



Class
12
HP Board

Chapterwise Previous Years' Questions

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BIOLOGY



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HIM ACADEMY HAMIRPUR (HP)
98160 21400

1	<h1 style="color: blue;">Reproduction in Organisms</h1>
CHAPTER	

1 Mark Questions.

Q.1 If a normal plant suddenly starts reproducing parthenogenetically, the number of chromosomes of the 2nd generation as compared to parent will be :

- (A) One fourth (B) Same
(C) Doubles (D) One half

[HP Board 2020] [1]

Q.2 Beginning of first menstruation is called

- (A) Menarche (B) Capacitation
(C) Menopause (D) None of these

[HP Board 2019][1]

Q.3 Cessation of menstrual cycle in human female is called

- (A) Menopause (B) Ovulation
(C) Oogenesis (D) None of these

[HP Board 2019][1]

Q.4 Pollination through air is called *[HP Board 2018][1]*

- (A) Hydrophily (B) Entomophily
(C) Anemophily (D) Myrmecophily

Q.5 What are Bulbils ? Give one example.

[HP Board 2016][1]

Q.6 Define Parthenogenesis. Give one example.

[HP Board 2016] [1]

1½ Marks Questions.

Q.7 Define the following : (A) Juvenile stage

- (B) Reproductive phase (C) Senescent phase

[HP Board 2017] [1½]

Q.8 What are Bulbils? Give one example.

[HP Board 2016] [1½]

Q.9 Define Grafting. Give an example.

[HP Board 2016][1½]

2½ Marks Questions.

Q.10 What are the various methods of artificial vegetative propagation? *[HP Board 2014] [2½]*

Q.11 Differentiate between asexual reproduction and sexual reproduction. *[HP Board 2012,2018] [2½]*

3 Mark Questions.

Q.12 Explain the main phases in an organism life.

[HP Board 2017] [3]

2	<h1 style="color: blue;">Sexual Reproduction in Flowering Plants</h1>
CHAPTER	

1 Mark Questions.

Q.1 Name one of the most resistant organic material :

- (A) Lignin.
(B) Sporopollenin.
(C) Cellulose.
(D) Both (A) and (C).

[HP Board 2020] [1]

Q.2 The false fruits are the one in which fruits develops from :

- (A) Ovary.
(B) Nucellus.
(C) Any other part than ovary.
(D) Integument and ovary.

[HP Board 2020] [1]

Q.3 The Cleistogamy refers to : *[HP Board 2020] [1]*

- (A) Pollination in flowers in bud condition
(B) Pollination in flowers in closed condition
(C) Pollination by the agency of bats
(D) None of the above

Q.4 During microsporogenesis, meiosis occurs in :

- (A) Tapetum
(B) Microspore Mother cell
(C) Microspore Tetrad
(D) None of the above

[HP Board 2020] [1]

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Fully Solved Books for 10, +1 & +2 Also Previous Years Solved Question Papers

- Q.5** Define ornithophily. [HP Board 2019] [1]
- Q.6** Entry of pollen tube through micropyle is
(A) porogamy (B) mesogamy
(C) palynology (D) chalazogamy [HP Board 2018] [1]
- Q.7** Filiform apparatus is found in [HP Board 2018] [1]
(A) Antipodals (B) Central cell
(C) Secondary Nucleus (D) Synergids
- Q.8** When the body of ovule, embryo sac, micropyle and funicle, all lie in one vertical plane, the ovule is
(A) anatropous (B) orthotropous
(C) amphitropous (D) campylotropous [HP Board 2017] [1]
- Q.9** Sporopollenin is present in [HP Board 2017] [1]
(A) exine (B) intine
(C) Both (A) and (B) (D) None of the above
- Q.10** What is Palynology ? [HP Board 2016] [1]
- Q.11** Egg apparatus is situated towards
(A) Micropylar end
(B) Outside the nucellus
(C) Lateral side of embryo sac
(D) Chalaza end [HP Board 2015][1]
- Q.12** Define Parthenocarpy. [HP Board 2015] [1]
- 1½ Marks Questions.**
- Q.13** Write a short note on double fertilization in angiosperms. [HP Board 2017][1½]
- Q.14** Draw well labelled structure of a mature pollen grain. [HP Board 2016] [1½]
- Q.15** Draw a well labelled diagram of T.S. mature Anther. [HP Board 2016,18][1½]
- Q.16** Draw a well labelled diagram of Maize Grain. [HP Board 2016][1½]
- Q.17** Draw a well labelled diagram of L.S. Anatropous ovule. [HP Board 2016][1½]
- Q.18** Draw a germinating male gametophyte and label it. [HP Board 2016][1½]
- Q.19** What is Triple fusion ? Where does it take place ? Name nuclei involved in it. [HP Board 2015] [1½]
- Q.20** Write short note on Egg apparatus. [HP Board 2014] [1½]
- Q.21** What do you mean by ornithophily ? Enlist characteristics of ornithophilous flowers. [HP Board 2012] [1½]
- 2 Marks Questions.**
- Q.22** Discuss the characteristic features of insects pollinated flowers. [HP Board 2020] [2]
- Q.23** Define the following :
i) Secondary nucleus. ii) Endospermic seeds.
iii) Megasporogenesis. iv) Xenogamy. [HP Board 2020] [2]
- Q.24** Discuss the characteristics of water pollinated flowers. [HP Board 2020] [2]
- Q.25** Define the following : [HP Board 2020][2]
i) Viviparous animals. ii) Non albuminous seeds.
iii) Monothecus. iv) Gemmules.
- Q.26** Define the following :
i) Oviparous animals ii) Pericarp
iii) Ditheous iv) Geitonogamy [HP Board 2020] [2]
- Q.27** Discuss the characteristics of wind pollinated flowers. [HP Board 2020] [2]
- Q.28** Draw a well labelled diagram of a mature ovule, showing its internal structure. [HP Board 2016] [2]
- Q.29** How is endosperm formed ? What is its role ? [HP Board 2014] [2]
- Q.30** What are endospermic and non-endospermic seeds ? [HP Board 2009] [2]
- 2½ Marks Question.**
- Q.31** Differentiate between self-pollination and cross-pollination. [HP Board 2012, 2017] [2½]
- Q.32** Explain the structure of female gametophyte with a well-labelled diagram. [HP Board 2017,18] [2½]

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Q.33 What is Endosperm? Name the three types found in angiosperms. [HP Board 2016][2½]

Q.34 Describe the development of a dicot embryo in angiosperms. [HP Board 2016][2½]

3 Marks Questions.

Q.35 Draw diagram of embryo sac in an angiosperm. [HP Board 2019][3]

Q.36 Differentiate between self-pollination and cross-pollination. [HP Board 2017] [3]

Q.37 Describe in brief double fertilization in Plants ? [HP Board 2017] [3]

Q.38 Explain the process of embryo formation in case of dicotyledons. [H.P. Board 2016] [3]

5 Marks Questions.

Q.39 Describe the development of female gametophyte in angiosperms. [HP Board 2017][5]

Q.40 Differentiate between :

i) Coleoptile and Coleorrhiza.

ii) Perisperm and Pericarp. [HP Board 2015] [5]

Q.41 Explain the following terms :

i) Apomixis

ii) Polyembryony.

[HP Board 2015][5]

Q.42 Differentiate between :

i) Hypocotyl and Epicotyl

ii) Integument and Testa.

[HP Board 2015] [5]

Q.43 Describe the various types of ovules.

[HP Board 2009] [5]

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CHAPTER

Human Reproduction

1 Mark Questions.

Q.1 Cessation of menstrual cycle in human female is called

(A) Menopause

(B) Ovulation

(C) Oogenesis

(D) None of these

[HP Board 2019][1]

Q.2 In human beings, the developing embryo resides in

(A) fallopian tubes

(B) uterus

(C) ovaries

(D) vagina

[HP Board 2017] [1]

Q.3 Human placenta is derived from : [HP Board 2016] [1]

(A) Amnion

(B) Allantois

(C) Chorion

(D) Allantois and chorion

Q.4 Menstrual Cycle occurs due to lack of :

(A) Estrogen

(B) Progesteron

(C) FSH

(D) Oxytocin.

[HP Board 2016][1]

Q.5 Define Fertilization. [HP Board 2014] [1]

Q.6 What are the functions of sertoli cells ?

[HP Board 2012][1]

Q.7 What are the functions of acrosome ?

[HP Board 2012] [1]

Q.8 Define spermiogenesis and spermiation.

[HP Board 2009] [1]

1½ Marks Questions.

Q.9 What is menopause? Explain briefly.

[HP Board 2017] [1½]

Q.10 Draw a well-labelled diagram of human egg.

[HP Board 2017] [1½]

Q.11 What is puberty? Explain it briefly in human female.

[HP Board 2017] [1½]

Q.12 Draw a well-labelled diagram of a human sperm.

