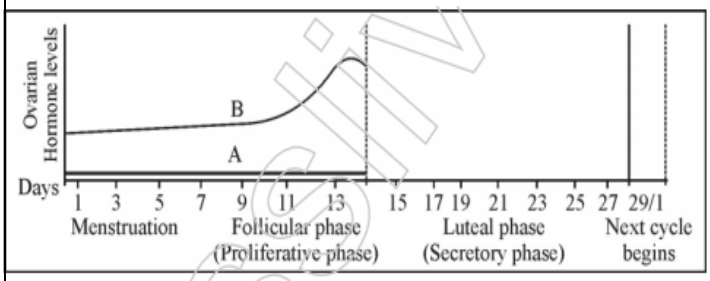
HUMAN REPRODUCTION AND REPRODUCTIVE HEALTH

HSE –March-2020

1. Name the technique of transferring embryos up to 8 blastomeres into the fallopian tube. (1)
   a)GIFT b)ZIFT c)ICSI d) IUI
2. "All copulations lead to fertilization and pregnancy". Do you agree with this statement? Justify your answer. (2)
3. Amniocentesis for sex determination is legally banned now. (2)
   (a) What is amniocentesis ?
   (b) Why it is banned ?
4. The graph given below shows the level of the ovarian hormones in a normally menstruating woman during the follicular phase. (3)



   (a) Name 'A' and 'B'.
   (b) Reconstruct the graph showing the level of hormones in luteal phase.
   (c) Name the hormone secreted by Corpus Luteum and mention its function.

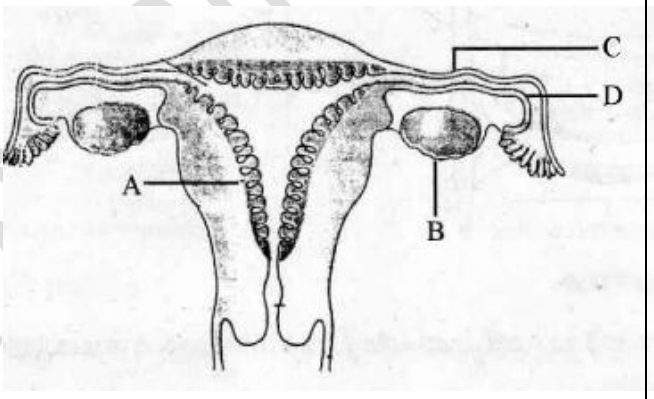
HSE-June-2019

5. Find out the correct sequence : (1)
   (a) Fertilisation- zygote - Blastula - Morula - cleavage - Implantation
   (b) Fertilisation- zygote - cleavage - Morula - Implantation - Blastula
   (c) Fertilisation- zygote - Morula - cleavage - Implantation - Blastula
   (d) Fertilisation- zygote - cleavage - Morula - Blastula – Implantation
6. 'LH Surge' induces the rupture of Graffian follicle
   (a) Which gland produces LH and in which day LH Surge happens?
   (b) Write the role of LH in males. (2)

7. There are several method of in vitro fertilisation to assist couples who lack the ability of fertilisation.
   (a) Give the popular name of the programme
   (b) Suggest two techniques of in vitro fertilisation and their conditions of transfer to assist these people (3)

HSE-March-2019

8. The milk produced during the initial few days of lactation is called…….. (1)
9. "The sex of the baby is determined by the father and not by the mother. Do you agree with this statement ? Substantiate your answer. (2)
10. Observe the diagram given below showing the reproductive system of the female and name the parts labeled 'A', sectional view 'B', C' &'D' (2)



11. A wide range of contraceptive methods are presently available. If so, (HSE-March-2019)(2)
    (a) Name one contraceptive method having least side effect.
    (b) Which contraceptive method is generally advised for females as a termination method to prevent any more pregnancies?
    (c) List out any two possible ill-effects of the usage of contraceptive methods.
12. (a) Expand STDs.
    (b) Cite any two examples for STD.
    (c) Suggest any two methods for the prevention of STDs. (3)

HSE-June-2018

13. Number of spermatids produced from 25 primary spermatocytes are ..... (1)
    a) 25 b)50 c)100 d)250
14. Select the relationship between the first two words and fill the lank space with a suitable word (1)

Sterilization in male : Vasectomy

Sterilization in female :.....

15. The incidence of STDs are reported more among the age group between 15-24 years. (2)
    (a) What are STDs?
    (b) Suggest methods to prevent STDs,
16. Match the column B &C with column A (3)

A	B	C
Ovulation	Endometrium	LH
Implantation	Uterus	Progesteron
Gestation	Graafian follicle	hCG

HSE-March-2018

17. Name the cells in testis which synthesize and secrete androgens? (1)
18. Different contraceptive methods are given below. Pick out the odd one (1)
    a)Cu T b)Saheli
    c)Multiload 375 d)Lippes loop
19. In a class room discussion, a student said that sex of the baby is determined by the father. Analyse the statement and give reason for it ? (2)
20. Different contraceptive methods are used to control population explosion. Summarise the natural method and barrier method of contraception ? (2)
21. Sexually transmitted disease (STD) are mainly transmitted through sexual contact (3)
    a)Name any two examples of STD?
    b)Explain any two methods adopted to prevent STD ?

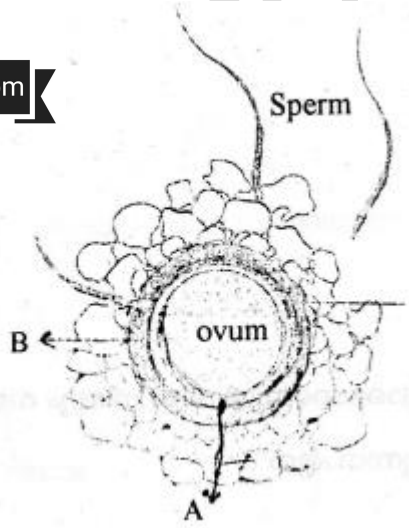
HSE-March-2018-Model Exam

22. The middle layer of uterus is called..... (1)
23. Vasectomy and tubectomy are said to be effective and irreversible contraceptive methods. Differentiate between these two methods. (2)
24. From an infertility clinic a doctor advised a childless couple to undergo GIFT.

    l. Expand GIFT
    2. Mention the steps involved in this procedure (2)

HSE-JUNE-2017

25. Human female possess 44+XX chromosome number. The chromosome number of secondary oocyte is (1)
    a)44+XX b)22+X c)44+XX d)22+XX
26. Observe the diagram and answer the question (2)



    a) Identify A and B
    b) Write the function of B
27. Prepare a brief notes to be presented in an awareness programme for adolescent about AIDS, their causes and preventive measures? (3)

HSE-March-2017

28. Which of the following pairs of STDs is completely curable ? (1)
    a)HIV, Hepatitis B
    b)Hepatitis B, Gonorrhoea
    c)Symphils, Gonorrhoea
    d)Chlamydomonas, Genital Herpes
29. Feeding.....in the first few days is essential for preventing infection in a newly born baby (1)

30. LH and FSH are gonadotrophins. Distinguish their roles in male and female? (2)
31. What is ART ? Categorize the following ART's based on their application in male sterility and female sterility:
    GIFT, AI

HSE-June-2016

32. The process of fusion of sperm with ovum is called..... (1)
33. Match the column A and B (2)

A	B
Ovulation	Sperm
Luteal Phase	Oogenesis
Acrosome	Blasto cyst
Inner cell mass	LH
	Progesterone

34. Select the odd one and justify your selection?
    Malaria, Gonorrhoea ,Amoebiasis, filariasis (1)
35. Diagnostic report of two couples having infertility problem are given below : (2)
    1) The Women cannot produce ovum
    2) The man has very low sperm count in semen.
    Suggest a suitable assisted reproductive technology (ART) for each problem in expanded form.

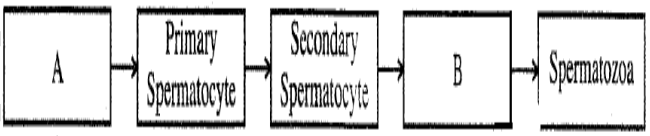
HSE-March-2016

36. Breast feeding during initial period of infant growth is necessary to develop immunity of new born babies. Why ? (1)
37. Categorise the given birth control methods into three groups with proper heads.
    (Cervical caps, Vasectomy, Cu T, Tubectomy, Diaphragms, Condoms, Lippes Loop) (3)
38. match the columns A and B (2)

A	B
Corpus Luteum	Embryo
Leydig cells	Implantation
Blastocyst	Progesterone
Inner cell mass	Androgens
	Prolactin

HSE-June-2015

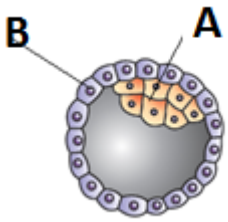
39. Choose the odd one from the following and write common features of others. (1)
    a)Estrogen b)Anrogen c)Relaxin
    d)Progesterone
40. Some techniques commonly used for infertility treatment are given below. Read them carefully and answer the question
    ZIFT,GIFT,ICSI,IUI,IVF (3)
    a)which of the above techniques is used for the collection of sperm from the husband or a healthy donor and artificially introduced into the vagina or uterus of the female?
    b)Distinguish between ZIFT and GIFT
    c)Write the common term used to denote the techniques given below ?
41. Complete the flow chart showing spermatogenesis by filling A and B and answer the question (2)



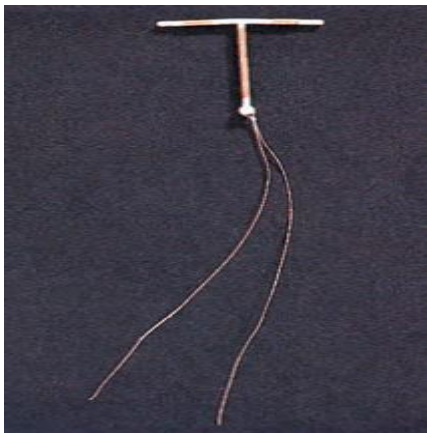
    a)what is the chromosome number of primary spermatocyte?
    b)what is the significance of reduction division in spermatognenesis?

HSE-March-2015

42. Foetal sex can e determined by a test based on chromosomal pattern from the amniotic fluid (2)
    a)What is this test?
    b)Revealing of sex determination through this test is banned. Is this ban is necessary ?
    c) invitro fertilisation followed by embryo transfer is known as .....
43. 1)In which part of human reproductive system the following events occur? (2)
    a)Fertilisation b)Implantation
    2)Diagram of a Human blastocyst is given below .Identify A and B

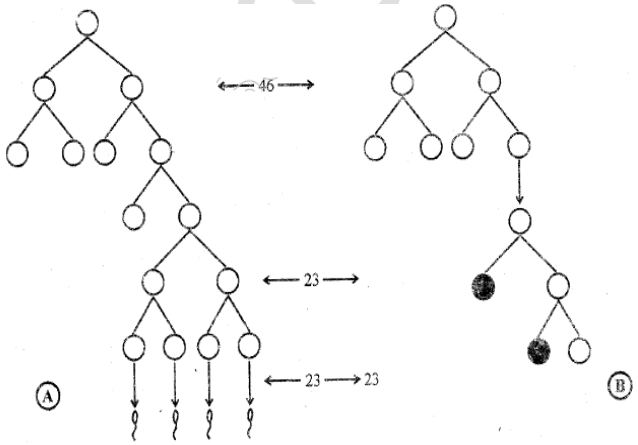


44. It is evident that, it is the genetic makeup of the sperm that determine the sex of the child in human being. Substantiate. (2)
45. Identify the diagram and write how it acts (1)



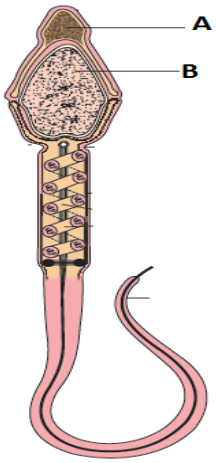
46. Mothers milk is considered essential for new born infants (1)
    a)Name the fluid secreted by mother from breast during the initial days of lactation
    b)What type of immunity it provides

47. Schematic representation of Gametogenesis is given below . Identify A. Write one difference between A and B (1)



HSE-June-2014

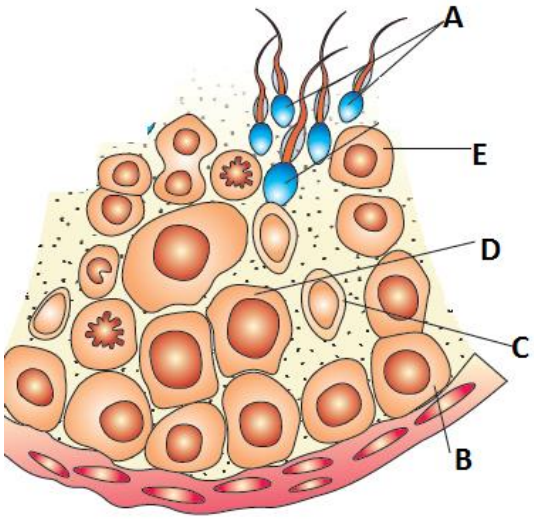
48. ..... and .....are two surgical contraceptive methods in male and female respectively (1)
49. Diagram of mammalian sperm is given below. Label the parts marked (1)



50. Sex of the bay is determined by the father, not by the mother. Substantiate? (2)
51. Amniocentesis for sex determination is banned in our country? Is this Ban necessary? Comment one use of amniocentesis? (2)

HSE-MARCH-2014

52. Observe the diagram and answer the question (3)
    a) Identify A and B
    b) What is the function of C
    c) In which of the marked part reduction division takes place? What is the significance of it?



53. One of our neighbour is suffering from itching, fluid discharge, slight pain and swelling in the genital region (2)
    a)What do you think the disease he is suffering from?
    b)What measures are to be taken to prevent such disease
54. Expand the following abbreviations which are commonly used in reproductive health
    a)ART b)ZIFT (1)

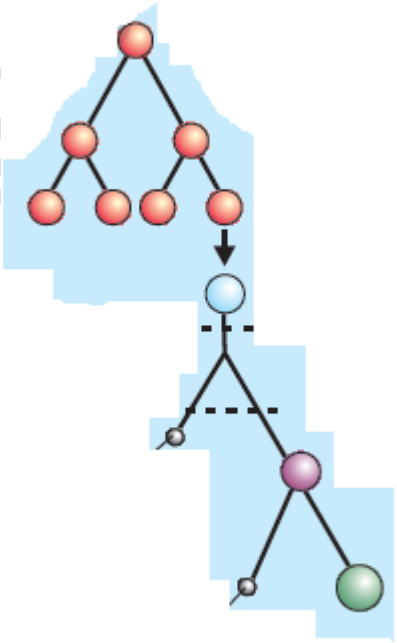
HSE-SAY-2013

55. Though one ovum is produced from a primary oocyte it can result into a male or female child after fertilisation. But in these case of spermatocyte though 4 sperms are produced only two of the can result to a female child after fertilisation justify? (1)
56. Sterilization and IUDs are effective birth control measures, but lactational amenorrhoea may not be so effective
    a)How the sterilization procedure of male differ from that of female in preventing pregnancy? (2)
    b) Which part of the female reproductive organ is utilized for the IUD procedure? How this procedure prevents pregnancy? (2)
    c)Why the lactational amenrrhoea is not so effective? (1)

HSE-MARCH-2013

57. The following statements compare the process of Oogenesis and spermatogenesis. Which one is not true
    a)Production of ovum ceases at certain age, but sperm production continues even in old men
    b)Oogenesis begins in the embryonic stages, but spermatogenesis starts at the oneset of puberty.
    c)Meiotic arrest occurs both in Oogenesis and spermatogenesis.
    d)Polar bodies are formed in Oogenesis (1)

58. Suggest the ART which may be successful in the following conditions (3)
    a)A female cannot produce an ovum, but can provide suitable environment for fertilization and further development
    b)Male partner is unable to inseminate the female or has very poor sperm count
    c)Fusion of gamete and zygote formation doesnot occur within the body of female
59. The diagram represents a process of gametogenesis. Closely observe it and answer the following (2)
    a)Is it spermatogenesis or Oogenesis?
    b)What does smaller shaded circle represent?
    c)Write down two significance of production of same?

