extinction and anthropogenic extinction of species.
431. Differentiate between critically endangered, vulnerable and rare species categories.
432. Write a note on hot spots of biodiversity.

**(FIVE MARK QUESTION)**

433. What is meant by vegetative propagating? Give its importance of organisms.
434. Describe the various methods of asexual reproduction in unicellular organisms.
435. (a) Give the importance of meiosis in maintaining the chromosome number in generation after generation.
- (b) Explain the cyclical in the activities of ovaries and hormones during the reproduction of placental mammals.
436. Distinguish between self pollination and cross pollination.
437. Write an account of post fertilization changes in the ovule of a flowering plant.
438. Describe in detail three phases of menstrual cycle in human female.
439. Define fertilization. Explain chemical and physical events of fertilization. Also highlight its significance.
440. What is gastrulation? Explain the process of germ layers formation in triploblastic animals.
441. What do you mean by human population explosion? What are its consequences?
442. Explain the following:
- (a) Test tube baby programme
- (b) Amniocentesis.

443. Define birth control. Describe permanent method in detail.
444. What is mutation? Give a brief account of the different types of mutations.
445. What is pedigree analysis? With the help of a suitable example give the technique of pedigree analysis.
446. Write an account of genetic disorders.
447. What are three major classes of RNA? Mention their functions.
448. Write the characteristics of DNA.
449. Write the effects of mutation on structure and function of proteins.
450. Describe in detail the mechanism of origin of new species in nature.
451. Briefly explain Oparin- Haldane theory of origin of life on earth.
452. Write in detail biogeographic evidences in support of organic evolution.
453. Explain cell-mediated Immune system in detail.
454. Describe various Cannabinoids (products of Hemp plant and their effects).
455. Write in detail about AIDS.
456. Discuss the role of tissue culture in the enhancement of food production.
457. Describe the role of plant breeding in the development of crop varieties which possess enhanced food value.
458. Write the precautionary measures taken to ensure better health of animals which provide milk and its product for human consumption.
459. What are biofertilizers? Name the different types of biofertilizers with example of each.
460. Describe the method of sewage treatment.
461. Discuss the various useful activities of microbes in obtaining various household products.
462. What is downstream processing? What are its advantages in obtaining the commercial products?

463. Write the functioning of the most commonly used bioreactor in order to obtain the foreign gene product.
464. Discuss the conceptual development of the principles of genetic engineering.
465. Write a summarized account of practical applications of genetic engineering.
466. Discuss biotechnological application in agriculture.
467. Discuss the ethical standards which are required to evaluate the morality of all human activities in the field of biological sciences.
468. Define interspecific population interactions. Briefly explain positive interactions.
469. Explain population growth curves.
470. Briefly explain plants adaptation to aquatic environment.
471. Explain various components of an ecosystem.
472. Describe energy flow in an ecosystem.
473. What are ecological pyramids? Give its types in detail.
474. What is radioactivity? Explain man-made radioactive pollution.
475. Explain techniques to control gaseous pollutants.
476. Describe the technique to control pollution due to domestic sewage.
477. Explain in-situ and ex-situ methods of conservation of biodiversity.
478. How is biodiversity threatened? Explain.
479. Describe various benefits of biodiversity.