[HP Board 2016,2017,18] [1½]

Q.13 Define Implantation.

[HP Board 2009,2014,2015][1½]

Q.14 Write a note on Artificial Insemination.

[HP Board 2015] [1½]

Q.15 Draw well labelled diagram of human ovary.

[HP Board 2012] [1½]

2 Marks Questions.

Q.16 Draw a well labelled diagram of section through human ovary. [HP Board 2020] [2]

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Q.17 Draw a well labelled diagram of Human sperm.
[HP Board 2020] [2]

Q.18 Draw a well labelled diagram of Human male reproductive system.
[HP Board 2020] [2]

Q.19 What is Corpus Luteum? What is its functions?
[HP Board 2016] [2]

Q.20 How does menstrual and oestrous cycle differ ?
[HP Board 2009] [2]

2½ Marks Questions.

Q.21 Differentiate between spermatogenesis and oogenesis.
[HP Board 2017] [2½]

Q.22 Describe the Menstrual cycle in human Female.
[HP Board 2015] [2½]

Q.23 Describe the hormonal control of menstrual cycle in humans.
[H.P Board 2015] [2½]

Q.24 Describe the human Female reproductive system.
[HP Board 2015] [2½]

3 Marks Question.

Q.25 What is Parturition ? Name its various stages. Which hormones are involved in the induction of parturition ?
[HP Board 2020] [3]

Q.26 What is implantation ? Explain briefly. Name the various hormones released by the placenta in humans.
[HP Board 2020] [3]

Q.27 What are the major accessory male sex glands ? Give their location and discuss their major function.
[HP Board 2020] [3]

Q.28 What is menstrual cycle ? Which hormones regulate menstrual cycle in human females ? Explain.
[HP Board 2020][3]

Q.29 Draw a well labelled diagram of a human ovum just released by the mature graffian follicle.
[HP Board 2019] [3]

Q.30 Draw a well labelled diagram of T.S. of Mammalian ovary.
[HP Board 2019,18,17] [3]

Q.31 Draw a well labelled diagram of L.S. of Testis.
[HP Board 2019] [3]

5 Marks Questions.

Q.32 Describe the human female reproductive system.
[H.P Board 2015] [5]

Q.33 Give an account of spermatogenesis in human male.
[HP Board,2009] [5]

Q.34 How does oogenesis take place ? Describe the stages of process.
[HP Board 2009] [5]

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1 Mark Questions.

Q.1 Which of the following is a method of Birth Control ?

- (A) IVF (B) CIFT
(C) IUD's (D) All the above

[HP Board 2020] [1]

Q.2 MTP (Medical Termination of Pregnancy) is considered safe upto how many weeks of pregnancy.

- (A) 6 weeks (B) 18 weeks
(C) 12 weeks (D) 8 weeks.

[HP Board 2016] [1]

1½ Marks Questions.

Q.3 Expand the following terms : MTP, IMR, ICSI.

[HP Board 2019] [1½]

Q.4 Expand the terms : GIFT, VD, AIDS

[HP Board 2018] [1½]

Q.5 Expand the terms : MTP, AI [HP Board 2018] [1½]

Q.6 Describe temporary methods of birth control in brief.

[HP Board 2018] [1½]

Q.7 Suggest the aspects of reproductive health which needs to be given attention in the present scenario.

[HP Board 2017] [1½]

Q.8 Do you think that reproductive health in our country has improved in the past 50 years? If yes, mention some such areas of improvement.

[HP Board 2017] [1½]

Q.9 Write briefly about the surgical methods of birth control.

[HP Board 2017] [1½]

Q.10 Expand the following terms: MTP, IMR, ICSI.

[HP Board 2015] [1½]

Q.11 Expand the following terms: IUD's, MMR, GIFT.

[HP Board 2015] [1½]

Q.12 Write a note on Amniocentesis.

[HP Board 2012, 2015] [1½]

Q.13 Expand the following : IMR, IUT, ART.

[HP Board 2015] [1½]

Q.14 Write a short note on Artificial Insemination.

[HP Board 2015] [1½]

Q.15 Write a short note on Tubectomy.

[HP Board 2014,18] [1½]

Q.16 Write a short note on vasectomy.

[HP Board 2014,18] [1½]

Q.17 Enlist any three methods of Birth Control.

[HP Board 2014] [1½]

Q.18 Expand : HIV, STD, WHO, ZIFT, MTP.

[HP Board 2012] [1½]

Q.19 Write short note on test tube baby.

[HP Board 2012] [1½]

Q.20 What are main reasons of population explosion ?

[HP Board 2012] [1½]

Q.21 Suggest various methods of population control.

[HP Board 2012] [1½]

Q.22 Briefly give an account of various intra uterine contraceptive measures.

[HP Board 2012] [1½]

2 Marks Questions.

Q.23 What is infertility ? Suggest some methods to assist infertile couples to have children. [HP Board 2020] [2]

Q.24 Explain the following terms :

- i) IUI ii) ZIFT [HP Board 2020] [2]

Q.25 What are the measures one has to take for the prevention from STD's ? [HP Board 2020] [2]

Q.26 Explain the following :

- i) Emasculation ii) GIFT [HP Board 2020][2]

Q.27 Do you think that reproductive health in our country has improved in past 50 years ? If yes, mention the areas of improvement. [HP Board 2020] [2]

Q.28 Explain the following : [HP Board 2020] [2]

- i) Lactational amenorrhea. ii) MTP

Q.29 Name and explain any two assisted reproductive techniques (ART's) which have decreased the number of cases of infertile couples. [HP Board 2016][2]

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1 Mark Questions.

- Q.1** Phenylketonuria is due to : [HP Board 2020] [1]
 (A) Autosomal recessive gene.
 (B) Autosomal dominant gene.
 (C) Polyploidy.
 (D) Trisomy of 21st chromosome.
- Q.2** Klinefelter's syndrome is due to following conditions
 (A) XYY (B) XXY (C) Only X (D) Only Y
 [HP Board 2020] [1]
- Q.3** Haemophilia in man is due to [HP Board 2020] [1]
 (A) Sex linked inheritance
 (B) Sex limited inheritance
 (C) Non disjunction
 (D) Sex influenced inheritance
- Q.4** Which condition is heterozygous ? [HP Board 2019][1]
 (A) TT (B) Tt
 (C) tt (D) All the above
- Q.5** The possible genotype of blood group 'O' is
 (A) $I^B i$ (B) $I^A i$ (C) ii (D) $I^A I^B$
 [HP Board 2019][1]
- Q.6** Define pleiotropy. [HP Board 2019][1]
- Q.7** Mendel conducted experiment on which plant ?
 (A) Cannabis (B) Rose
 (C) Pea (D) Castor
 [HP Board 2018] [1]

- Q.8** How many contrasting characters are studied by Mendel in pea plant ? [HP Board 2018] [1]
 (A) 9 (B) 7 (C) 10 (D) 14
- Q.9** A child of O group has B group father. The genotype of father will be [HP Board 2017][1]
 (A) $I^O I^O$ (B) $I^B I^B$ (C) $I^A I^B$ (D) $I^B I^O$
- Q.10** Persons having genotypes $I^A I^B$ would show the blood group as AB. This is because of : [HP Board 2016] [1]
 (A) Pleiotropy (B) Co-dominance
 (C) Segregation (D) Incomplete dominance.
- Q.11** 'Genetics' term was proposed by: [HP Board 2016][1]
 (A) Mendel (B) Bateson
 (C) Morgan (D) Johansen
- Q.12** A cross between F_1 hybrid and recessive parent is called:
 (A) Monohybrid (B) Dihybrid cross
 (C) Test cross (D) Reciprocal cross
 [HP Board 2016][1]
- Q.13** Define trisomy. [HP Board 2012] [1]

1/2 Marks Questions.