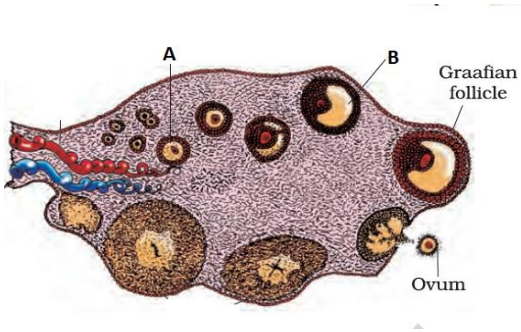


HSE-SAY-2012

60. Find out the odd one from the following, write the reason (1)
    a)Cu T, b)Cu 7 c)LNG-20 d)Multiload-375
61. One couple came to know that they have a girl child during fourth month of pregnancy and they decided to do MTP (2)
    a)What is MTP?
    b)At which stage of pregnancy MTP relatively safe?

c)How will you respond to the decision of female foeticide by the couple?

62. Observe the diagram provided (do not copy the picture) (3)



a)Label A and B

b)On which day of menstrual cycle Graffian follicle rupture?

c)Name the process induces the rupture of graffian follicle

d)Write the name and function of the structure forming inside the ovary after rupture of Graffian follicle?

HSE-March-2012

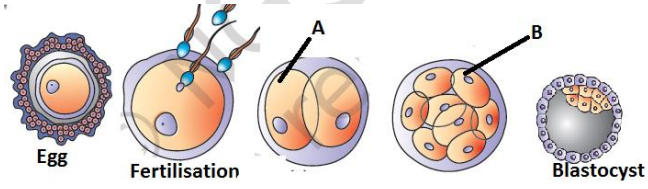
63. "STDs present a major health concern in both industrialization and developing countries" (3)

a) What you meant by STD?

b) Name two STDs?

c) Suggest two preventive measures?

64. Some stages of embryonic development are given below. Observe these diagram and answer the question (3)



a)What is A and B?

b)Name the two types of cells found in the Blastocyst?

c)Which layer of blastocyst is attached to the endometrium? And Name the process?

HSE-SAY-2011

65. Note the relationship between first two terms and suggest a suitable terms for the fourth place (1)

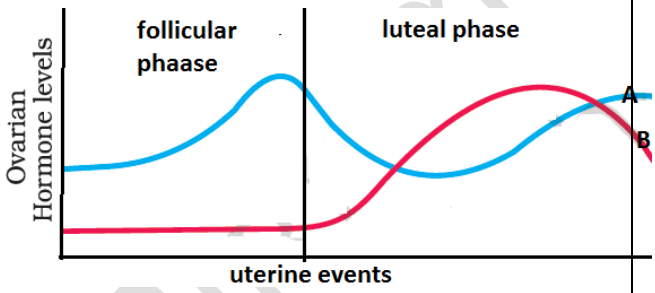
a)Progesteron : Corpus luteum

HCG : .....

b)GIFT : Gamete

ZIFT : .....

66. Observe the Graph provided



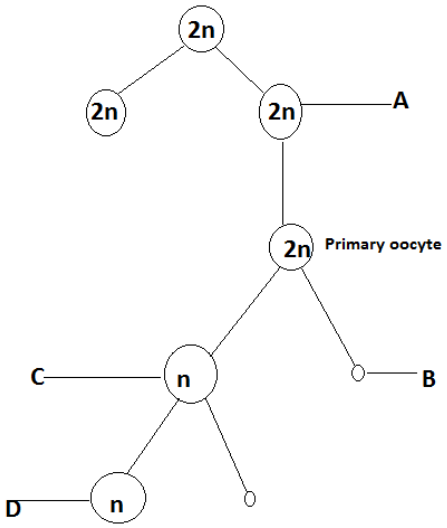
a)What do A and B stands for? (1)

67. Nalini is four month pregnant at the insistence of her mother in law, she underwent an illegal diagnostic procedure by which the sex of the baby was determined to be female . Nalini's mother in law cursed her for conceiving a girl child.

a)What is the diagnostic procedure used here?

b) "scientifically, Nalini is not responsible for conceiving a girl child". How will you substantiate this statement? (1)

68. Observe the diagram provided and identify the process: (2)



a)Label; A,B,C and D

b)Why the gametes produced are haploid even though the gamete mother cells are diploid?

69. Raju has lost his mother at birth. He is unhealthy and contract diseases easily. In his Doctor's opinion, Raju's ill health is due to his not drinking mother's milk.
How will you justify the doctor's opinion in the light of your knowledge of immunity? (2)

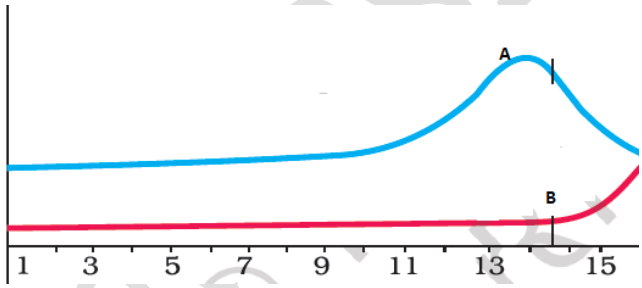
HSE-MARCH-2011

70. One among the contraceptive method is peculiar. Find the odd one and what is the common among others? (1)
a)Periodic abstinence
b)coitus interruptus
c)Lactational amenorrhea
d)IUDs

71. The treatment facility advertised on the brochure of a private clinic is shown below
a)Can you suggest what type of clinic is?
b)Make a brief note on any three of the treatment procedure? (2)

IVF	ZIFT	GIFT	IUI

72.



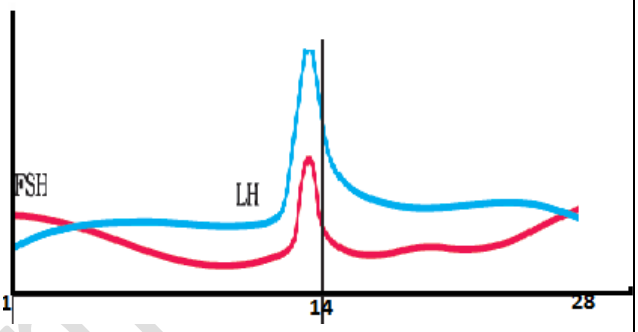
The above graph shows the level of ovarian hormones in a normally menstruating women during follicular phase (3)
a)Name A and B
b)Mention the role of pituitary hormones in maintaining this condition
c)Reconstruct the graph for luteal phase?

HSE-SAY-2010

73. Select the ART that uses an early embryo with upto 8 blastomeres (1)
a)ZIFT)IUT c)GIFT d)IUI

74. The total population in India is alarmingly increased to 1 billion according to 2001 censes. The population growth rate was still around 1.7%, a rate at which our population could be double in 33 years
Cite the probable reasons for such an increase in population growth rate? (2)

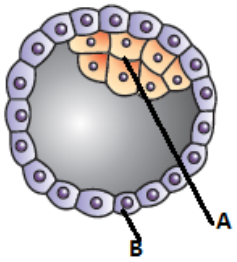
75. The graph shown below shows the levels of LH and FSH at various stages of menstrual cycle. (3)



a)Name the source of LH and FSH
b)The level of LH is maximum during the middle day of cycle. Mention its effect?
c)Note the function of LH in male?

HSE-March-2010

76. Given below is the diagrammatic representation of Human blastocyst. Observe the diagram and answer the following questions. (2)



a)Identify A and B
b)Write the function of A and B

77. When the urine sample of a lady is tested, presence of Human chorionic gonadotropin (HCG) was detected (2)
a)What does the presence of HCG indicate?
b)Which is the source of HCG?

78. Diagram shown below is a surgical method used for female sterilization (2)

a) What is the method shown in the diagram?

b) Mention any two IUDs to prevent conception?

c)what is surgical method of male sterilization called?

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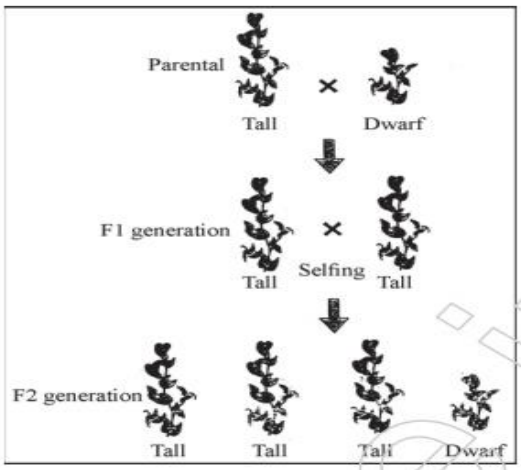
PRINCIPLES OF INHERITANCE AND VARIATION

HSE-March-2020

1. From the following, find out the symbol used in the human pedigree analysis representing male. (1)

(a) ○ (b) ◇
(c) □ (d) ●

2. Observe the figure given below showing Mendel's experiment using pea plants. (2)

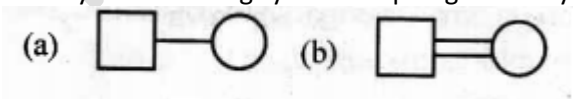


(a) Identify the cross
(b) Which are the laws proposed by Mendel based on this observations ? (2)

3. Correct the following statements, if there is any mistake :
   (a) Haemophilia is a autosome linked recessive disease.
   (b) Turner's syndrome is due to the presence of an additional copy of X chromosome

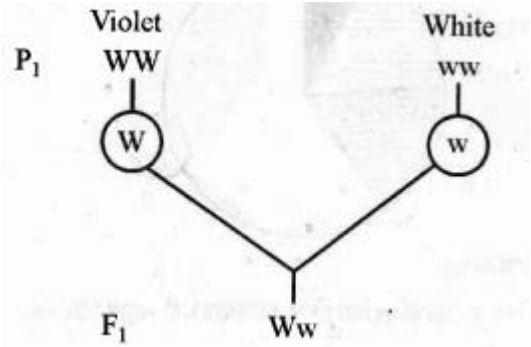
HSE-June-2019

4. Identify the following symbols in pedigree Analysis



(1)

5. Observe the cross of a pure violet and white flower (2)



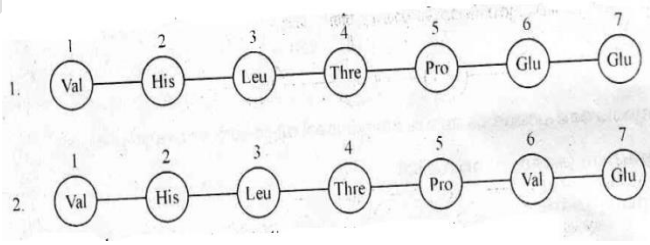
   a) By using the F, progeny design a test cross.
   b) Mention the significance of test cross

6. Each symptom of two chromosomal disorders are given below : (2)
   - Gynaecomastia
   - Rudimentary ovary and lack of secondary sexual characters

(a) Identify the disorders.
(b) Give the reason for these disorders

HSE-March-2019

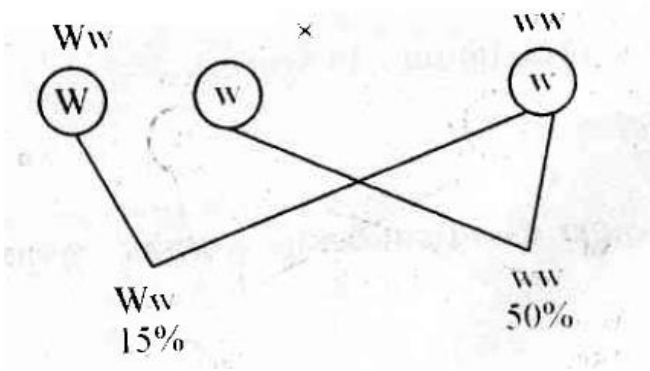
7. Find the odd one out. Justify your answer.
   Down's syndrome, Turner's syndrome, phenylketonuria, Klinefelter's syndrome (2)
8. The amino acid composition of the relevant portion of β chain of two haemoglobin molecule molecules (A & B) are shown below (3)



   (a)Which one of the polypeptide chain is abnormal?
   (b) Name the disorder caused by it.
   (c) What is the reason for this abnormality?
   (d) What is the effect of this abnormality in such individuals?

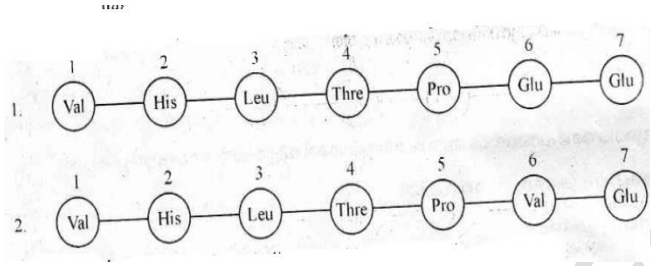
HSE-June-2018

9. Observe the following cross between heterozygous dominant progeny and homozygous recessive parent. Answer the following questions (2)



a) Identify the cross?
b) Mention the significance of this cross?