- Q.14** Write a short note on Klinefelter's syndrome. [HP Board 2018] [1½]
- Q.15** Write a short note on Turner's syndrome. [HP Board 2018] [1½]
- Q.16** What is pleiotropy? Give one example. [HP Board 2012, 2017] [1½]

HIM ACADEMY HAMIRPUR (HP)**Selections -2019**

19 Selections in NIT-2020

Anmol NIT-Calcutta, Madhav NIT-HMR, Sakot NIT-HMR, Sahil NIT-HMR
 Alok NIT-HMR, Ankit NIT-HMR, Jyoti NIT-HMR, Shahil NIT-HMR, Rishav NIT-HMR, Manan NIT-HMR, Kanishka NIT-HMR
 Tarun NIT-HMR, Navneet NIT-HMR, Shikhar NIT-HMR, Ishhar NIT-HMR, Sumit NIT-HMR, Ayush NIT-HMR, Shaina NIT-HMR, Harsh NIT-HMR
 Qualified NDA 2020: ANISH, SAKET, RISHAV, ANMOL, AKASH

13 Selections in MBBS-2020

Mohit MBBS-IGMC, Aryan MBBS-TMC, Shagun MBBS-TMC, Atul MBBS-TMC
 Aanchal MBBS-Chamba, Ritesh MBBS-Chamba, Eika MBBS-HMR, Naina MBBS-HMR, Vishakha MBBS-HMR
 Ankita MBBS, Vanshak MBBS, Sriyaya MBBS, Deepanshu MBBS, Pulkita MNS, Riya MNS

NIT 17

PANKAJ IIT-Delhi (Mechanical), AVISHRANT NIT-HMR (Computer Science)
 NIKHIL NIT-HMR, KARANAL NIT-HMR, AVINASH NIT-HMR, ASHAN NIT-HMR, SHREYAS NIT-HMR, NISHANT NIT-HMR

MBBS 21

SANCHITA MBBS-IGMC, AKHIL MBBS-IGMC, APPORVA MBBS-IGMC, KAVITA MBBS-IGMC, RAJAT MBBS-IGMC, ANJLI MBBS-IGMC, MRIDUL MBBS-IGMC, DINGRANJAN MBBS-IGMC, RITIKA MBBS-IGMC
 AYUSH MBBS-IGMC, MADHVI MBBS-IGMC, PRIYA MBBS-IGMC, SANCHITA MBBS-IGMC, SAKSHI MBBS-IGMC, SUSHANT MBBS-IGMC, PUSHPA MBBS-IGMC, ANSHIKA MBBS-IGMC, ANSHIKA MBBS-IGMC, ANSHIKA MBBS-IGMC, ANSHIKA MBBS-IGMC, ANSHIKA MBBS-IGMC, ANSHIKA MBBS-IGMC, ANSHIKA MBBS-IGMC, ANSHIKA MBBS-IGMC, ANSHIKA MBBS-IGMC, ANSHIKA MBBS-IGMC, ANSHIKA MBBS-IGMC, ANSHIKA MBBS-IGMC

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02 JEE Advanced, 17 NIT, 21 MBBS, 07 NDA, 04 BDS, 25 GEC
 12 UIIT, 02 BAMS, 23 OTHER B.Tech, 13 B.Sc. Agri., 05 B.Sc. Nursing, 08 B.Sc. Hort/Fort.

- Q.17** What is sex determination? Explain XX and XY types of sex determination. [HP Board 2017] [1½]
- Q.18** What is co-dominance? Explain it by citing a suitable example. [HP Board 2012,2016, 2017,2018] [1½]
- Q.19** What is backcross? Explain it with example. [HP Board 2017] [1½]
- Q.20** What are linked genes? How can a pair of linked genes be identified? [HP Board 2017] [1½]
- Q.21** What are multiple alleles? Give one example. [HP Board 2016][1½]
- Q.22** What is Incomplete Dominance? Give one example. [HP Board 2012, 2016,18][1½]
- Q.23** How is Down's Syndrome produced? [HP Board 2016][1½]
- Q.24** Mention any two Autosomal disorders with symptoms. [HP Board 2015] [1½]
- Q.25** What will be phenotypes of F_1 generation when normal vision man (XY) marry colour blind woman (X^cX^c)? [HP Board 2015] [1½]
- Q.26** What will be the phenotypes of F_1 generation when haemophilic man (X^hY) marry a carrier woman (X^HX^h)? [HP Board 2015,18] [1½]
- Q.27** Is the following cross possible? If not, then why? $X^hY \times X^HX^h$. [HP Board 2014] [1½]
- Q.28** What will be the phenotype of F_1 generation when a Haemophilic man (X^hY) marries a normal woman (XX)? [HP Board 2014,18] [1½]
- Q.29** Why does Haemophilia occur in males only? [HP Board 2014] [1½]
- 2 Mark Questions.**
- Q.30** Explain the concept of co-dominance with suitable example. [HP Board 2020] [2]
- Q.31** Who gave the chromosomal theory of inheritance? Discuss its main postulates. [HP Board 2020] [2]
- Q.32** Explain why Mendel selected *Pisum sativum* for his breeding experiments. [HP Board 2020] [2]
- Q.33** Explain why T.H. Morgan selected *Drosophila melanogaster* for his breeding experiments. [HP Board 2020] [2]
- Q.34** Define and explain Test Cross with suitable example. [HP Board 2020] [2]
- Q.35** What is test cross? What are its uses? How does it differ from backcross? [HP Board 2019][2]
- Q.36** What are lethal genes? Explain the effect of lethal genes. [HP Board 2014] [2]
- Q.37** Differentiate between complete linkage and incomplete linkage. [HP Board 2014] [2]
- Q.38** What are identical twins? [HP Board 2014] [2]
- Q.39** Why Mendel selected Pea plant for Genetic research? [HP Board 2009] [2]
- Q.40** Give the genotypic and phenotypic ratio of F_1 generation, when a hybrid tall (Tt) pea plant is crossed with pure dwarf (tt) pea plant. [HP Board 2009] [2]
- 2½ Marks Questions.**
- Q.41** Why Mendel's work remain hidden for so many years? [HP Board 2019] [2½]
- Q.42** Why Mendel selected Pea plant for Genetic research? [HP Board 2019] [2½]
- Q.43** Explain the law of dominance with suitable example. [HP Board 2018] [2½]
- Q.44** Explain Mendel's law of segregation with a suitable example. [HP Board 2015,2017] [2½]
- Q.45** Who proposed chromosomal theory of inheritance? What are the main points of this theory? [HP Board 2016][2½]
- Q.46** Describe the Mendel's law of independent Assortment with suitable cross. [HP Board 2012,2015] [2½]
- Q.47** What are chromosomal aberrations? Explain its types. [HP Board 2015][2½]

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Q.48 Give the genotypic and phenotypic ratios, when a red eyed female drosophila ($X^R X^r$) is crossed with white eyed male drosophila ($X^r Y$).

[HP Board 2014] [2½]

3 Marks Questions.

Q.49 A child has O blood group if father has blood group B and mother has blood group A. Work out the genotypes of parents and possible genotypes and phenotypes of the other offspring. [HP Board 2020] [3]

Q.50 When a cross is made between tall plants and yellow seeds ($TtYy$) and tall plants and green seeds ($Tt yy$) what proportion of phenotypes in the offspring could be expected to be : [HP Board 2020] [3]

- a) Tall and green b) Dwarf and green.

Work out the cross.

Q.51 Explain Mendel's law of Segregation with suitable example/cross. [HP Board 2020] [3]

Q.52 What is Criss-cross inheritance ? Explain with the help of an example. [HP Board 2020][3]

Q.53 Describe incomplete dominance by citing an example. [HP Board 2019] [3]

Q.54 What is co-dominance ? Explain it by giving one example. [HP Board 2019][3]

Q.55 Define criss-cross inheritance and explain with one example. [HP Board 2019] [3]

Q.56 What are sex-chromosomal disorders ? Discuss klinefelter's syndrome. [HPBoard 2018][3]

4 Marks Questions.

Q.57 What is crossing-over? Illustrate the mechanism of crossing-over. [HP Board 2017] [4]

5 Marks Questions.

Q.58 i) What is gene therapy ? Illustrate using the example of ADA deficiency ?

ii) What are the ethical issues concerned with biotechnology ? [HP Board 2020] [3+2=5]

Q.59 i) Explain the term aneuploidy. Differentiate it from polyploidy.

ii) Describe the individual having following chromosomal abnormalities :

- a) XO b) XXY

[HP Board 2020] [2+2+1=5]

प्रदेश की सर्वश्रेष्ठ किताबें

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Batches w.e.f. 1st
Week of June

10 MONTH CAPSULE COURSE

June to March

9 MONTH CAPSULE COURSE

July to March

8 MONTH CAPSULE COURSE

August to March

7 MONTH CAPSULE COURSE

September to March

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HIM ACADEMY

HAMIRPUR (HP)
98160 21400

1 Mark Questions.

- Q.1** Discontinuous synthesis of DNA occurs in one strand because : [HP Board 2020] [1]
 (A) DNA molecule is very long.
 (B) It is a more efficient process.
 (C) DNA dependent DNA polymerase catalyses.
 (D) Both (A) and (C).
- Q.2** Self duplication property of DNA is
 (A) Replication (B) Oncogenesis
 (C) Transcription (D) Teminism
 [HP Board, 2019][1]
- Q.3** The enzyme that can join DNA fragments are
 (A) Exopeptidases (B) Ligases
 (C) Endonucleases (D) Topoisomerases
 [HP Board, 2019][1]
- Q.4** Transcription starts at [HP Board, 2019][1]
 (A) Terminator region (B) Anywhere on DNA
 (C) Intron (D) Promoter region
- Q.5** Alternate forms of a gene is called
 (A) Allele (B) Genome
 (C) Chiasma (D) Exon [HP Board 2018] [1]
- Q.6** DNA strand is synthesised in the direction
 (A) 5' → 3' (B) 3' → 5'
 (C) 1' → 4' (D) 6' → 1'
 [HP Board 2017] [1]
- Q.7** Okazaki fragments give rise to [HP Board 2017] [1]
 (A) master strand (B) sense strand
 (C) lagging strand (D) leading strand
- Q.8** The enzyme that rectify the mismatched bases
 (A) Primase (B) Gyrase
 (C) Topoisomerases (D) DNA Polymerase -I
 [HP Board 2014] [1]
- Q.9** The Shape of replication fork is :
 (A) B- shape (B) Z- shape
 (C) Y- shape (D) A -shape
 [HP Board 2014] [1]

- Q.10** Initiating codon is : [HP Board 2012] [1]
 (A) UAA (B) AUG
 (C) UAG (D) None of these
- Q.11** Terminating codon is : [HP Board 2012] [1]
 (A) UAA (B) AUG
 (C) AAU (D) All of these

1½ Marks Questions.

- Q.12** Give three differences between DNA and RNA.
 [HP Board 2018] [1½]
- Q.13** What is central dogma concept? Who proposed it?
 [HP Board 2016][1½]
- Q.14** Differentiate between repetitive DNA and satellite DNA.
 [HP Board 2017] [1½]
- Q.15** Differentiate between leading strand and lagging strand.
 [HP Board 2017] [1½]
- Q.16** Why human genome project is Megaproject ?
 [HP Board 2015] [1½]
- Q.17** Write atleast two essential roles of ribosomes in Translation.
 [HP Board 2015] [1½]
- Q.18** Write a note on Genetic code. [HP Board 2015] [1½]
- Q.19** Write a note on Repressible Operone.
 [HP Board 2015] [1½]
- Q.20** Give at least three functions of DNA.
 [HP Board 2014] [1½]
- Q.21** Differentiate Prokaryotic DNA and Eukaryotic DNA.
 [HP Board 2014] [1½]
- Q.22** Enlist three types of RNA.
 [HP Board 2014] [1½]
- Q.23** Write a short note of okazaki fragments.
 [HP Board 2014,18] [1½]
- Q.24** What is gene bank ? [HP Board 2014] [1½]
- Q.25** Draw double Helix structure of DNA.
 [HP Board 2012,2015] [1½]
- 2 Marks Questions.**
- Q.26** Distinguish between Plasmid and Chromosomal DNA.
 [HP Board 2020] [2]

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1 Mark Questions.

- Q.1** The study of fossil is [HP Board 2018][1]
 (A) Gerontology (B) Phycology
 (C) Palynology (D) Palaeontology
- Q.2** The technique by which age of the fossil can be calculated [HP Board 2018][1]
 (A) Carbon dating (B) Orinthology
 (C) Mycology (D) None of these
- Q.3** Consumption of which one of the following foods can prevent the kind of blindness associated with vitamin A deficiency ?
 (A) Flavr-Savr Tomato (B) Canola
 (C) Golden Rice (D) Bt brinjal
 [HP Board 2017][1]
- Q.4** The first probable fossil man was [HP Board 2017][1]
i) Australopithecus ii) Ramapithecus
iii) Homo habilis iv) Pithecanthropus
- Q.5** Which of the following is not a vestigial organ in man?
i) Nail ii) Tail vertebrae
iii) Wisdom tooth iv) Vermiform appendix
 [HP Board 2017] [1]
- Q.6** Basis of life is [HP Board 2017] [1]
i) liquid ii) nucleic acid
iii) protein iv) None of the above

- Q.7** Missing link in evolution is: [HP Board 2016][1]
i) Peripatus ii) Limulus
iii) Archaeopteryx iv) Pheretima

- Q.8** Book "Philosophic Zoologique" was written by:
 [HP Board 2016] [1]

- Q.9** What are Eobiont ? [HP Board 2012] [1]

- Q.10** Define coacervate. [HP Board 2012] [1]

1½ Marks Questions.

- Q.11** What is Adaptive Radiation ? Give one example.
 [HP Board 2015] [1½]

- Q.12** What is Miller and Urey experiment ?
 [HP Board 2015] [1½]

- Q.13** What is Industrial Melanism? [HP Board 2015] [1½]

- Q.14** During origin of life what came first RNA or DNA and why ?
 [HP Board 2014] [1½]

- Q.15** What is molecular Homology ? Cite one example.
 [HP Board 2014] [1½]

- Q.16** Give three Avian features of Archaeopteryx.
 [HP Board 2014] [1½]

- Q.17** Give three Reptilian characters of Archaeopteryx.
 [HP Board 2014] [1½]

- Q.18** What is genetic drift ? [HP Board 2014] [1½]

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- Q.19** Define palaeobotany. Name the famous Indian Palaeobotanist who founded Palaeobotany Institute in India. [HP Board 2014] [1½]
- Q.20** List the morphological changes in human evolution. [HP Board 2011,2012] [1½]
- Q.21** What are analogous organs ? Give at least two examples. [HP Board 2012] [1½]
- Q.22** What are vestigial organs ? Give at least two examples. [HP Board 2012] [1½]
- 2 Marks Questions.**
- Q.23** What are adaptive radiation ? Explain briefly. [HP Board 2020] [2]
- Q.24** Explain briefly the following : [HP Board 2020] [2]
i) Convergent evolution.
ii) Divergent evolution.
- Q.25** Write briefly about “Founder effect.” [HP Board 2020] [2]
- Q.26** What are homologous organs ? Illustrate by giving examples. [HP Board 2019] [2]
- Q.27** What are vestigial organs ? Give two examples of vestigial organs in man. [HP Board 2019] [2]
- Q.28** What are missing links ? Give example. [HP Board 2019] [2]
- Q.29** Define Hardy-Weinberg Equilibrium principle. [HP Board 2019][2]
- Q.30** What are missing links? Give one example. [HP Board 2009, 2016,18] [2]
- Q.31** What is atavism? Give example. [HP Board 2014,2016,18] [2]
- Q.32** What are connecting links? Explain with two examples. [HP Board 2016,18] [2]
- Q.33** Write a note on Darwin’s finches. [HP Board 2016] [2]
- Q.34** Discuss Recapitulation theory. [HP Board 2009] [2]
- 2½ Marks Questions.**
- Q.35** What are the main postulates of Lamarck’s theory of acquired characters? [HP Board 2017] [2½]
- Q.36** Differentiate between homologous organs and analogous organs. [HP Board 2017] [2½]
- Q.37** How do Paleontological evidence support the idea of organic evolution? Give two examples. [HP Board 2016] [2½]
- Q.38** How do embryological evidences support the idea of organic evolution? Give two examples. [HP Board 2016] [2½]
- Q.39** Describe the Theory of Chemical Evolution. [HP Board 2015] [2½]
- Q.40** Describe the Postulates of Darwin theory of Evolution. [HP Board 2015] [2½]
- Q.41** What is Hardy and Weinberg principle and what are factors affecting the principle ? [HP Board 2015] [2½]
- Q.42** What is missing link ? Give one example. How does it differ from connecting link ? [HP Board 2012] [2½]
- 3 Marks Questions.**
- Q.43** Write a short note on the following :
i) Vestigial organs ii) Atavism [HP Board 2020] [3]
- Q.44** What is natural selection ? Give the main points of Darwin’s theory of natural selection. [HP Board 2020] [3]
- Q.45** Write a short note on the following :
i) Homologous organs ii) Connecting link [HP Board 2020] [3]
- Q.46** Comment upon the statement “Ontogeny repeats phylogeny”. [HP Board 2020] [3]
- Q.47** Write a short note on the following :
i) Analogous organs ii) Missing link [HP Board 2020] [3]
- 4 Marks Questions.**
- Q.48** What are the main points of theory of mutations proposed by Hugo-de-vries? [HP Board 2016] [4]
- Q.49** What are fossils ? How these are formed ? Suggest the methods of their age determination. [HP Board 2014] [4]

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1 Mark Questions.