10. The following diagram shows amino acid sequences of a part of β chain of haemoglobin of 2 individuals. Observe the amino acid sequence and answer the following questions : (2)

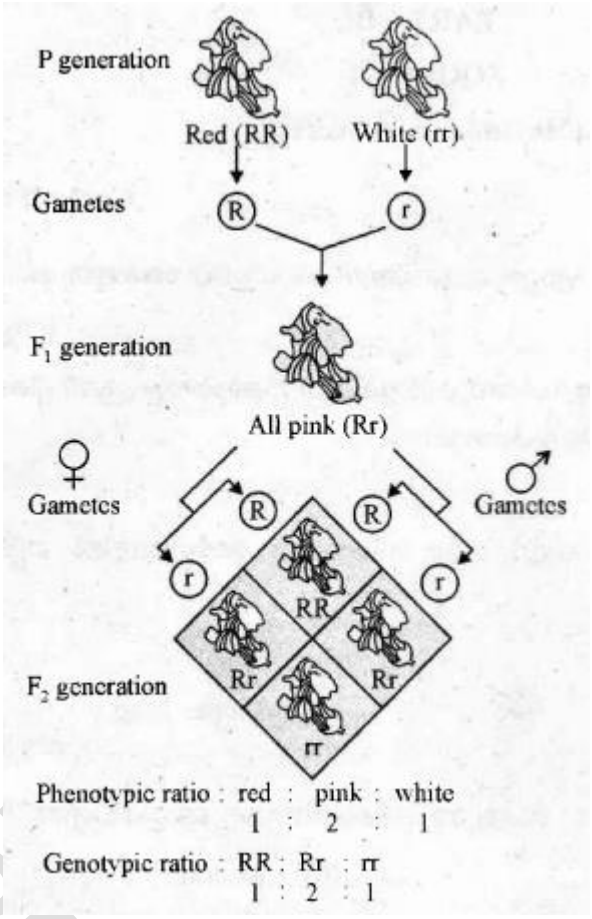


a) Which among the above indicate sickle cell anemic condition?
b) Justify your answer?
c) Describe what is single base substitution?

11. The blood group of a child is 'O'. His father is with 'A' blood group and mother with 'B' blood group. Write, down the genotype of the child and genotypes of parents. (2)

HSE-March-2018

12. In a classroom discussion, a student said that the sex of the baby is determined by father. Analyze the statement and give reason for it ? (2)
13.

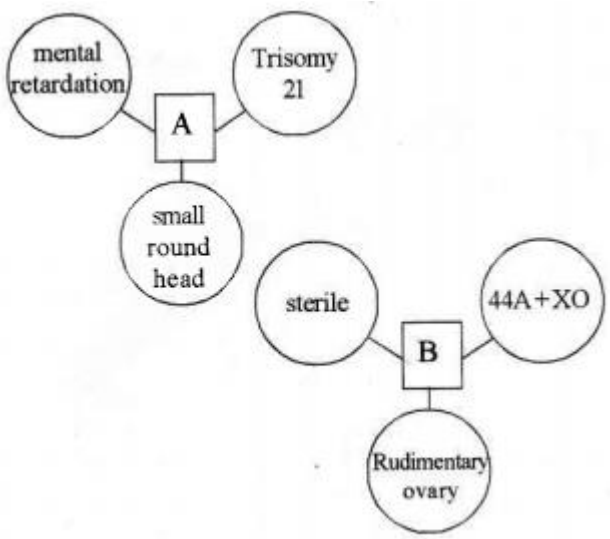


a) Observe the above cross and name this phenomenon?
b) Write down the theoretically given explanation of the phenomenon (2)

14. Haemophilia, Sickle cell anaemia and Phenyl Ketonurea are Mendelian disorders
(a)What do you mean by mendelian disorder
(b) which one of the above is an example of in born error of metabolism? Mention the cause of disorder? (2)

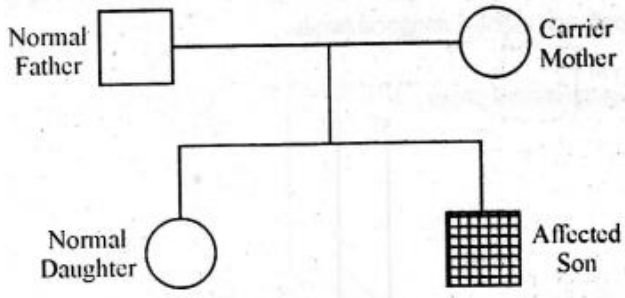
HSE-Model Exam -2018

15. Construct a monohybrid cross between homozygous violet and white coloured flowers of a pea plant How can one determine whether the F1 Progenies are homozygous or heterozygous? (2)
16. From a clinical laboratory, Ramu's blood group was identified as 'AB' goup. But his father has 'A' blood group and mother has is 'B' blood group.
a) Is Ramu's blood group identification correct?
b) Substantiate your answer using co dominance principle. (2)
17. Identify the syndromes 'A' and 'B' (2)



HSE-JUNE-2017

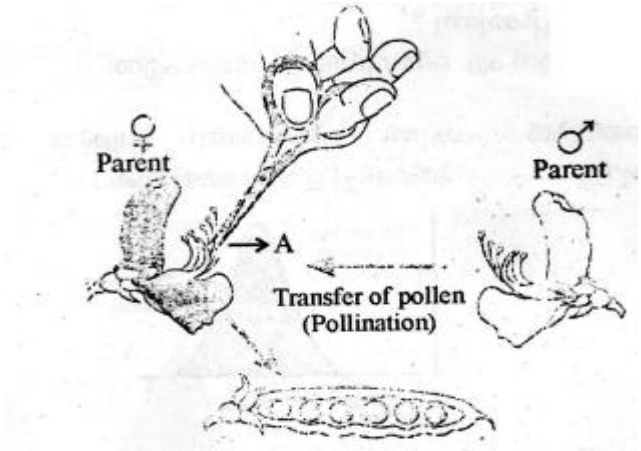
18. Observe the diagrammatic representation of following pedigree analysis and answer the question. (3)



a) Describe the type of inheritance shown in the diagram

b) Distinguish between Mendelian disorder and chromosomal disorder with example?

19. Observe the following diagram and answer the question
(Hint: step in making a cross in pea plant) (2)



a) Name the process marked as A and writes its significance?

b) Diagrammatically represent a monohybrid cross between Tall and dwarf pea plant

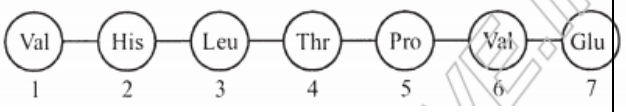
HSE-MARCH-2017

20. The following table shows the F2 generation of a Dihybrid cross. Identify the phenotype with homozygous recessive genotype. Find out A:B:C:D (2)

No.	Phenotype	No. of offspring (F_2 gen.)
1	A	21
2	B	7
3	C	63
4	D	21

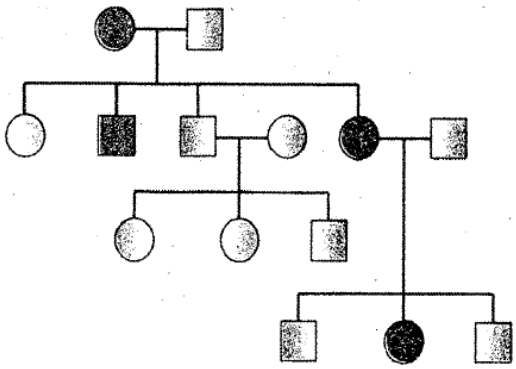
21. Which of the following do not have similar sex chromosome? (homogametic) (1)
(1) Human female
(2) Drosophila female
(3) Bird female
(4) Bird male

22. Examine the following fragment of beta globin chain in human haemoglobin and identify the hereditary disease with reason (2)



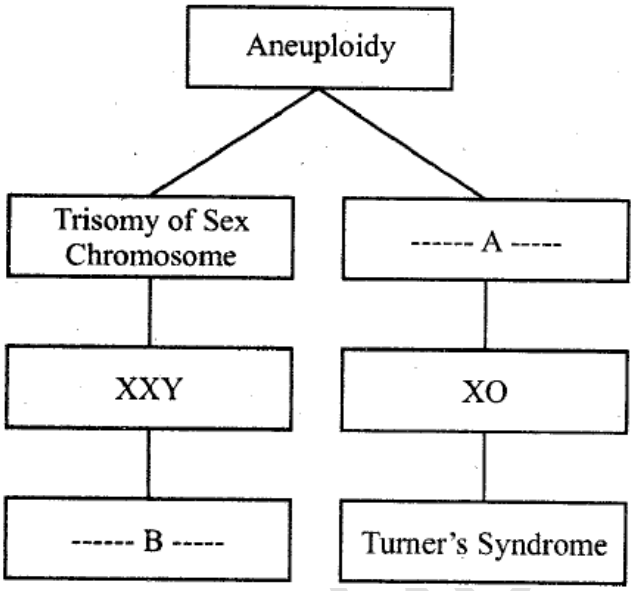
HSE-June-2016

23. Observe the figure below and answer the question following : (2)



a)Identify the figure?
b)what show the shaded symbols used?

24. a)Complete the flow chart of chromosomal disorder by filling the blank boxes (A and B) (3)

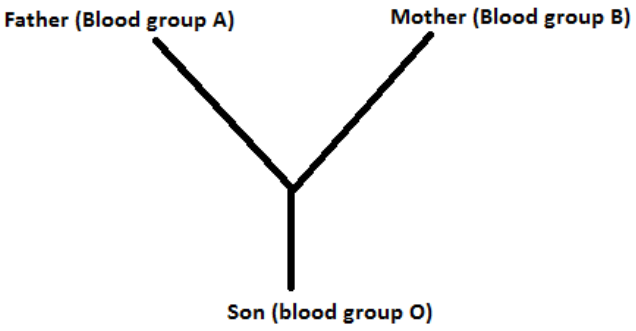


b)What is aneuploidy ?

HSE-March-2016

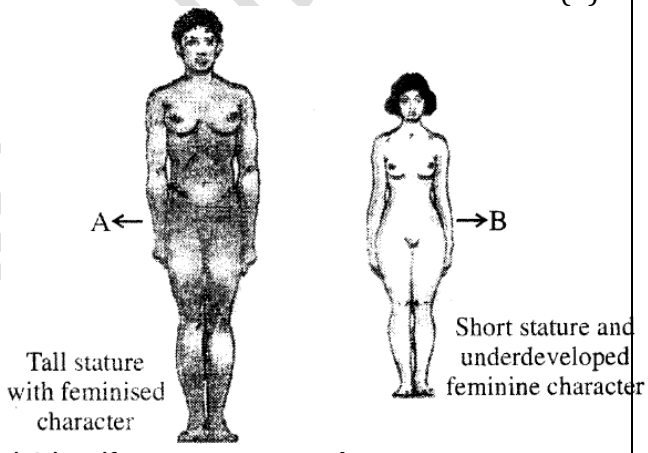
25. Which of the following is not a Mendelian disorder (1)
Colourblindness, Down's syndrome, Haemophilia, Thalassemia

26. Study the following cross and answer the questions.
[Hint: ABO blood group in man is controlled by three alleles I^A, I^B and i.]



a)Write the genotypes of Father, Mother and Son.
b)The type of dominance of human blood group inheritance is..... (2)

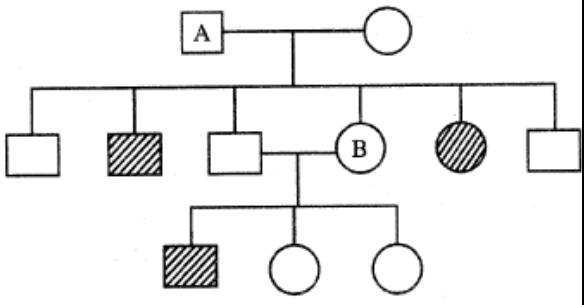
27. Observe the figure and answer the question (2)



a) Identify the syndromes A and B.?
b) What is the chromosome numbers in A and B?

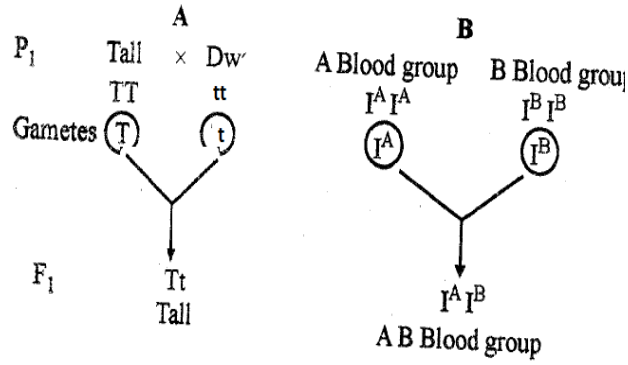
HSE-SAY-2015

28. Diagrammatic representation of the pedigree analysis of the inheritance of sickle cell anaemia is shown below. (3)



a)Name the type of inheritance shown in the figure ?
b) Write the genotype of A and B?
(Hint : Disease is controlled by a pair of allele Hb^A and Hb^s)
c)Represent pedigree analysis of an X linked Recessive Inheritance diagrammatically

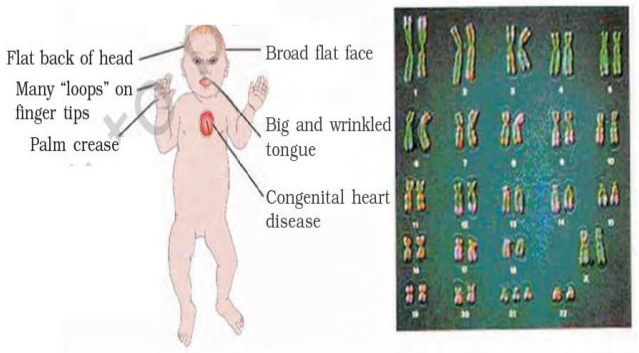
29. Observe the inheritance shown in A and B



a)Name the type of inheritance shown in A and B?
b)What is the difference between the two types of inheritance? (2)

HSE-March-2015

30.



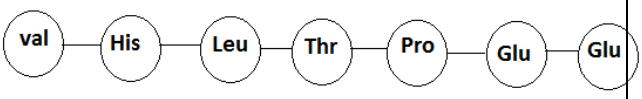
a)Identify the syndrome from the diagram, and write the genotype?
b)It occurs in both sexes (Male and female)? Write the reason (2)

31. Fill in the blanks: (1)
a).....is a metabolic disorder that occurs due to the lack of an enzyme that converts phenyl alanine to tyrosine.
b).....is a disease caused by the substitution of glutamic acid by valine at the 6th position

32. It is evident that, it is the genetic make of a sperm that determine the sex of the child in human beings. Substantiate (2)

HSE-SAY-2014

33. Correct the amino acid sequence of sickle cell hamemoglobin (1)



34. Identify they syndrome from the genotype given below: (1)
a)44 Autosome + XXY
b) 44 Autosome +XO

35. Sex of the Baby is determined by the father, not by the mother. Substantiate (2)

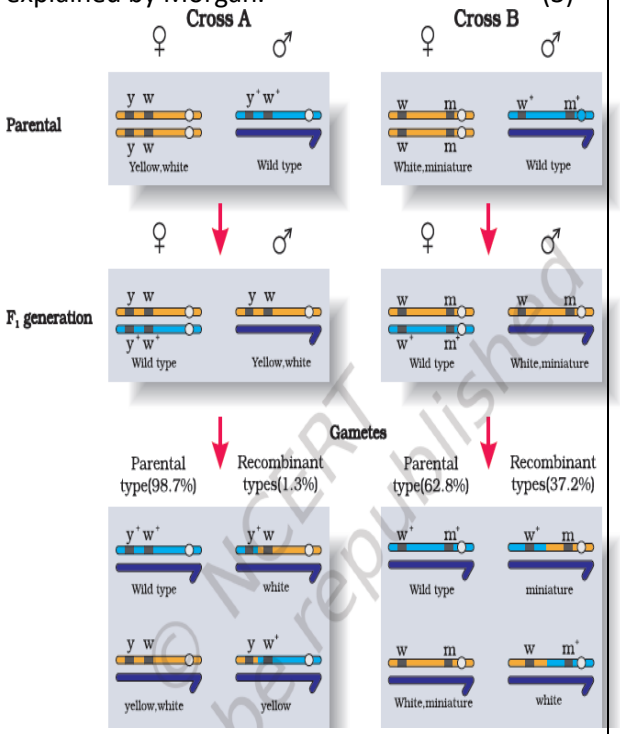
36. a)Define mutation (1)
b)What are the different types of mutation? (1)

37. The family of Queen Victoria shows a number of Haemophilic descendants as she was the carrier of the disease. Name the pattern of inheritance of this Royal disease. (1)

38. a)Paternity or maternity can be determined by certain scientific methods. What is it? Define
b)Briefly write the methodology involved in the technique ?
c)comment on its other application (3)

HSE-March-2014

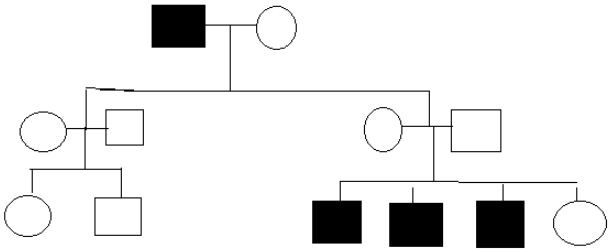
39. Explain the phenomenon shown in the following figure and the reason for difference in the production of recombinant in Cross A and cross B as explained by Morgan. (3)



40. Difference in chromosome number of some human being A,B,C, and D is given below:
    A)22 pairs of Autosome
    B)22 pairs of Autosome +XO
    C)22 pairs of Autosome+ 1 autosome
    D)22 pairs of Autosome+ XXY
    a) Identify the person with who suffers from Klinfelter's syndrome. Write its symptoms
    b)Differentiate between aneuploidy and polyploidy ? (3)
41. Gopalan argues that if the father is of 'A' blood group, Mother is of 'B' blood group. Their children can be only be 'A' group, 'B' group or 'AB' group.
    a) Do you agree with Gopalan's arguement?
    b) Give reason for your argument? (2)

HSE-SAY-2013

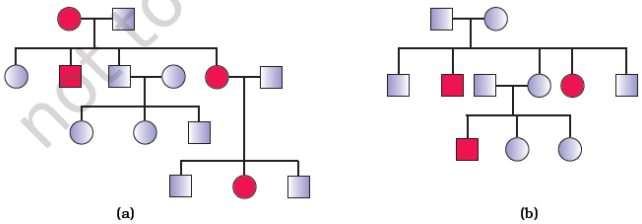
42. In the given pedigree the shaded figure denotes individuals expressing a specific trait (2)



Which of the following is the most probable mode of inheritance of this trait
A-Simple mendalian recessive inheritance
B-Co dominant Relationship of a single pair of allele
C-X linked recessive transmission
D-X linked dominant transmission
E-Polygenic inheritance

HSE-March-2013

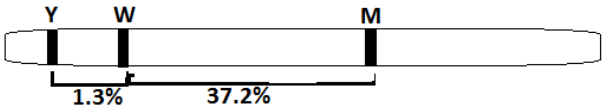
43. Identify the trait from pedigree chart. Give one example each. (2)



44. A poultry farm manager was cursing his hens for producing lion share of cocks in its progeny. Hearing this, Kumar-farm manager starts to lame his wife for delivering consecutive girl children. Analyse the situation scientifically and state whether you agree with kumar? (3)

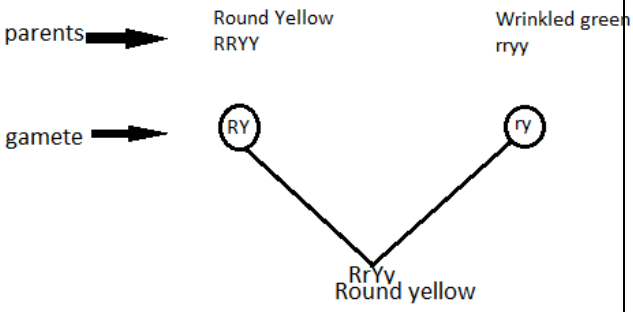
HSE-SAY-2012

45. Diagrammatic representation of chromosome map of Drosophila is given below (2)



Y- Yellow
W- White
M- Miniature
a)Which genes are more linked?
b)Who mapped chromosome firstly?
c)Tightly linked genes show low recombination. Why?

46. Work of a student is given below: (3)



a) From the above give an example for genotype and phenotype?
b) Complete the work using the punnet square and find out the phenotypic ratio in the F2 generation?

HSE-March-2012

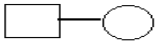
47. Complete the tale using suitable term (2)

Turner's syndrome	.....a.....	Sterile female
---------b--------	44A+XXY	.....c.....
--------d---------	Trisomy-21	Mental retardation

48. In Pea plant the gene for yellow seed colour is dominant over green and round seed shape is dominant over wrinkled. Write the four types of gametes formed in heterozygous pea plant with Yellow and round seeds (YyRr) (1)
49. The first child of a couple is affected with Phenyketonuria. During the second pregnancy they visited a genetic counsellor and Prepared a pedigree chart of their family. (2)
    a)What is pedigree analysis?
    b)Draw the symbols for
    i) Affected female
    ii) Sex unspecified
    iii)Consanguineous mating

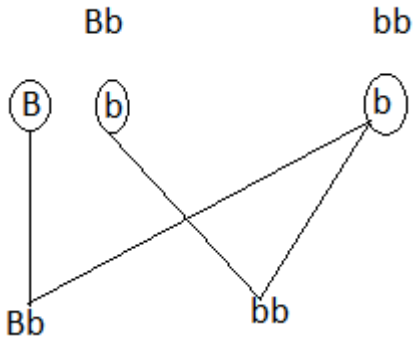
HSE-say-2011

50. Symbols used in human pedigree analysis and their meanings are provided in the table. Fill in the blanks with suitable meaning or symbols (1)

symbols	Meaning
	...a.....
.....b.....	female
	mating
	...c.....
....d.....	affected male

51. Certain facts related to human disorder are given:
    1)It is inborn error in metabolism
    2)It is inherited as an autosomal recessive trait
    3)The affected person is mentally retarded
    a)name the disorder
    b)What are the physiological processes behind this mental retardation (2)

52. A genetic cross is represented below (2)



a) Identify the given cross?
b) Elaborate upon the significance of such cross?

HSE-March-2011

53. The frequency of occurring Royal disease or Haemophilia is high in the pedigree of Royal families of Queen Victoria. Which of the following cannot be generally inferred from this? (1)
    a)Queen Victoria was not homozygous for the disease
    b)Many heterozygous families were there in the Royal family
    c)Non-Royal families were not affected with haemophilia
    d)There is less possibility to become a female diseased
    e)Generally a diseased female cannot survive after the first menstruation
    f)Pedigree analysis is the study of inheritance patterns of traits in human female.

54. After analyzing the karyotype of a short statured Round headed person with mental retardation, a general physician noticed an addition of autosomal chromosome .
    Answer the following question (2)
    a)Addition or deletion of chromosome generally result in.....
    b)What may be the possible syndrome or disorder of the above person should suspected to be?
    c)Suggest two or more morphological peculiarity to confirm the chromosome disorder in that person?

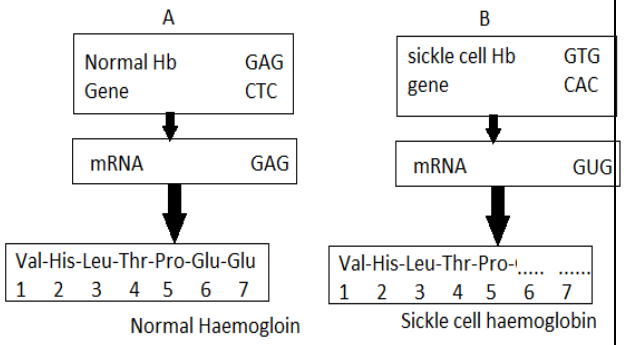
55. A couple has 2 daughters. The blood group of husband and wife is O (2)
    a)What is possible blood groups of the children should have?
    b)Whether any change in blood group will occur if they have two sons instead of daughters?

HSE-SAY-2010

56. Some genetic abnormalities, their genotype and features are distributed in Column A,B and C respectively . Match them correctly (1.5 mark)

Column A	Column B	Column B
Down's syndrome	44A+XO	Rudimentary ovary and sterility
Turner's syndrome	44A+XXY	Furrowed tongue and partially opened mouth
Klinfelter's syndrome	45A+XX/XY	Gynaecomastia and sterility

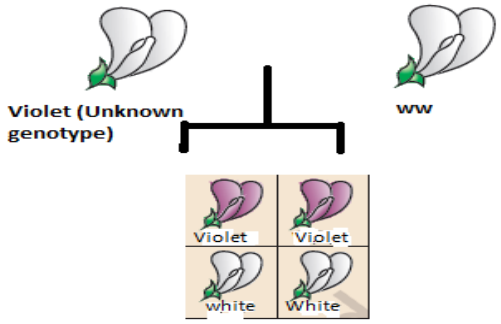
57. The flow chart A and B given below represents the inheritance of normal haemoglobin and sickle cell haemoglobin (3.5)



a) Observe the Flow chart A and complete the flow chart B
b) Note down the genotype of a sickle cell anaemia patient and mention the symptom of the disease
c) Mention the peculiarity of Hb^AHB^s phenotype

HSE-March-2010

58. To find out the unknown genotype of a violet flowered pea plant a researcher done the flowering cross. Observe the diagram and answer the following question:
(Hint :Violet flower colour in pea plant is dominant over white)



a)What would be the above cross called?
b)can you determine the unknown genotype of violet flowered parent by drawing Punnet square?

59. Polypeptide chains of two haemoglobin molecules are shown below. One of the chains shows an abnormality. Observe the diagram and answer the following questions

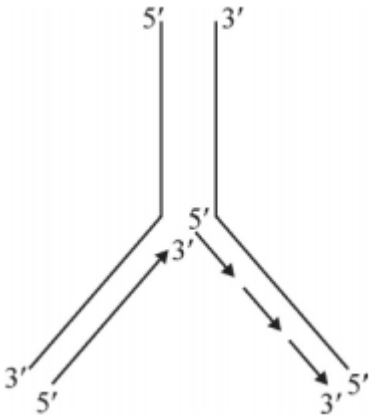
a) Which of the polypeptide chain in the haemoglobin is abnormal leading to a disease?
b)What is the reason for this abnormality ?
c)What will be the effect of this change in polypeptide chain ?

SCAN QR CODE FORE VIDEO LESSON

MOLECULAR BASIS OF INHERITANCE

HSE-March-2020

1. One of the salient features of genetic code is "Universal". (2)
   (a) Write any other two salient features of Genetic code
   b) Which is the initiator codon ? And name the amino acid it codes.
2. Observe the figure given below : (3)

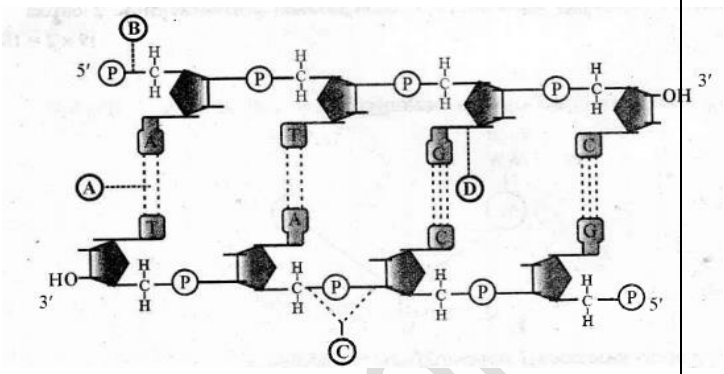


   (a) Identify the process in the picture.
   (b) Name any two enzymes needed for this process.
   (c) Write the peculiarities of the newly synthesized daughter strands
3. A DNA sequence is provided below. 5' – ATGCATGCATGCATGCATGCATGCAT – 3' (3)
   (a) Write down the sequence of its complementary strand.
   (b) Name the enzyme involved in transcription of DNA.
   (c) What would happen if both the strands of the DNA act as templates for transcription?

HSE-June-2019

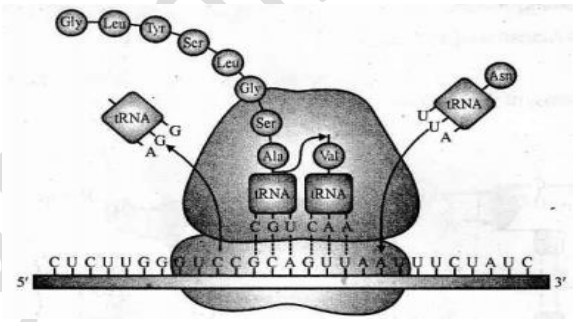
4. In a double stranded DNA, the ratios between Adenine and Thymine, Guanine and Cytosine are constant and equal one. Who observed this fact ? (1)

5. Observe the diagram of a double stranded DNA strand : (2)



   Identify the bonds A, B, C & D.

6. The following diagram shows a process in the Ribosome : (2)

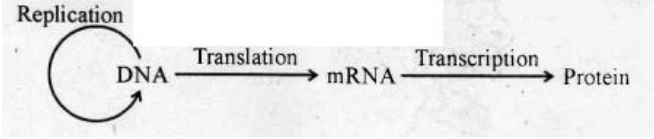


   Identify the Process and explain

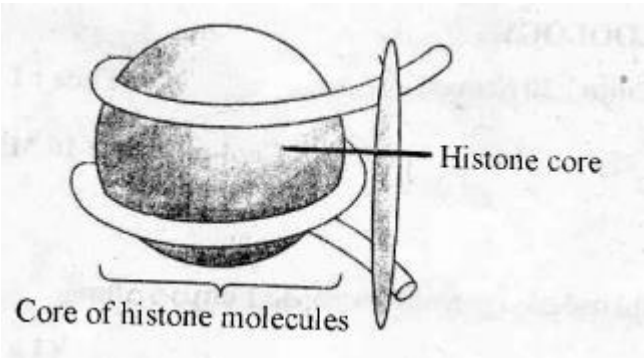
7. Transcription of eukaryotes is more complicated than that of prokaryotes. Explain any two additional complexities found in the transcription of eukaryotes. (3)

HSE March 2019

8. Diagrammatic representation of the central dogma given below is not correct. make necessary corrections and redraw it (1)



9. Observe the figure given below :

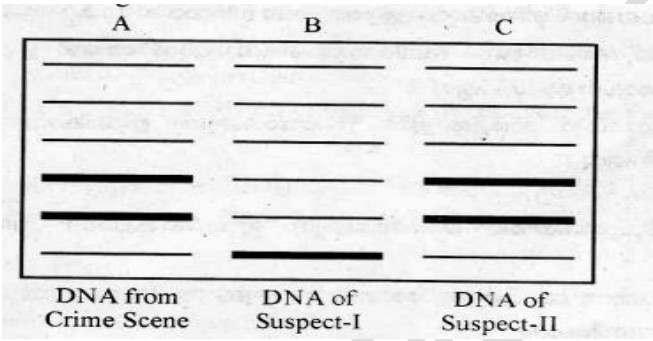


a) Identify the figure.

b)How many histone molecules are present in the Histone core ?

c)Distinguish between Euchromatin and Heterochromatin. (2)

10. The diagrammatic representation of the DNA fingerprint from a crime scene and that of a suspected persons are give below (3)

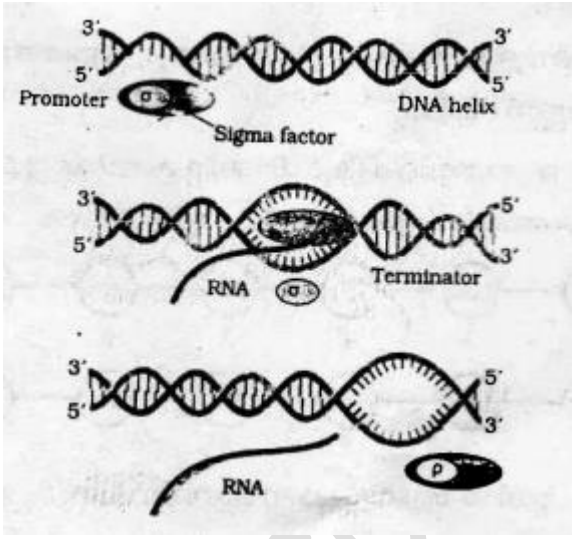


a)What is your conclusion about the suspects based on DNA Fingerprint given ?