- Q.1** The toxic substances released during the malarial infection from the ruptured RBC's is :
(A) Haematin. (B) Haemozoin.
(C) Cry proteins. (D) Sporozoite.
[HP Board 2020] [1]
- Q.2** Pneumonia in humans is caused by which of the following pairs of organisms [HP Board 2020] [1]
(A) *Salmonella typhi*, *Streptococcus pneumoniae*
(B) *Salmonella typhi*, *Streptococcus pneumoniae*
(C) *Streptococcus pneumoniae*, *Haemophilus influenzae*
(D) *Ascaris* and *Trichophyton*
- Q.3** Chemical test that is used for the diagnosis of Typhoid is [HP Board 2020] [1]
(A) Widal test (B) ELISA
(C) Chromosomal Study (D) ESR
- Q.4** Viral infected cells secrete [HP Board, 2019] [1]
(A) Prions (B) Lymph
(C) Interferons (D) All the above
- Q.5** Confirmatory test for Typhoid is [HP Board, 2019][1]
(A) ELISA (B) Western B lot
(C) Widal test (D) All the above
- Q.6** Ring worm is caused by [HP Board, 2019][1]
(A) Trichophyton (B) Epidermophyton
(C) Both (A) and (B) (D) None
- Q.7** The chemicals produced by microbes, that are used to kill other microbes are [HP Board, 2019]
(A) Antibodies (B) Antigen
(C) Antibiotics (D) None of these
- Q.8** Nicotine in tobacco plant is synthesised in [HP Board, 2019] [1]
(A) Stem (B) Flowers (C) Leaves (D) Roots
- Q.9** Opium is obtained from [HP Board, 2019] [1]
(A) White Poppy (B) Hemp plant
(C) Ergot fungus (D) Tea plant
- Q.10** Emphysema is the disease of [HP Board, 2019] [1]
(A) Heart (B) Lungs (C) Kidney (D) Stomach
- Q.11** Define addiction. [HP Board 2018] [1]
- Q.12** Widal test is used for the diagnosis of [HP Board 2017] [1]
(A) malaria (B) pneumonia
(C) tuberculosis (D) typhoid
- Q.13** *Cannabis sativa* is the source of : [HP Board 2016][1]
(A) Opium (B) LSD (C) Marijuana (D) Cocaine
- Q.14** Which of the following is an opioid drug : [HP Board 2016][1]
(A) Cocaine (B) Charas
(C) Heroin (D) Marijuana
- Q.15** The first clinical gene therapy was done for : [HP Board 2016][1]
(A) AIDS (B) SCID (C) Cancer (D) Malaria
- Q.16** Cirrhosis of liver is caused by chronic intake of : [HP Board 2016] [1]
(A) Opium (B) Alcohol
(C) Bhang (D) Tobacco chewing.
- Q.17** What are interferons? How do they act? [HP Board 2016][1]
- Q.18** Enlist various drugs obtained from opium. [HP Board 2014] [1]
- Q.19** LSD is prepared from : [HP Board 2014] [1]
(A) lichen (B) algae
(C) fungus (D) bacteria
- Q.20** Give the botanical name of the plant that yields opium. Suggest its family. [HP Board 2014] [1]
- Q.21** Give the botanical name of plant that yields cocaine and suggest its family. [HP Board 2014][1]
- Q.22** Why malarial parasite is known as digenetic ? [HP Board 2009] [1]
- Q.23** What is cancer ? [HP Board 2009] [1]

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1½ Marks Questions.

- Q.24** a) Give four postulates of Robert Koch about diseases.
b) Define Incubation Period ? [HP Board 2018][1½]
- Q.25** What is vaccine? How does it develop immunity in a person? [HP Board 2017,18] [1½]
- Q.26** What is addiction? Name the chemical in tobacco which makes one addict. [HP Board 2016][1½]
- Q.27** Distinguish between B-cells and T-cells. [HP Board 2012,2016][1½]
- Q.28** What are the three main preventive measures to control the AIDS? [HP Board 2016][1½]
- Q.29** List any three danger signals of cancer. [HP Board 2016][1½]
- Q.30** Differentiate between the following : Innate Immunity and Acquired Immunity. [HP Board 2015] [1½]
- Q.31** Differentiate between the following : Antigen and Antibody. [HP Board 2015] [1½]
- Q.32** Expand the following : i) ELISA, ii) NACO, iii) HIV. [HP Board 2015][1½]
- Q.33** What are tranquillizers ? Give one example. [HP Board 2014] [1½]
- Q.34** How does drug addiction begin ? [HP Board 2014,18] [1½]
- Q.35** Use of drugs is social stigma. Justify. [HP Board 2014] [1½]

- Q.36** Write a note on Allergy. [HP Board 2015] [1½]

2 Marks Questions.

- Q.37** Explain the following :
i) Interferons ii) AMIS
iii) Autoimmunity [HP Board 2020] [3]
- Q.38** Define Vaccination. [HP Board 2019] [2]
- Q.99** What are Interferons and how they act ? [HP Board 2019] [2]
- Q.39** Give name of the causative agent, symptoms and preventive measures of Filariasis. [HP Board 2019] [2]
- Q.40** Name the caustive agent of disease amoebiasis. List three symptoms of disease. [HP Board 2019][2]
- Q.41** Write the pathogen and symptoms of the following diseases: [HP Board 2009][2]
i) Malaria ii) Rabies.
- Q.42** Why drinking and driving cannot go together ? [HP Board 2009] [2]
- Q.43** Name the causative organisms of diseases :
i) Cholera ii) Leprosy [HP Board 2009] [2]
- Q.44** Name the causative organism of disease :
i) Typhoid ii) Chickenpox [HP Board 2009][2]

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2½ Marks Questions.

- Q.45** Write the name of causal organism, symptoms and modes of transfer of typhoid. [HP Board 2017] [2½]
- Q.46** Write the name of causal organism, symptoms and mode of transfer of the disease pneumonia. [HP Board 2017][2½]
- Q.47** Write the name of causal organism, symptoms and mode of transfer of the disease ascariasis. [HP Board 2017] [2½]
- Q.48** What are narcotics? Discuss the source withdrawal symptoms and treatment of opioid toxicity. [HP Board 2017] [2½]
- Q.49** List the pathogen, symptoms and control measures of following disease: [HP Board 2016][2½,2½]
a) Tuberculosis b) Poliomyelitis.
- Q.50** What are stimulants? Give two examples and their effects. [HP Board 2012,2016][2½]
- Q.51** List the pathogen, symptoms and control measures of following disease: [HP Board 2016][2½,2½]
a) AIDS b) Cholera.
- Q.52** Enlist the harmful effects caused by alcohol/drug abuse. [HP Board 2015] [2½]

Q.53 Expand the following : LSD [HP Board 2015][2½]

Q.54 Give the name of caustive organism, symptoms and preventive measures of Amoebic dysentery. [HP Board 2014] [2½]

Q.55 The following are some well-known abbreviations which have been used in this chapter. Explain each one of its full form.

- i) MALT ii) CMI iii) AIDS
iv) NACO v) WHO [HP Board 2009] [2½]

3 Marks Questions.

Q.56 Write a short note on the following :

- i) Allergy ii) MALT
iii) Oncogenic viruses [HP Board 2020] [3]

Q.57 Explain the following terms : [HP Board 2020] [3]

- i) CMIS. ii) Active immunity
iii) Vaccines

Q.58 How drug addiction begins ? [HP Board 2018,14][3]

Q.59 Differentiate between active immunity and passive immunity. [HP Board 2001,2012] [3]

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1 Mark Questions.

Q.1 Which of the following is a marine fish ?
 (A) Catla (B) Rohu
 (C) Hilsa (D) Common carp
 [HP Board 2020] [1]

Q.2 Sonalika and Kalyan Sona are varieties of
 (A) Rice (B) Wheat
 (C) Maize (D) Tobacco
 [HP Board 2020] [1]

Q.3 Cryopreservation is done at temperature
 (A) 106°C (B) 80°C (C) -196°C (D) 20°C
 [HP Board 2019] [1]

Q.4 The plant part used in tissue culture
 (A) Micropropagation (B) Explant
 (C) Callus (D) Biofortification
 [HP Board 2019] [1]

Q.5 Define Apiculture. [HP Board 2014] [1]

Q.6 Define callus. [HP Board 2009] [1]

1½ Marks Questions.

Q.7 Write a short note on biofortification.
 [HP Board 2018] [1½]

Q.8 Which part of plant is best suited for making virus-free plants and why?
 [HP Board 2017][1½]

Q.9 What is Single Cell Protein (SCP)? Write its advantages.
 [HP Board 2016,18][1½]

Q.10 Define the following terms :

a) Apiculture b) Biofortification
 c) Pisciculture. [HP Board 2015,18] [1½]

Q.11 What is Emasculation ? Why is this technique used ?
 [HP Board 2015] [1½]

Q.12 Write note on Polyploidy in plants.
 [HP Board 2012] [1½]

2 Marks Questions.

Q.13 What is apiculture ? How it is important in our lives?
 [HP Board 2020] [2]

Q.14 What is apiculture ? How is it important in our lives ?
 [HP Board 2019] [2]

Q.15 Write an explanatory note on SCP.
 [HP Board 2019][2]

Q.16 Write the role of hybridization in plant breeding.
 [HP Board 2017] [2]

5 Marks Questions.

Q.17 a) What is Plant Breeding ? Explain briefly the steps involved in Plant Breeding.

b) Name three varieties each of wheat and rice.
 [HP Board 2015,18] [5]

Q.18 a) What is meant by the term 'breed' ? What are objectives of Animal breeding ?

b) Name two breeds each of Cow and Buffalo.
 [HP Board 2015] [5]

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10 CHAPTER	<h1 style="margin: 0;">Microbes in Human Welfare</h1>
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1 Mark Questions.