(b) What is VNTR ?

(c) Who developed this technique first?

11. The diagrammatic representation of a process in bacteria is given below (3)



a) Identify the process.

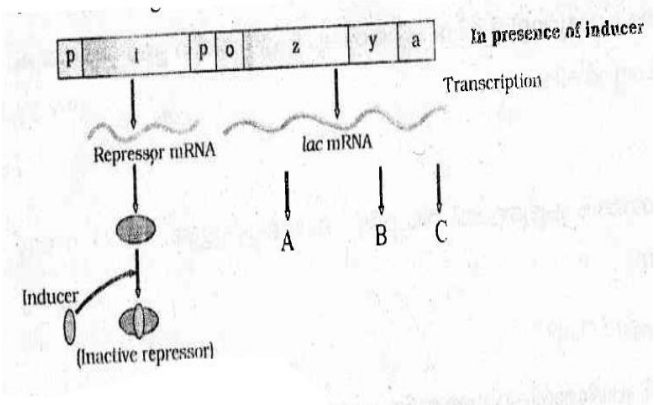
b) Name the enzyme involved in this process.

c) Explain the three major steps in this process.

HSE JUNE 2018

12. "Human genome project is a mega project" give two reason to explain this? (2)

13. Observe the diagram and answer the following (2)



a)Identify the diagram ?

b)Name the enzymes A,B, and C

14. "Genetic code is universal in nature"

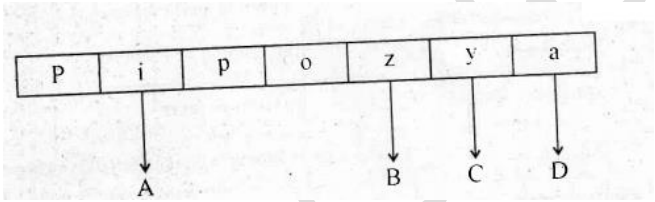
a)Substantiate this statement ?

b)mention any two other salient features of genetic code (2)

15. Expand the following (3)
a)SNP b)BAC c)YAC

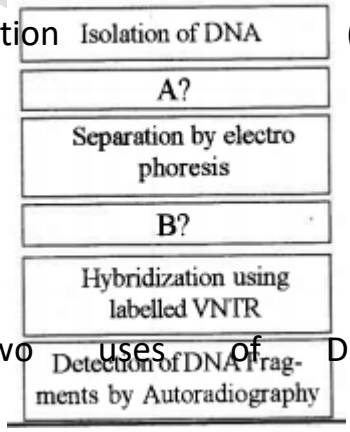
HSE MARCH 2018

16. Expresses sequence in the gene is called (1)
a)Introns b)Muton
c)Exons d)Cistron
17. DNA is tightly packed structure and is found as units called nucleosomes
(a) Explain the concept of nucleosomes
(b)Differentiate between euchromatin and hetero chromatin (2)
18. Identify the disadvantages of RNA over DNA as a genetic material and explain it ? (2)
19. a) In Lac-operon lactose act as inducer molecule. Evaluate the statement and explain it (3)
b) Observe the diagram of Lac –Operon and Identify Labelled part A,B,C and



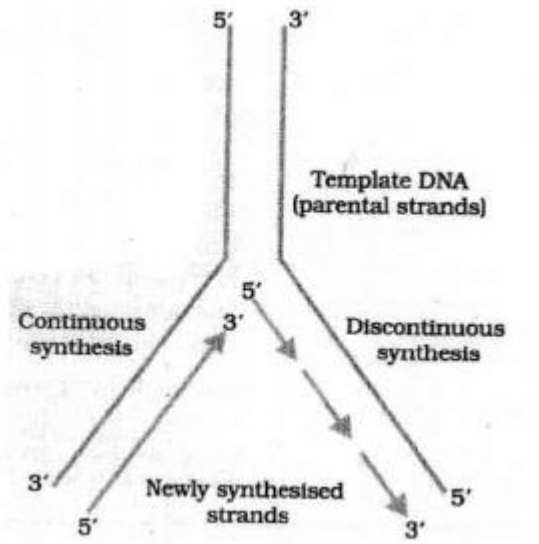
HSE-Model-2018

20. Complete the flow chart of Southern blot hybridization (2)



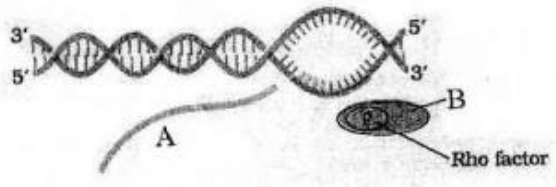
c)Mention two uses of DNA fingerprinting.

21. Read the following statements and answer the following questions
1-A genetic material should be able to generate its replica
2-A genetic material should not provide scope for mutation
3- A genetic material should be able to express itself in the form of mendelian characters.
a. Choose the correct statements from the above. b. Rewrite the wrong statement to correct one (2)
22. Observe the given diagram and answer the following questions. (2)



a)Identify the above process.
b) Name the enzyme required to polymerise the DNAstrand.
c) Name the enzyme required to join the discontinuous strands
d) In eukaryotes replication of DNA occurs at ……phase of cell cycle.

23.



a) Name 'A' and 'B' from the above diagram.

b. Describe the following terms

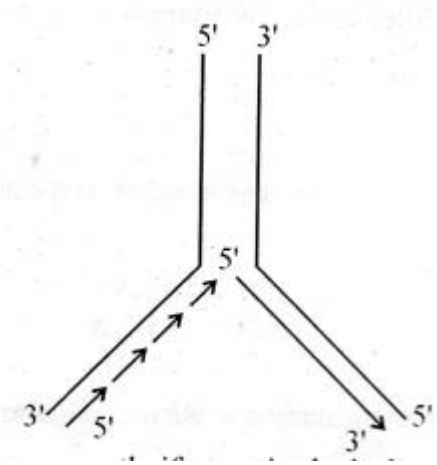
i) Capping ii)Tailing

HSE-JUNE-2017

24. Find the odd one and write the common feature of the other (1)

Cytidine, adenine, Thymine, guanine

25. Observe the diagram (2)

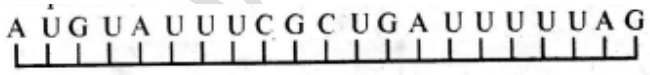


a)Redraw the diagram correctly if any mistake is there ?

b)what does the diagram indicate?

b)What is the function of DNAL ligase in this process ?

26. Read the codon sequence in the mRNA unit which is undergone translation (3)



a)What will happend if the nitrogen base 'U' in the 6th position is replaced by 'A' by point mutation

b)Name and define this type of mutation

c)draw the base sequence in the coding DNA strand from which the above mRNA is transcribed ?

HSE-March 2017

27. Which of the following combinations do not apply to DNA ? (1)

(a)	Deoxyribose, Guanine	(1) (a) and (b)
(b)	Ribose, Adenine	(2) (b) and (c)
(c)	Deoxyribose, Uracil	(3) (c) and (d)
(d)	Guanine, Thymine	(4) (a) and (d)

28. Examine the diagram of Mrna given below . Mark the 5' end 3' end of Mrna by giving reason (2)

29. A small fragment of a skin of different person was extracted from nails of a murdered person. This fragment of skin led the crime investigators to the murder. Ased on this incident answer the following questions (3)

(1) What technique was used by the investigators

(2) What is the procedure involved in this technique

Or

30. In an E.coli cultre lactose is used as food instead of glucose. If So, answer the following questions (3)

(1) How do the bacteria respond to the above situation at genetic level?

(2) If lactose is removed from the medium what will happen?

HSE-June 2016

31. Observe the figure of mRNA and answer the following question (3)

a)Find the start codon and stop codon?

b)How many amino acids will be present in the protein translated from this Mrna ?

c)The additional sequences that are not translated in the mRNA is called.....

32. a) The hints of lac Operon is given below (HSE-June-2016) (3)

Hints :

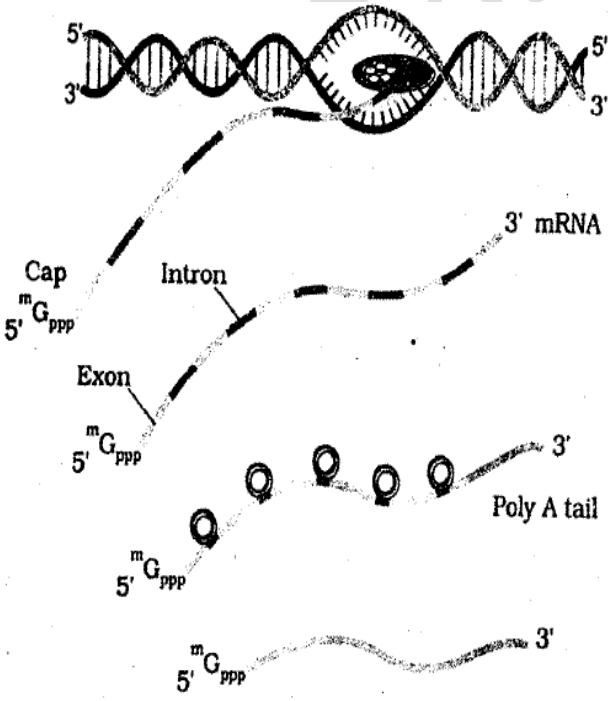
Inducer, Repressor,
Structural genes, operator
Regulatory gene

a)which substance is acting as inducer in this operon ?

b)explain the working of operon in the presence of inducer ?

OR

33. b)With the help of the figure given, explain the processing of hnRNA mRNA in eukaryotes (3)

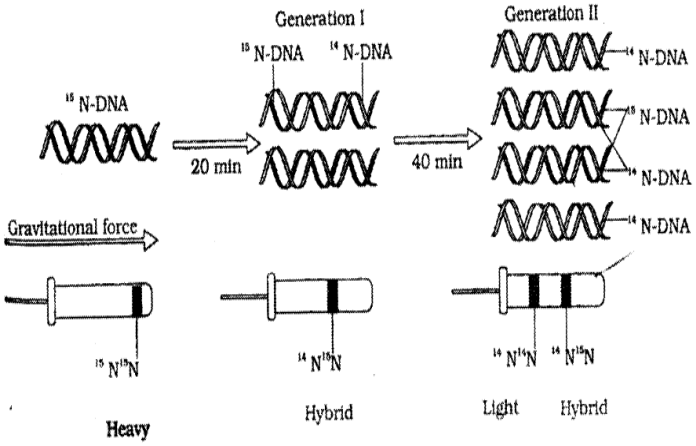


HSE-March 2016

34. Results of a famous experiment is given in the figure .Answer all (2)

a)Identify the experiment ?

b)which property of DNA is proved by experiment ?



(Separation of DNA by Centrifugation)

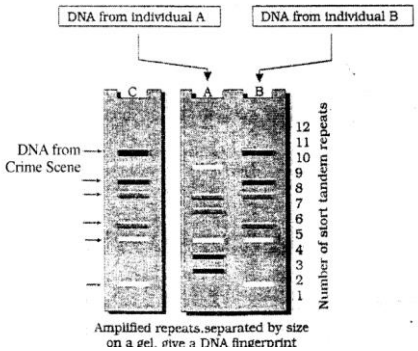
35. Read carefully the sequence of codon in the mRNA unit and answer the question (2)

a)what changes is needed in the first codon to start the translation process ?

b)if translation starts by that change, till which codon it can be continues ?

36. Schematic representation of DNA finger prints as shown below

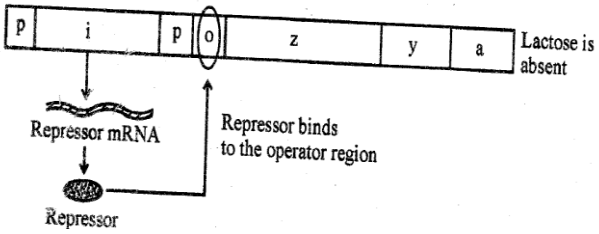
[Hints : C is a sample taken from a crime scene, A and B from two suspected individuals]



a)which one of the suspected individual may involve in the crime ?
b)write any other use of DNA figure print ? (2)

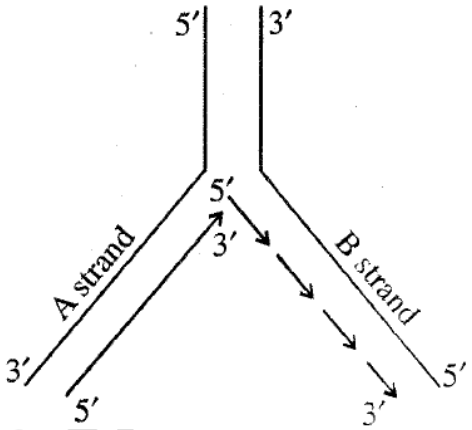
HSE-June -2015

37. Observe the following diagram and answer the question? (3)



a) Diagrammatically represent changes takes place when lactose is added to medium?
b) What is the role of z,y, and a gene in this metabolic pathway ?

38. Observe the diagram and answer the question? (3)

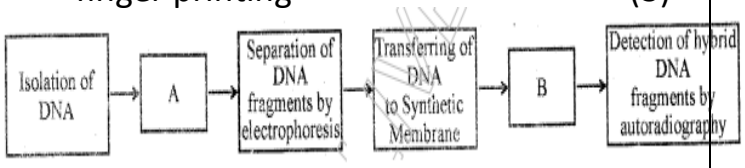


a)what is the difference in the replication process ins strand A and strand B ?
b)what is the role of DNA ligase in the replication process in B strand ?
c)what is meant by replication fork ?

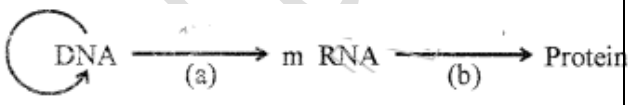
HSE-March-2015

39. Explain Transcription. A transcription unit in a DNA is defined by 3 regions. Write the name of any 2 regions? (2)

40. a) The steps in DNA Finger printing are given below. Complete the flow chart (A and B)
b)Mention the application of DNA finger printing (3)

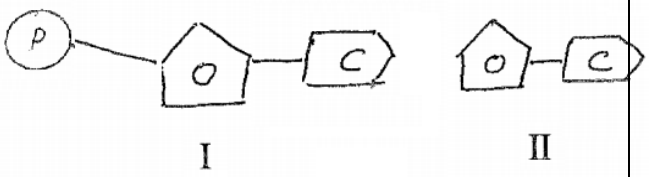


41. The flow of genetic information is shown below. Name the process of A and B (1)

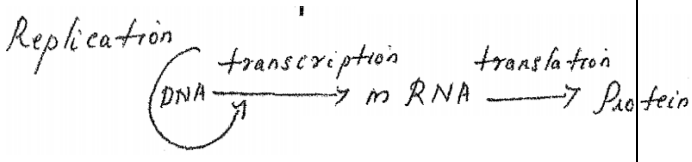


HSE-June-2014

42. Diagrams of components of DNA are given below: (1)
Identify and differentiate the two diagrams I and II



43. a)Identify the diagram and explain



b)In some cases DNA is produced from RNA. Name this process and give example ? (2)

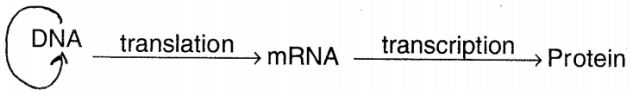
44. a)Paternity and maternity can be determined by certain scientific methods. What is it? Define?
b)Briefly write the methodology involved in the technique ?

c)Comment on its other application? (3)

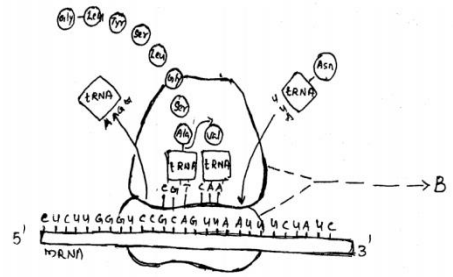
45. a)Define mutation ?
b)What are the different types of mutation ? (2)

HSE-March-2014

46. "Prediction of the sequence of aminoacids from the nucleotide sequence in mRNA is very easy, but the exact prediction of nucleotide sequence in mRNA from the sequence of amino acids coded by mRNA is difficult"
a)Which property of genetic code is the reason for the above condition ? Explain
b)Which are the stop codons in DNA transcription ? (3)
47. Diagrammatic representation of 'Central Dogma' is given below :
Observe the diagram carefully and redraw it making appropriate corrections (1)



48. Observe the diagram and answer the question (2)
a)Identify the process shown in the figure and define it ?
b)Identify the structure 'B', write any one function of it in the process shown in the diagram ?



HSE-Sept-2013

49. Presence of lactose enhances the production of beta galactosidase and other enzymes in bacteria . How will you explain this phenomenon ? (1)
50. A DNA sequence for coding a peptide is given below

"CAAGTAAATTGAGGACTC"
(Hint : Codons and Aminoacids)

UUA – Leu	ACU – Thr
CCU – Pro	GUU – Val
CAU – His	GAG – Glu

a)Write the complementary mRNA coding sequence for it ?

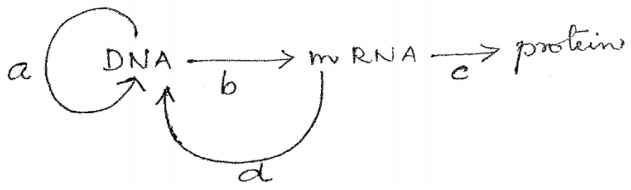
b)Find out the amino acids sequence of peptide chain using the codon given in the hints

c)if a mutation causes a change in the sixth codon CTC to CAC. It leads to a mendelian disorder. Identify the disease and write the specific characteristic of the disease ? (4)

51. Draw the flow chart showing the steps of southern blot hybridisation using radiolabelled VNTR ? (3)

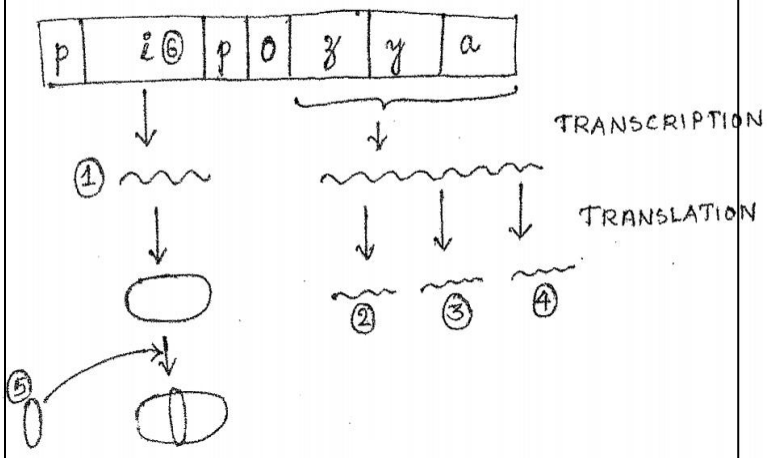
HSE-March 2013

52. The flow of genetic information is shown below (2)



a)Name the process a,b,c and d

53. Given below is the figure showing the functioning of lac operon in presence of lactose. Redraw the figure and label the parts numbered 1 to 6 (3)



54. RNA is not an ideal molecule as genetic material because (1)

a) 2'OH group of ribose is reactive and make it labile
b) It is catalytic and hence reactive
c) Both (a) and (b)
d) None of the above

HSE-June-2012

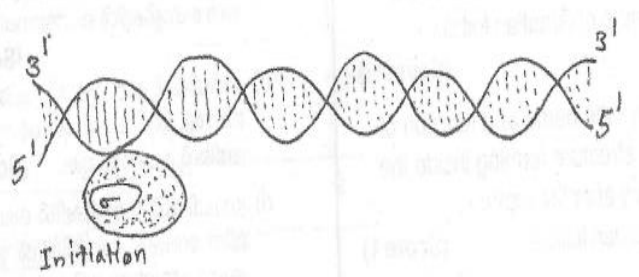
55. Following are the first two steps in Griffiths transformation experiment

1) S strain → Inject into mice → mice live
2) R strain → Inject into mice → mice die

a)If there is any mistake correct it
b)write the remaining steps ? (1.5)

56. DNA is the better genetic material than RNA, Do you agree with this statement? Substantiate (1.5)

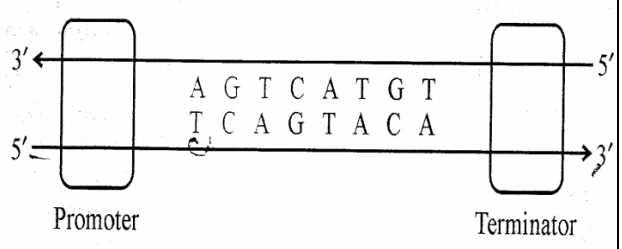
57. Given below is the diagrammatic representation of first stage of a process in a bacteria



a)Identify the process
b)Name the enzyme catalyses this process
c)What are the additional complexities in eukaryotes in this process ? (3)

HSE-March-2012

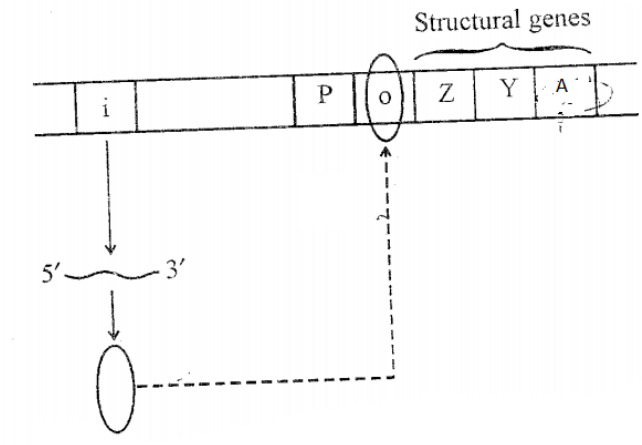
58. A transcription unit is given below. Observe it and answer the question (3)



a)How can you identify the coding strand ?
b)Write the sequence of RNA formed from this unit ?

c)what would happened if both strand of DNA act as template for transcription ?

59. In E.coli Lactose catabolism is controlled by Lac Operon. Lac operon in the absence of inducer (Lactose) is given below. (3)



a)What is 'P'?

b)Name the enzyme produced by the structural gene 'Z','Y', and 'A' ?

c)Re draw the diagram in the presence of an Inducer

SCAN QR CODE FORE VIDEO LESSON

EVOLUTION

1. Which of the following human ancestor is more 'ape' like? (HSE March 2020)(1)
   (a) Homo habilis
   (b) Dryopithecus
   (c) Australo pithecines
   (d) Homo erectus
2. Fill the blanks in Column A and B using appropriate terms. (HSE March 2020)(2)

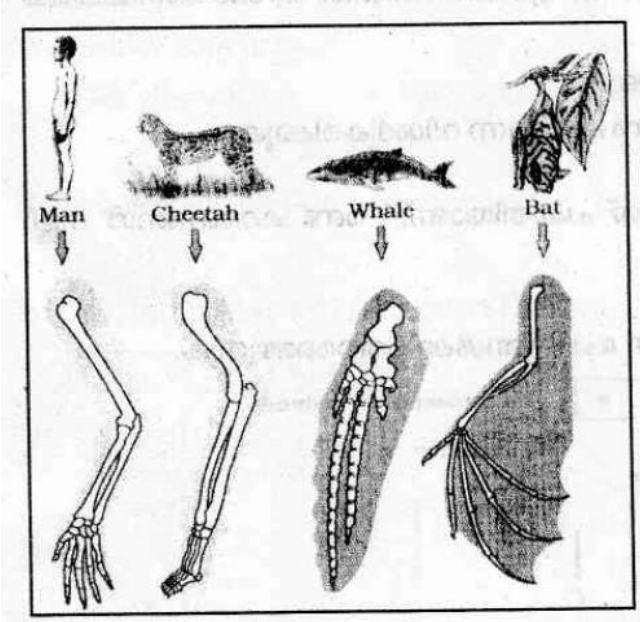
Theory	Scientists
(a) Theory of natural selection	A
(b) Use and disuse of organs	B
(c) Theory of mutation	C
(d) Theory of spontaneous generation	D

3. p2 + 2pq + q2 = 1 denotes an evolutionary principle.
   (HSE March 2020)(2)
   (a) Name the principle.
   (b) Mention any three factors affecting this.
4. Based on evolution in the geological period arrange the plants and animals in the correct order in various million years ago. Choose the appropriate organisms from the bracket.
   [Reptiles, Plants, Sea-weeds, Jawless fish, Fish with stout fin]

(a) 500 m ya : _____
(b) 350 m ya : _____
(c) 320 m ya : _____
(d) 200 m ya : _____

(HSE-June-2019)(2)

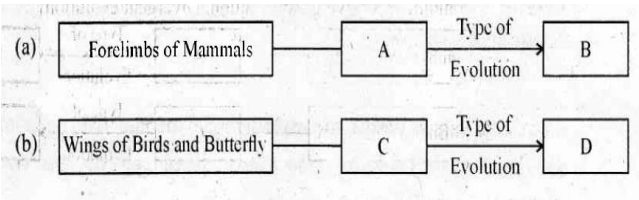
5. Make a flow chart using the following terms : **(**HSE-June-2019)(2)
   (Natural selection, Struggle for existence, Variation, Origin of species, 'Over production, Survival of the fittest]
6. Prepare a flow chart showing the evolution of modern man in the hierarchical order of their evolution using the details given below :
   Homo erectus, Homo habilis, Dryopithecus, Australopithecines, Homo sapiens, Rama pithecus, Neander thal nman (HSE-March-2019)(2)
7. Some examples of evolutionary structures are given below. Classify them under suitable headings:
   (a) Forelimb of Man, Cheetah, Whale, Bat.
   (b) Wings of Butterfly, Bird.
   (c) Thorns and tendrils of Bougainvillea and cucurbita.
   (d) Vertebrate hearts or brains.
   (e) Eye of the Octopus and Mammals.
   (f)Flippers of penguins and Dolphins.
   (HSE-March-2019)(2)
8. Above homologous organs provide evidence of a particular type of evolution. (HSE-June 2018) (2)
   (a) identify the type of evolution.
   (b) What do you mean by Homologous organs ?