- Q.1** The vitamin whose content increases following the conversion of milk into curd by lactic acid bacteria is
 (A) Vitamin -D (B) Vitamin -C
 (C) Vitamin - B₁₂ (D) Vitamin- K
 [HP Board 2020] [1]
- Q.2** Big holes in Swiss cheese are made by a
 (A) Bacterium that produces gas
 (B) Fungus that causes holes
 (C) Bacterium producing large amount of CO₂
 (D) None of the above [HP Board 2020] [1]
- Q.3** Root fungal association is called [HP Board 2019][1]
 (A) Lichen (B) Mycorrhiza
 (C) Parasitism (D) Amensalism
- Q.4** In which food would you find lactic acid bacteria ?
 Mention some of their useful application.
 [HP Board 2019] [1]
- Q.5** The root fungus association is [HP Board 2018] [1]
 (A) Coleorrhiza (B) Rhizomorphs
 (C) Mycorrhiza (D) None of these
- Q.6** N₂ fixing bacteria in legume plants are
 (A) Azotobacter (B) Frankia
 (C) Rhizobia (D) None
 [HP Board 2018] [1]
- Q.7** N₂ fixing bacteria in nonlegume plants are
 (A) Frankia (B) Rhizobia
 (C) Plasmodium (D) Aspergillus
 [HP Board 2018] [1]
- Q.8** Most widely used bioweapon is [HP Board 2017] [1]
 (A) *Bacillus subtilis* (B) *Pseudomonas putida*
 (C) *Bacillus anthracis* (D) None of the above
- Q.9** What is sewage? In which way sewage can be harmful to use?
 [HP Board 2017] [1]
- Q.10** Expand the following : BOD [HP Board 2015] [1]
- 1½ Marks Questions.**
- Q.11** Name any two species of fungus which are used in production of antibiotics. [HP Board 2017] [1½]
- Q.12** How do biofertilizers enrich the fertility of soil?
 [HP Board 2017] [1½]

2 Marks Questions.

- Q.13** Discuss briefly the role of microbes as biofertilizers.
 [HP Board 2020] [2]
- Q.14** Give a short note on antibiotics produced by microbes.
 [HP Board 2020] [2]
- Q.15** What are single cell proteins ? Explain.
 [HP Board 2020] [2]
- Q.16** Write short note on Biofortification.
 [HP Board 2020] [2]
- Q.17** What is the role of microbes in industrial production ?
 [HP Board 2019] [2]
- Q.18** What are bioinsecticides ? What is the source of Rotenone and pyrethroids ?
 [HP Board 2009] [2]
- Q.19** i) What is Biofertilizer ? Write down its types and advantages.
 ii) Define the term Biopesticides.
 [HP Board 2009][2]
- Q.20** What is the role of VAM in crop improvement ?
 [HP Board 2009] [2]

2½ Marks Questions.

- Q.21** What are biofertilizers? Discuss the role of symbiotic N₂ fixation by a bacterium. [HP Board 2017] [2½]
- Q.22** What are the properties of good antibiotics ?
 [HP Board 2014] [2½]
- Q.23** How antibiotics kill the micro-organisms ?
 [HP Board 2014] [2½]

3 Marks Questions.

- Q.24** Explain the role of microbes in sewage treatment.
 [HP Board 2019][3]
- Q.25** Describe the role of bacteria in N₂ fixation.
 [HP Board 2019][3]
- Q.26** What are mycorrhiza ? Distinguish between their occurrence. How they enrich the soil ?
 [HP Board 2019][3]
- Q.27** Write a note on the role of Microbes in Sewage treatment.
 [HP Board 2015,18] [3]
- Q.28** What is the role of Microbes in Industrial Production ?
 [HP Board 2015] [3]
- Q.29** Write a note on the role of Microbes in Food Processing.
 [HP Board 2015] [3]

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1 Mark Questions.

- Q.1** Which of the following human chromosomes has most number of and least number of genes respectively ?
 (A) Chromosome X and Y
 (B) Chromosome 11 and 21
 (C) Chromosome Y and 18
 (D) Chromosome 1 and Y [HP Board 2020][1]
- Q.2** An antibiotic resistant gene in a vector usually helps in the selection of [HP Board 2020] [1]
 (A) Competent cell (B) Hybridized cell
 (C) Transformed cells (D) Non recombinant cells
- Q.3** In Agarose gel electrophoresis DNA molecules are separated on the basis of their [HP Board 2020] [1]
 (A) Size only (B) Charge only
 (C) Both (A) and (B) (D) None of these
- Q.4** Which was the last Human chromosome to be completely sequenced in HGP ? [HP Board 2020] [1]
 (A) Chromosome I (B) Chromosome 10
 (C) Chromosome 18 (D) Chromosome Y
- Q.5** Enzymes that cut the DNA at desired points [HP Board, 2019][1]
 (A) Ligases (B) Restriction endonucleases
 (C) Polymerases (D) Gyrases
- Q.6** 'Genetics' term was proposed by : [HP Board 2016][1]
 (A) Mendel (B) Bateson
 (C) Morgan (D) Johansen
- Q.7** PCR is required for : [HP Board 2016] [1]
 (A) DNA synthesis (B) DNA amplification
 (C) Protein synthesis (D) Amino acid synthesis

- Q.8** The PCR technique was invented by :
 (A) Kohen (B) Karry Mullis
 (C) Sanger (D) Boyer [HP Board 2016][1]

- Q.9** What are Pallindromic nucleotide sequences?
 [HP Board 2016] [1]

- Q.10** What are monoclonal antibodies ?
 [HP Board 2014] [1]

- Q.11** What is biotechnology ? [HP Board 2009] [1]

1½ Marks Questions.

- Q.12** What are the most common applications of PCR?
 [HP Board 2017] [1½]

- Q.13** How does restriction endonuclease work?
 [HP Board 2015] [1½]

- Q.14** What are molecular scissors ? Give one example.
 [HP Board 2015] [1½]

- Q.15** Write a short note on bioreactors.
 [HP Board 2015] [1½]

- Q.16** What is a cloning vehicle? Describe briefly the characteristics of a cloning vector must possess.
 [HP Board 2017] [2½]

- Q.17** Write any three uses of Gene cloning.
 [HP Board 2016] [1½]

- Q.18** Explain briefly Polymerase Chain Reaction.
 [HP Board 2016] [1½]

- Q.19** What are restriction enzymes ? Give its types.
 [HP Board 2016] [1½]

- Q.20** What is Cloning vector and its role ?
 [HP Board 2015] [1½]

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Q.21 Define Serum. [HP Board 2015] [1½]

Q.22 What are Bioreactors ? Explain. [HP Board 2012] [1½]

Q.23 Write short note on : Microinjection
[HP Board 2018] [1½]

2 Marks Questions.

Q.24 Explain briefly what is downstream processing.
[HP Board 2020] [2]

Q.25 Explain (i) PCR (ii) Restriction enzymes.
[HP Board 2020] [2]

Q.26 Explain the microinjection and biolistic's gun method of introducing the alien DNA in host cells.
[HP Board 2020] [2]

Q.27 Discuss the role of Ca divalent ions in the preparation of competent host cell. [HP Board 2020] [2]

Q.28 What is the role of Vehicle of DNA.
[HP Board 2019][2]

Q.29 How desired DNA is isolated in rDNA technology ?
[HP Board 2019][2]

Q.30 Describe briefly PCR ?
[HP Board 2019] [2]

Q.31 What acts as 'molecular scissors' in biotechnology?
[HP Board 2019] [2]

Q.32 Describe briefly PCR. [HP Board 2014,18] [2]

Q.33 Give applications of PCR. [HP Board 2014] [2]

Q.34 What is the principle of PCR ?
[HP Board 2009,2012] [2]

2½ Marks Questions.

Q.35 What is genetic engineering ? Give its three advantages.
[HP Board 2016] [2½]

3 Marks Questions.

Q.36 What is recombinant DNA technology ? What are its applications?
[HP Board 2018] [3]

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1 Mark Questions.