9. $p^2+2pq+q^2=1$ is the gene frequency of the population showing an evolutionary principle
   a)Name the principle
   b)enlist any three factors affecting this principle (HSE-June 2018)(2)
10. Prepare a flow chart of evolution of man in descending order by choosing the names given below
    (HSE-June 2018) (3)

Homo sapiens, Homo erectus, Homo habilis, Austrapithecines, Ramapithicus, Neanderthal

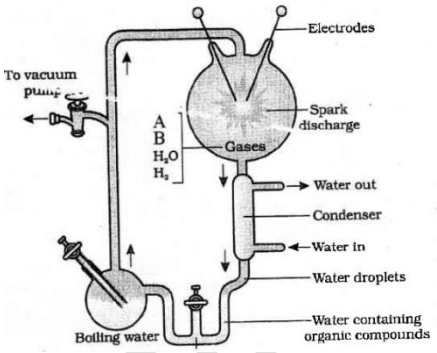
11. Complete the boxes with the suitable words given below, :
    [Analogus, Homologus. Convergent evolution. Divergent evolution]
    (HSE-March 2018)(2)



12. Explain the factors affecting hardy-Weinberg equilibrium

(HSE-March 2018)(2)

13. Diagrammatic representation of Miller experiment is given below. Answer the following questions
    (HSE-Model 2018)(2)



1. Name A and B
2. From those given below chose the new molecules obtained by the other scientists from similar experiment.
   (Amino acid, sugar, fat, Alkaloid, pigment , flavanoid)

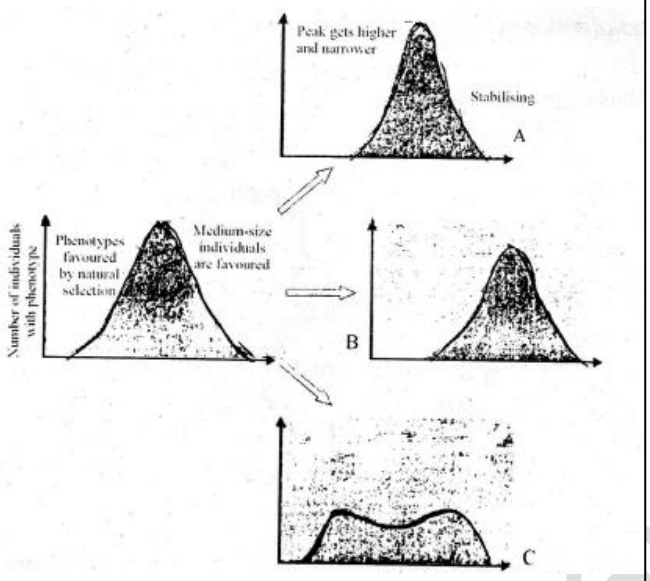
14. A collection of moths made in England during 1850, supported evolution by natural selection'
    Write a note on the process of natural selection on moths influenced by industrialisation . (HSE-Model 2018)(2)
15. Arrange the following names in ascending order of evolution.
    Homo sapiens, Ramapitrecus, Australopithecines,Homo habilis, Neanderthal, Homo erectus
    (HSE-Model 2018)(3)
16. Rearrange the following in the order of their evolution period
    (HSE-JUNE-2017)(1)
    -Australopithecines
    -Neanderthal man
    -Homo sapiens

-*Homo erectus*

-*Dryopithecus*

17. Diagrammatic representation of the operation of Natural selection on different trait is given. Observe it and answer the questions :

(HSE-JUNE-2017)(3)



a) What do B and C represent

b) Explain the process shown in B and C

18. Z value of a frugivorous species are given below . which value is not applicable to continents

(HSE-March-2017)(1)

(1) 0.6 (2) 0.65 (3) 0.20 (4)0.68

19. A population of 208 people of MN blood group was sampled and it was found that 119 were MM group, 76MN blood group, 13NN group. Answer the following questions

(HSE-March-2017)(3)

a) Determine the gene frequencies of M and N alleles in the population

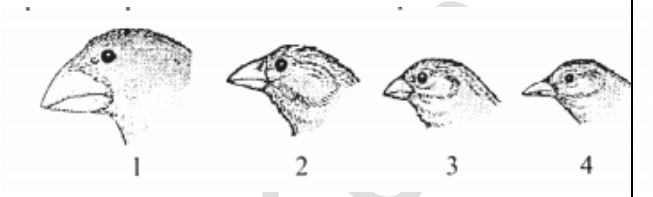
b) How does the above frequency affect evolution?

Or

Examine the pictures of Darwin's finches given below and answer the following questions

a)What phenomenon in evolution is represented in the picture ?

b)explain the phenomenon with the help of an additional example ?



20. Which of the following sets of gases were used in Miller's experiment?

(HSE-March-2017)(1)

(1) CH_4, NO_2, H_2O, CO_2

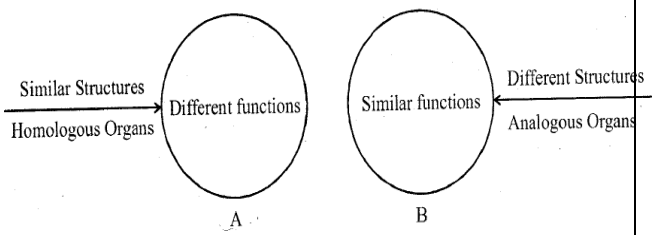
(2) NH_3, CH_3, H_2O, H_2

(3) H_2, CH_4, NH_3, H_2O

(4) H_2O, N, CH_4, H_2

21. Observe the diagram and answer the questions given below

(HSE-June-2016) (1)



a)Identify the type of evolution in the concept diagram A and B ?

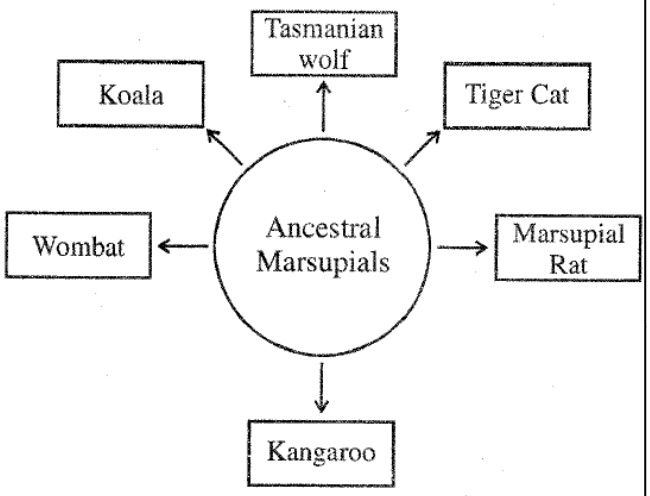
b)write example pair each for homologous and analogous organs ?

22. Statement below show features of some human fossils. Read carefully and identify the fossil (HSE-June 2016)(2)

a)Human like being with brain capacity 650-800cc

b)Lived in east and central asia with brain capacity 1400 cc

23. Which theory talks about huge explosion that lead to origin of universe ? (HSE-March 2016)(1)
24. 'Natural selction can lead to stabilisation ,directional change and disruptive change'
    Explain the term stabilization, directional and disruptive change mentioned above ?
    (HSE-March 2016)(3)
25. Read the principle and answer the question: (HSE-March 2016)(3)
    "Allele frequency in a population are stable and constant from generation to generation called genetic equilibrium"
    a)Name the principle mentioned here?
    b)mention any two factors affecting equilibrium ?
    c)what is the significance of disturbance occur in genetic equilibrium ?
26. Observe the diagrammatic representation and answer the question (HSE-June 2015)(4)



    a)Explain the phenomenon shown in the figure ?
    b)How can it consider as an evidence of evolution?
    c)Write any other example for this phenomenon. Explain
27. Four groups of organs are given below: Read them carefully and answer the questions (HSE-June 2015)(4)

A. Thorns of bougainvilla and Tendrils of cucurbita
B. Eyes of octopus and mammals
C. Flippers of penguin and dolphin
D. Forelimbs of cheetah and man

    a)Categorize the four groups of organs as homologous and analogous organs ?
    b)Based on each group of organs differentiate convergent evolution and divergent evolution ?
    c)illustrate homologous and analogous organ as evidences of evolution ?
28. Match the following
    (HSE-March-2015)(2)

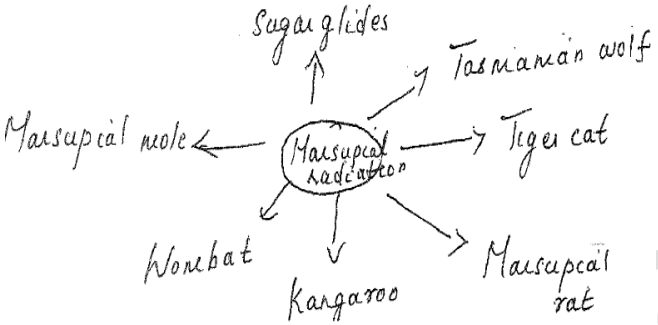
(a) Natural selection	(1) Convergent evolution
(b) Inheritance of acquired characters	(2) Genetic drift
(c) Analogous structures	(3) Charles Darwin
(d) Gene flow by chance	(4) Lamarkism

29. The above shown pictures are beaks of a particular type of bird seen in an island during Darwin's journey
    (HSE-March 2015)(2)
    a)identify the bird and name the island?
    b)write the significance of this process in evolution ?
30. Arrange the following in a hierarchical manner in ascending order based on their period of evolution.
    (HSE-June 2014)(1)

Homoerectus, Ramapithecus, Australopithecus, Homo sapiens, Neanderthal man.

31. a)The diagram given below shows a particular type of evolutionary process in Australian marsupials. Identify the evolutionary phenomenon and comment on

    b)Give another example for such type of evolutionary process and explain ? (HSE-June 2014)(3)

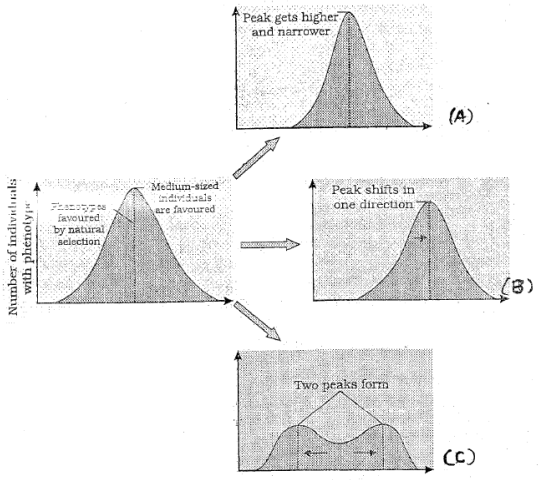


32. Given below is the diagrammatic representation of operation of natural selectionon different traits

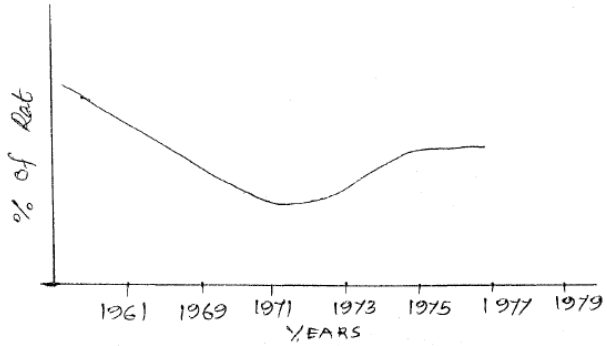
    a)Identify the type of natural selection A,B, and C with explanation of each.

    b)Define Hardy-weinberg principle?

    (HSE-March 2014)(4)



33. A specific rat population was controlled for about decade by a poison. After population decline for about 10 years, the rat population was increased and stabilized.



Resistance to poison is governed by a dominant autosomal gene 'R'. In 1975 majority of the resistant animals are heterozygous at this locus (Rr)

a)What was the major genotype of rat population before 1961

A)RR B)Rr C)rr

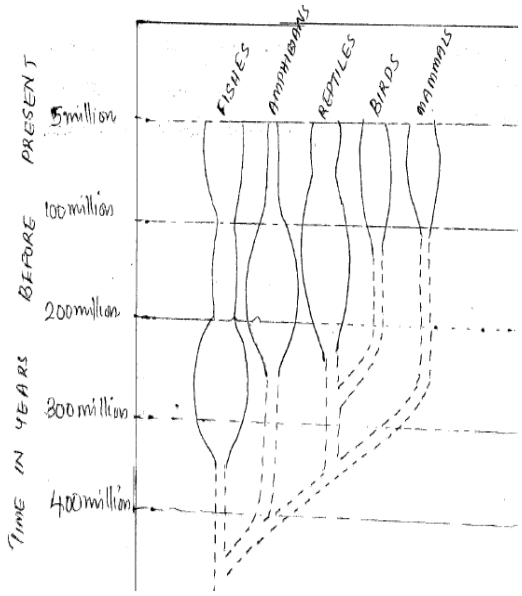
D)R is absent as it produced by a mutation

b)What explanation you give for the development of resistance against poison in these rats ?

c) "This illustration can be used to explain theory of evolution" Substantiate (HSE May-2013)(2)

34. The diagram shows how the number of species in different group of vertebrates has changed between 400 million years ago and 5 million years ago. The wider a block indicate the more species there are

    (HSE-May 2013)(3)



a)Which is the species found most at 200 million years ago ?

b)Birds are most close relative to which group of organism?

c)what is the trend observed in the evolution of amphibians?

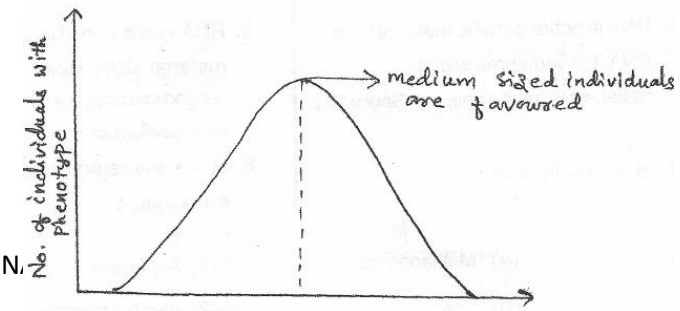
35. Arrange the following examples under two heads viz-Homologous organ and analogous organ (HSE-March 2013)(2)

- Fore limb of whale and bat
- Wings of butterfly and bat
- Heart of man and cheetah
- Eye of octopus and mammal

36. Theory of chemical evolution is a version of theory of abiogenesis. Analyze the statement.

(HSE March -2013)(2)

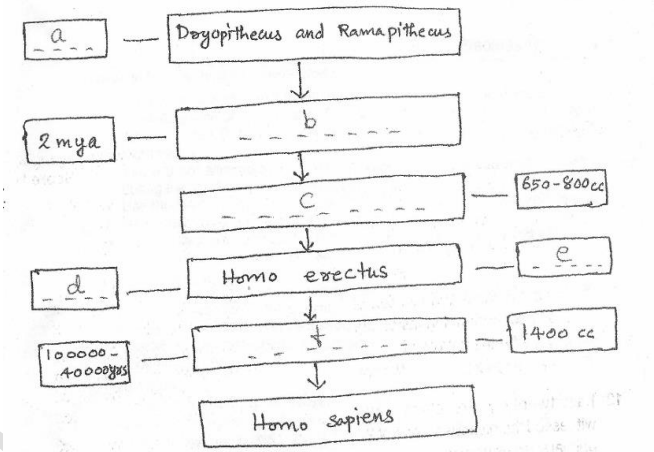
37. Diagrammatic representation of the operation of the natural selection in a population is given (june-2012)(1)



Redraw the diagram when nature select large sized and small sized individuals

38. Complete the flow chart showing the evolution of man using age, name and brain capacities of fossils

(June-2012)(3)



39. Note the relationship between the first pair and complete second pair

(March-2012)(1)

a)Natural selection : Darwin

Inheritance of acquired character

:.....

b)Heart of vertebrate : Homologous organ

flipper of penguin and Dolphin

:.....

40. A collection of peppered moths made in England during different period is given below (March-2012)(1.5)

Types of moths	Years		
	1850	1920	1980
White winged moth	1200	305	1150
Dark winged moth	315	1100	302

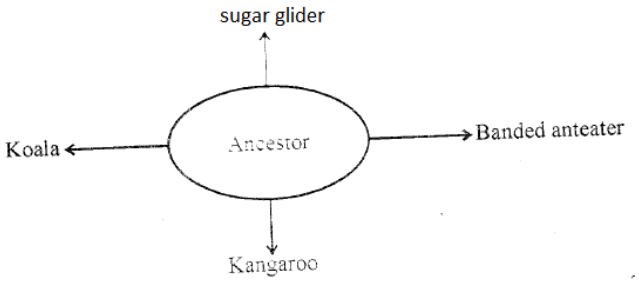
a)What is your observation ?

b)Name the evolutionary process behind this process?

c)write the reason for decreased number of white winged moth in 1920 ?

41. An evolutionary process occurred in the evolution of marsupial mammals in Australia is given below ?

(March-2012)(1.5)



a)Name this evolutionary process?

b)suggest another example for this phenomenon ?