- Q.1** Define cry-protein. Name an organism that produces it. [HP Board 2019] [1]
- Q.2** Illustrate gene therapy with an example. [HP Board 2019][1]
- Q.3** DNA element with ability to change its position is called
(A) cistron (B) transposon
(C) intron (D) recon [HP Board 2017][1]
- Q.4** Molecular scissor is [HP Board 2017][1]
(A) restriction endonuclease
(B) helicase
(C) urease
(D) peptidase
- Q.5** First life on Earth were: [HP Board 2016] [1]
i) Autotrophs *ii)* Cyanobacteria
iii) Photo autotrophs *iv)* Chemoheterotrophs.
- Q.6** The first clinical gene therapy was done for :
(A) AIDS (B) SCID
(C) Cancer (D) Malaria [HP Board 2016][1]
- Q.7** What are hybridoma cells ? [HP Board 2014] [1]
- Q.8** Define biopiracy. [HP Board 2009] [1]
- Q.9** What are transgenic plants ? [HP Board 2009] [1]

1½ Marks Questions.

- Q.10** What are cryproteins ? Name the organism that produces them. [HP Board 2012,2016 2017,18] [1½]
- Q.11** Write a short note on gene therapy. [HP Board 2017] [1½]
- Q.12** Explain the principle and function of ELISA. [HP Board 2016] [1½]

- Q.13** What are transgenic crops? Give one example. [HP Board 2016] [1½]
- Q.14** Write short notes on biopatent and biopiracy. [HP Board 2017] [1½]
- Q.15** How is gene transfer in animals done? Give one example. [HP Board 2016] [1½]
- Q.16** Define: *i)* Biopatent *ii)* Genetically modified food
iii) Humulin [HP Board 2012] [1½]
- Q.17** What is gene therapy ? Illustrate using one example. [HP Board 2012] [1½]
- Q.18** What are transgenic bacteria ? Give one example. [HP Board 2012] [1½]
- Q.19** Write note on golden rice. [HP Board 2012] [1½]
- Q.20** Define: Genetically modified organisms. [HP Board 2012] [1½]

2 Mark Questions.

- Q.21** Expand GEAC. What are the main objectives of GEAC? [HP Board 2020] [2]
- Q.22** What are transgenic bacteria ? Illustrate using one example. [HP Board 2020] [2]
- Q.23** What are the advantages of genetically modified crops? [HP Board 2019][2]
- Q.24** “Transgenic organisms are useful”-Give two examples with their useful characters. [HP Board 2016] [2]
- Q.25** Write a brief account of genetically engineered insulin. [HP Board 2017] [2]
- Q.26** What are cry proteins ? Name the organism that produces them. [HP Board 2016] [2]
- Q.27** Write note on Bt. cotton. [HP Board 2012] [2]
- Q.28** What are the hazards of transgenic animals? [HP Board 2012,2016] [2]

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Q.29 What are Monoclonal Antibodies ? How they can be produced commercially ? [HP Board 2009] [2]

Q.30 Define the following : Biowar [HP Board 2009] [2]
2½ Marks Questions.

Q.31 Enlist advantages of genetically modified crops. [HP Board 2012] [2½]

Q.32 What are Transgenic Animals ? How are they beneficial to man ? [HP Board 2015] [2½]

Q.33 How is Bt Cotton Plant produced ? Explain, how it resists the infestation by Cotton Ball worm. [HP Board 2015][2½]

Q.34 What are the advantages of Transgenic Plants ? [HP Board 2014,2015] [2½]

3 Marks Questions.

Q.35 What do you mean by G.M organisms ? Write four advantage of GMO. [HP Board 2019][3]

Q.36 Explain the methods of gene therapy. How does the embryo therapy help in treating genetic diseases? [HP Board 2009] [3]

Q.37 What are transgenic organism? How micro injection method is used in the production of an transgenic animal? [HP Board 2009] [3]

5 Marks Questions.

Q.38 i) Discuss the role of biotechnology in molecular diagnosis.

ii) Write a short note on biopiracy. [HP Board 2020] [3+2=5]

Q.39 i) What are cry proteins ? Name an organism that produces it. How has man exploited these proteins to his benefits ? Explain.

ii) Give the advantage of GMO' s over the hybrid organisms. [HP Board 2020] [1+1+1½+1½ =5]

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CHAPTER

Organisms and Populations

1 Mark Questions.

Q.1 Conformers are the organisms whose body temperature:
(A) Changes with surrounding temperature.
(B) Remains constant.
(C) No effect.
(D) Decreases. [HP Board 2020] [1]

Q.2 According to Allen's rule the mammals from colder climates have [HP Board 2020][1]
(A) shorter ears and shorter limbs
(B) longer ears and longer limbs
(C) longer ears and shorter limbs
(D) shorter ears and longer limbs

Q.3 Birth rate is called [HP Board 2019][1]
(A) Mortality (B) Emigration
(C) Immigration (D) Natality

Q.4 Mutually beneficial relationship is called
(A) competition (B) Predation
(C) Mimicry (D) Symbiosis

[HP Board 2019][1]

Q.5 What is birth rate ? [HP Board 2009] [1]

Q.6 What is death rate ? [HP Board 2009] [1]

1½ Marks Questions.

Q.7 Define the following terms [HP Board 2018][1½]
a) Mimicry b) Hibernation c) Habitat

Q.8 Define parasitism with one example. [HP Board 2016][1½]

Q.9 Define mimicry with an example. [HP Board 2016][1½]

Q.10 Define commensalism with an example. [HP Board 2015, 2016][1½]

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Q.11 Distinguish between the following : Ectothermic and Endothermic Animals. [HP Board 2015] [1½]

Q.12 Distinguish between : Hibernation and Aestivation. [HP Board 2015] [1½]

Q.13 Write a note on Mutualism with examples. [HP Board 2015] [1½]

Q.14 Distinguish between the following : Predator and Parasite. [HP Board 2015] [1½]

Q.15 Write a note on Competition, Explain with example. [HP Board 2015] [1½]

Q.16 Differentiate between Natality rate and Mortality Rate. [HP Board 2014] [1½]

Q.17 Define : i) Mortality rate ii) Proto cooperation
iii) Scavenging [HP Board 2012] [1½]

2 Marks Questions.

Q.18 How is diapause different from hibernation ? [HP Board 2014] [2]

Q.19 How can zero population growth be achieved ? [HP Board 2014] [2]

2½ Marks Questions.

Q.20 What are different types of interactions? Explain. [HP Board 2017] [2½]

Q.21 Write a brief note on competitive interactions. [HP Board 2017] [2½]

Q.22 Define the growth curve of population and types of growth curve. [HP Board 2017] [2½]

3 Marks Questions.

Q.23 Discuss the different behavioural adaptations in animals. [HP Board 2020] [3]

Q.24 Discuss the various adaptation of plants for water scarcity. [HP Board 2020] [3]

Q.25 Discuss the various adaptation of plants and animals for desert conditions. [HP Board 2020] [3]

Q.26 Define : a) Diurnal b) Halophyte c) Epiphyte
d) Benthic e) Aestivation
f) Nocturnal animals [HP Board 2014] [3]

Q.27 Write a note on insect societies. Give an example. [HP Board 2009] [3]

5 Marks Questions.

Q.28 Define the following terms and give one example for each : Camouflage [HP Board 2009] [5]

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1 Mark Questions.

- Q.1** Productivity is the rate of production of biomass is expressed in terms of : [HP Board 2020] [1]
 (A) $(K \text{ cal m}^{-2}) \text{ yr}^{-1}$ (B) $(K \text{ cal m}^{-3}) \text{ yr}$
 (C) Both the above (D) None of the above
- Q.2** An inverted pyramid of biomass can be found in which type of ecosystem [HP Board 2020] [1]
 (A) Forest (B) Tundra
 (C) Marine (D) Grassland
- Q.3** During the process of ecological succession the changes that takes place in communities are
 (A) Not influenced by physical environment
 (B) Random
 (C) Very Quick
 (D) Orderly and sequential manner [HP Board 2020] [1]
- Q.4** What do you understand by the term ecological pyramids ? [HP Board 2019] [1]
- Q.5** Pyramid of energy is inverted in [HP Board 2018][1]
 (A) Grassland (B) Tree
 (C) Both A and B (D) None of these
- Q.6** Energy transfer from one trophic level to another is
 (A) 100 % (B) 5% (C) 10% (D) 50% [HP Board 2018][1]
- Q.7** Define food chain. [HP Board 2009] [1]
- Q.8** Define food web. [HP Board 2005,2009] [1]
- 1½ Marks Questions.**
- Q.9** What is ecological pyramid? Draw the pyramid of numbers. [HP Board 2017] [1½]
- Q.10** Write a short note on ecological succession on a bare rock. [HP Board 2017] [1½]
- Q.11** Difference between Autotrophs and Heterotrophs. [HP Board 2014] [1½]
- Q.12** Draw the pyramid of energy. [HP Board 2014] [1½]

- Q.13** Outline salient features of Nitrogen cycle in nature. [HP Board 2012] [1½]

2 Mark Questions.

- Q.14** Give an account of energy flow in an ecosystem. [HP Board 2019] [2]
- Q.15** Describe the components of an ecosystem. [HP Board 2019][2]
- Q.16** Write down the different types of productivity. [HP Board 2019][2]
- Q.17** What are decomposers ? Name two kinds of decomposers. [HP Board 2019] [2]
- 2½ Marks Questions.**
- Q.18** Give differences between Grazing and Detritus food chain. [HP Board 2020] [2]
- Q.17** Explain the concept of food chain. [HP Board, 2019][2½]
- Q.20** Define biotic community. Give its types. [HP Board 2017] [2½]

- Q.21** Draw a schematic labelled diagram of carbon cycle. [HP Board 2016] [2½]
- Q.22** Give an account of Energy flow in Ecosystem. [HP Board 2015][2½]
- Q.23** What is Primary productivity ? Explain factors affecting it. [HP Board 2015] [2½]
- Q.24** Define Decomposition and describe process and products of Decomposition. [HP Board 2015] [2½]
- Q.25** Define ecosystem. Draw upright pyramid of biomass. [HP Board 2014] [2½]
- Q.26** What is food chain ? Give one example of Grazing food chain and one example of detritus food chain. [HP Board 2012] [2½]
- 3 Marks Questions.**
- Q.27** Explain the differences between *seral* community and climax community during succession. [HP Board 2014] [3]

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1 Mark Questions.

- Q.1** Kaziranga National Park is located in
(A) Assam (B) Kerala
(C) H.P. (D) W. Bengal
[HP Board 2018] [1]
- Q.2** Germplasm conservation at liquid N₂ temperature is
(A) stratification (B) cryopreservation
(C) scarification (D) None of the above
[HP Board 2017] [1]
- Q.3** Red Data Book deals with [HP Board 2017] [1]
(A) endemic plants
(B) plants that are extinct
(C) animals on verge of extinction
(D) plants showing photoperiodism
- Q.4** Which of the following country has the highest biodiversity :
(A) India (B) Russia
(C) Brazil (D) South Africa
[HP Board 2016] [1]
- Q.5** Which of the following forests is known as the “Lungs of the Planet Earth”.
(A) Tundra forests
(B) Taiga forests
(C) Amazon rain forest
(D) Rain forests of North-East India.
[HP Board 2016] [1]
- Q.6** The total number of identified biodiversity hot spots in world is:
(A) 34 (B) 30 (C) 25 (D) 40
[HP Board 2016] [1]
- Q.7** Which of the following country has the highest biodiversity :
(A) India (B) Russia
(C) Brazil (D) South Africa
[HP Board 2016] [1]

1½ Marks Questions.

- Q.8** What are endangered species ? Also give example.
[HP Board 2018] [1½]
- Q.9** Describe what are sacred groves ?
[HP Board 2017] [1½]
- Q.10** What is National Park? Give one example in Himachal Pradesh.
[HP Board 2016] [1½]

2 Marks Questions.

- Q.11** Briefly explain the four major reasons for the loss of biodiversity.
[HP Board 2020] [2]

2½ Marks Questions.

- Q.12** Write an explanatory note on the following :
i) Endemism ii) Ex-situ conservation
[HP Board 2020] [2]
- Q.13** Write notes on in-situ conservation and ex-situ conservation of species.
[HP Board 2016] [2½]
- Q.14** What is meant by “Hot Spots” in Biodiversity? Name two Hot Spots of Biodiversity in India.
[HP Board 2016,18] [2½]
- Q.15** What is extinction? List any four causes of wildlife extinction.
[HP Board 2016] [2½]

3 Marks Questions.

- Q.16** What are Sanctuaries ? Give examples in India.
[HP Board 2012] [3]
- Q.17** What are biosphere reserves ? Give examples in India.
[HP Board 2012] [3]
- Q.18** Write short notes on the following :
(A) Biodiversity
(B) Red Data Book
(C) Hot spots of biodiversity.
[HP Board 2017] [1+1+1=3]

4 Marks Questions.

- Q.19** What are major causes of Biodiversity losses ?
[HP Board 2015] [4]
- Q.20** Write a note how to conserve biodiversity.
[HP Board 2015] [4]
- Q.21** What are different patterns of Biodiversity ?
[HP Board 2015] [4]

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1 Mark Questions.

- Q.1** Waste water treatment generate a large quantity of sludge, which can be treated in [HP Board 2020] [1]
 (A) Digesters
 (B) Oxidation Pond
 (C) Activated sludge
 (D) Chemicals
- Q.2** Which of the following forest plants control the light onditions at the ground [HP Board 2020] [1]
 (A) Lianans and climbers (B) Herbs
 (C) Tall Trees (D) Shrubs
- Q.3** Prevention and control of air pollution was amended in
 (A) 1972 (B) 1949
 (C) 1981 (D) 1987
 [HP Board, 2019] [1]
- Q.4** Prevention and control of air pollution Act came into force in [HP Board, 2019] [1]
 (A) 2000 (B) 1981 (C) 1999 (D) 1950
- Q.5** Noise pollution is measured in
 (A) dB (B) Newton
 (C) Pascal (D) Giga Bite
 [HP Board, 2019] [1]
- Q.6** Pollination through air is called [HP Board 2018] [1]
 (A) Hydrophily (B) Entomophily
 (C) Anemophily (D) Myrmecophily
- Q.7** The purpose of biological treatment of waste water is to. [HP Board 2017][1]
- Q.8** Define air pollution. [HP Board 2014] [1]
- Q.9** What is green house effect ? [HP Board 2009][1]
- Q.10** Name the different green house gases. [HP Board 2006] [1]
- 1½ Marks Questions.**
- Q.11** Write critical notes on the following :
 i) Eutrophication [HP Board 2019][1½]
 ii) Biological magnification [HP Board 2019][1½]
- Q.12** What is BOD? How is it related to water pollution? [HP Board 2017,18] [1½]
- Q.13** What is Biological magnification? How it is caused? [HP Board 2009, 2016] [1½]

2 Marks Questions.

- Q.14** Write an explanatory note on BOD. [HP Board 2020] [2]
- Q.15** What are the causes of Noise pollution ? [HP Board 2019][2]
- Q.16** Write down the different measures for controlling water pollution. [HP Board 2019] [2]
- Q.17** Why is ozone hole formed over Antarctica ? How will enhanced ultraviolet radiation effect us ? [HP Board 2019] [2]
- Q.18** Expand : PAN, BOD, CFC. [HP Board 2014][2]
- Q.19** Automobiles are the largest source of air pollutant. Comment upon the statement. [HP Board 2014][2]
- Q.20** What is global warming ? What are the reasons and negative impacts of global warming ? [HP Board 2012] [2]
- Q.21** Write down the major differences between the primary and secondary pollutants. [HP Board 2012] [2]
- 2½ Marks Questions.**
- Q.22** Differentiate between biodegradable and non-biodegradable pollutants. [HP Board 2016][2½]
- Q.23** What is acid rain? What are its harmful effects on plants and animals? [HP Board 2012,2016,18][2½]
- Q.24** Write a note on Air Pollution and its control. [HP Board 2015,18][2½]
- Q.25** a) What is Ozone depletion in Stratosphere and what are its causes and effects ? [HP Board 2015][2½]
 b) Expand CFCs. (CFC - Chloro Fluoro Carbon)
- Q.26** a) Write note on Eutrophication.
 b) Expand SPM. [HP Board 2015,18] [2½]
- Q.27** What is noise pollution ? How does it affect man ? [HP Board 2014] [2½]
- Q.28** Define soil pollution. How does it effect plants ? [HP Board 2014][2½]
- Q.29** What is ozone hole ? Write note on it. [HP Board 2012][2½]

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Q.30 What are the sources and harmful effects of air pollution ?
[HP Board 2012][2½]

Q.31 What are the sources and harmful effects of water pollution ?
[HP Board 2012][2½]

3 Mark Questions.

Q.32 Discuss briefly the following :

- (A) Radioactive wastes
- (B) Defunctships and e-wastes
- (C) Municipal solid wastes

[HP Board 2017] [1½+1½=3]

Q.33 Discuss the causes and effects of global warming. What measures need to be taken to control global warming?
[HP Board 2016][3]

Q.34 Write critical notes on the following : Ground water depletion and ways for its replenishment.

[HP Board 2009,2014][3]

Q.35 What is thermal pollution and how can it be controlled?
[HP Board 2009] [3]

5 Mark Questions.

Q.36 i) Explain how slash and burn agriculture can become environmental friendly ?

ii) What is reforestation ?

iii) What is soil erosion and desertification ?

[HP Board 2020] [2+2+1=5]

Q.37 i) What is organic farming ? Discuss the benefits of organic farming.

ii) Write short note on Acid rain.

[HP Board 2020] [3+2=5]

Q.38 i) Write short note on Biomagnification.

ii) Write a short note on green house effect.

[HP Board 2020] [2½+2½=5]

Q.36 Explain the various effects of air pollutants.

[HP Board 2012,2014] [5]

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