SCAN QR CODE FORE VIDEO LESSON

MICROBES IN HUMAN WELFARE

1. Microbe which help in the production of Biogas (HSE-March-2020)(1)
   (a) *Aspergillus niger*
   (b) Trichoderma Polysporum
   (c) Saccharomyces cerevisiae
   (d) Methanobacterium
2. Some examples of microbes in human welfare are given. Classify them under the headings given below.
   [Egs : Rhizobium, Propionibacterium sharmanii, Azaspirillum, Lactic acid bacteria, Anabaena, Azotobacter, Aspergillus niger, Saccharomyces cerevisiae...] (HSE-March-2020)(2)

Microbes in Household Products	Microbes as Bio-fertilizers

3. Match the following
   (HSE-June-2019)(2)

A	B
(a) Citric Acid	I. *Acetobactor aceti*
(b) Acetic acid	II. *Clostridium butylicum*
(c) Lactic acid	III. *Aspergillus niger*
(d) Butyric acid	IV. *Lacto bacillus*
	V. *Trycoderma polysporum*
	VI. *Saccharomyces cerevisiae*

4. Bio-fertilisers are organisms that enrich the nutrient quality of the soil. How these biofertilisers enrich the soil nutrients ? Give two examples
   (HSE-June-2019)(2)
5. Microbes are useful to human beings in diverse ways. If so, name the following : (HSE-March-2019)(2)
   (a) Microbe known as "Baker's Yeast".
   (b) Lactic acid producing bacterium.
   (c)Fungus which helps in the production of bio-active molecule – cyclosporine A.
   (d) Symbiotic nitrogen fixing bacterium.
6. In Sewage Treatment plant microbes play a significant role. Distinguish between primary and secondary treatment in sewage plant? (HSE-June 2018)(2)
7. Complete the table with appropriate terms (HSE-March 2018)(2)

Organism	Scientific name	Bioactive Product
Fungus	A	Citric acid
B	Acetobacter aceti	Acetic acid
Fungus	Trichoderma polysporum	C
Yeast	D	Statin

8. Find the odd one out
   a)Trichoderma polysporum
   b)Clostidiumburyliorm
   c)Acetobacteraceti
   d)Aspergillusruger
   (HSE-model 2018)(1)
9. a)Name the yeast used for the commercial production of ethanol.
   b)Name the yeast used for the production of statins
   (HSE-model 2018)(2)
10. Complete the table by filling A,B,C and D using hints from the bracket
    (HSE-JUNE-2017)(2)

(Gobar gas, biological control, anabaena, *Sacharomyces cerviciae* , *Prpionibacterium sharmanii*)

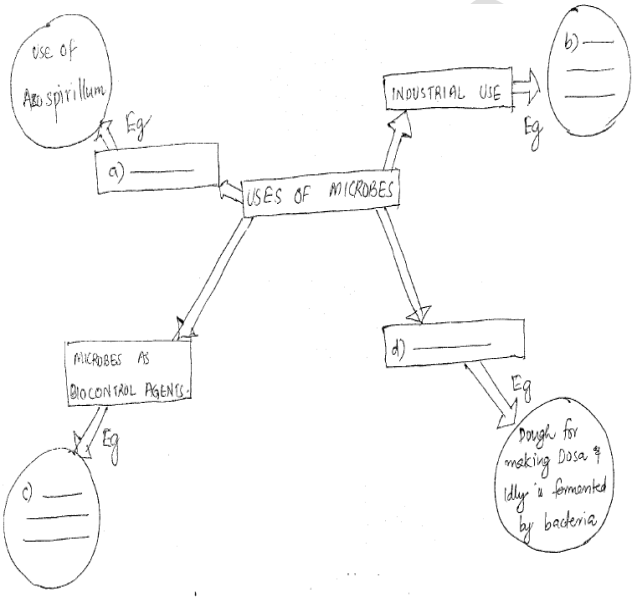
Methanogen- .....A.....
Bread making-.....B.....
Biofertilizer:.....C.....
Trichoderma:.....D.....

11. What are the advantages of biofertilizers over chemical fertilizers? Give an example for biofertilizer? (HSE-March-2017)(2)
12. Chose the correct answer from the bracket (HSE-June-2016) (1)
    Cyclosporin A is produced by.....
    (a)Aspergillus (b)Clostridium
    (c)Trichoderma (d)Acetobacter
13. Select a bio-control agent from the given microbe (HSE-June-2016)(1)
    a)Baculo virus b)Rhino virus
    c)Picorna virus d)Adeno virus
14. "BOD is commonly calculated as an index of water pollution"
a)Do you agree with this statement? Why?
b)Expand BOD? (HSE-March 2016)(2)
15. In our state waste management is a problem. Government promote and give subsidy to biogas plants. Comment the functioning of biogas plants with the help of microbe.
(HSE-June 2014)(2)
16. BOD of some water sample is given below (HSE-June 2015)(2)

A- Sample-1 200mg/L
B- Sample-2 80mg/L
C- Sample-3 300mg/L
D- Sample-4 25mg/L

a)Which of above water sample is most polluted ?
b) what is meant by flocs/ what is its role in sewage treatment ?

17. Microbes can also be used as a source of energy. Substantiate with example? (HSE-March 2015) (2)
18. Complete the illustration appropriately ? (HSE-MAY 2013)(2)



19. Some bioactive molecule, their sources and their medical importance are given in the table below. Fill up the missing part (HSE-March 2013)(2)

Bioactive Molecule	Source	Medical Importance
a	Streptococcus	Removes clots from blood vessels
Cyclosporin-A	b	c
d	Monascus Purpureus	Blood Cholesterol lowering agent

20. Match the following (june-2012)(2)

(A) Methanogens	(1) Aspergillus
(B) Flocs	(2) Aerobic microbes
(C) Citric acid	(3) Anerobic microbes
(D) Baker's yeast	(4) Lactobacillus
	(5) Saccharomyces
	(6) Propionibacterium

21. Rearrange the coloumn B & C with respect to A (March-2012)(2)

A	B	C
Monascus pupureus	Streptokinase	Antibiotic
Streptococcus	Statin	Immunosuppressant
Pencillium notatum	Cylosporin-A	Clot buster
Trichoderma polysporum	Pencillin	Cholesterol lowering agent

SCAN QR CODE FORE VIDEO LESSON

HUMAN HEALTH AND DISEASE

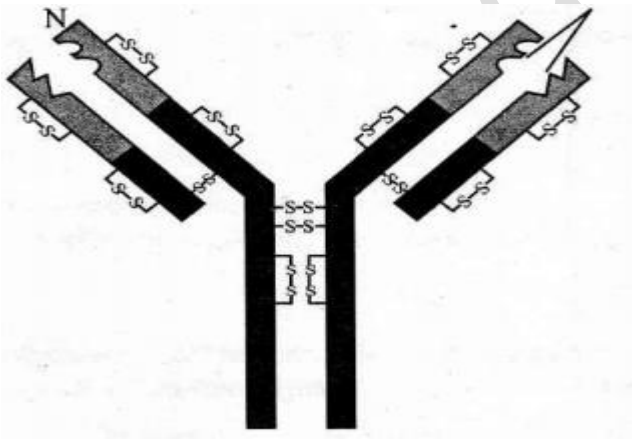
1 Name any two protozoan diseases, its causative organism and any two symptoms. (HSE-March-2020)(2)

2 Complete the illustration chart given below. (HSE-March-2020)(2)

3 Explain the measures useful for prevention and control of alcohol and drugs abuse among adolescents. (HSE-March-2020)(3)

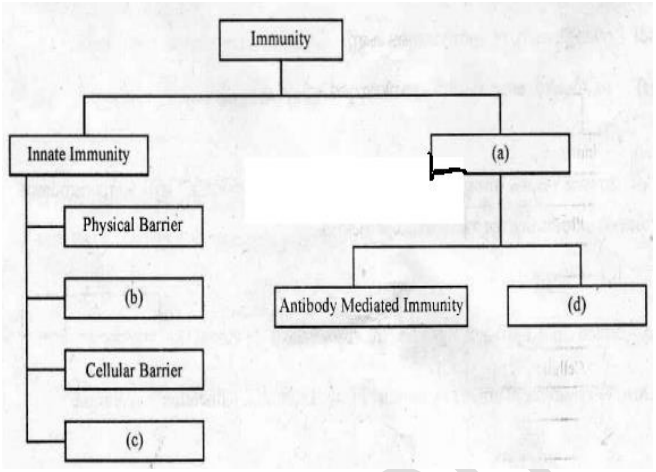
4 'Don't die of ignorance.'
(a) About which it is mentioned ?
(b) List two measures taken by WHO to prevent it (HSE-June-2019)(2)

5 Observe the figure and answer the following questions (HSE-June-2019)(2)
a) Identify the given molecule.
b)Mention two types of immune responses in human body.



6 Write the effect of the following drugs in human body (HSE-June-2019)(3)
(a) Ophiods (b) Cannabinoids
(c) Coca alkaloids

7 Complete the flow chart given below



(HSE-March-2019)(2)

8 List of some diseases commonly occurring in man are given below. Arrange them based on causative organism in the table. **Malaria, Common cold, Typhoid, Ascariasis. Pneumonia, Ring worm, Amoebiasis** (HSE-March-2019)(2)

Bacteria	Fungus	Virus	Protozoan

9 Identify the bacterial disease from the following (HSE-June 2018)(1)
a)Typhoid b)Amoebiasis
c)Malaria d)Filariasis

10 Classify the following barriers of innate immunity under 3 suitable heading (HSE-June 2018)(3)

Skin, Saliva, WBC, Monocyte, Mucus, Acid of stomach

11 Innate immunity is a non-specific type of defense and consists of four types of barriers. Categorize the barriers and give one example for each. (HSE-March 2018)(2)

12 Complete the table given below

(HSE-March 2018)(2)

Column – I	Column – II	Column – III
Typhoid	A	Stomach pain Intestinal perforation
B	Rhinovirus	Sore throat hoarseness
Malignant Malaria	C	Chill high fever
D	Wuchereria	Chronic inflammation of lymph gland

13 Consumption of drug and alcohol affect the person's mental and physical health very badly. List the warning sign of alcohol or drug abuse

(HSE-March 2018)(2)

14 Study the relationship between the first two words and fill the blank space with a suitable word

Pnemonia : Streptococcus pneumonae

Typhoid:.....

(HSE-Model 2018)(1)

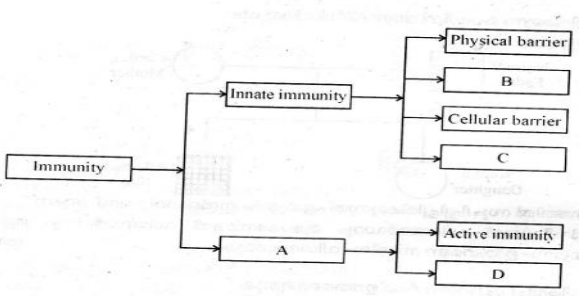
15 Prepare a hand out to educate students about the symptoms of the dreaded disease cancer, its detection and treatment (HSE-Model 2018)(3)

16 Prepare a brief note to be presented in an awareness programme for adolescents about AIDS, their causes and preventive measures

(HSE-June-2017)(3)

17 Fill the box A,B,C and D

(HSE-JUNE-2017)(2)



18 Fill the blanks A,B,C and D using correct terms given in the box

(HSE-JUNE-2017)(2)

Passive immunity
Sensitivity to some particles
Metastasis
Active immunity
Autoimmune deficiency
Immune deficiency disease

a)....A...

b) Allergy -..B.....

C).....C.....-AIDS

d)Rheumatoid arthritis-.....D.....

19 Morphine is said to be an abused drug. Discriminate the term 'use' and 'abuse' of the drugs based on this example ?

(HSE-March-2017)(2)

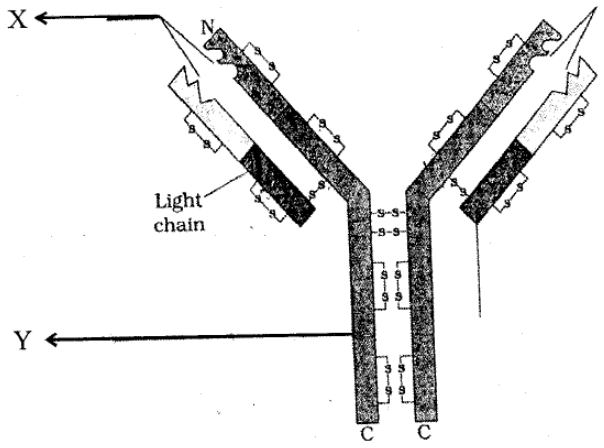
20 Differentiate active immunity from passive immunity. Give an example for passive immunity ?

(HSE-March-2017)(2)

21 Complete the table by filling a,b,c and d (HSE-June 2016)(2)

Disease	Pathogen	Symptom
a	*Streptococcus pneumonae*	Alveoli filled with fluid
Common cold	b	Nasal congestion and discharge
c	*Plasmodium vivax*	Chill and fever
Filariasis	*Wuchereria*	d

22 Answer the question about the given figure (HSE-June 2016)(2)



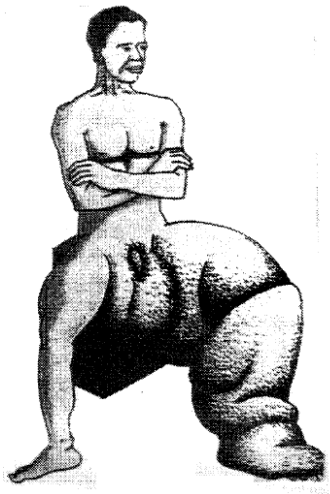
a)Identify the part X and Y ?

b)Name any two type of this molecules ?

23 Select odd one out and justify your selection (HSE-June 2016)(1)

Malaria, Gonorrhoea, Amoebiasis, filariasis.

24 Identify the disease shown in the following figure and write the causative organism of the disease (HSE-March 2016)(1)



25 "Blood of a man is tested positive for cannainoid"

a)what are these?

b)from where there are extracted naturally ?

c)which part of the body is affected by these ? (HSE-March 2016)(3)

26 Match the terms given in three coloumn of table correctly

(HSE-June 2015)(2)

Pathogen	Group	Disease
Haemophilus Influenzae	Protozoa	Ringworm
Plasmodium Vivax	Fungus	Pneumonia
Wuchereria Bancrofli	Bacteria	Malaria
Trichophyton	Flatworm	Filariasis

27 "If proper care and attention is not given by adults, adolescent may become addicted to drug or alcohol". What is your opinion about this statement ? substantiate your answer ? (HSE-June 2015)(2)

28 Cancer is one of the most dreaded diseases of human beings, and is major cause of death all over the globe (HSE-March-2015)(3)

a)what are the causes of cancer?

b)what are the methods for detection of cancer?

c) What are the types of treatment of cancer?

29 Briefly describe the characteristic of cancer cells ? (HSE-June 2014)(2)

30 It is said that "Chikunguniea" once affected will not a person in next half of his life. Justify this statement

(HSE-June 2014)(2)

31 Classify the diseases given in the box as two groups based on their causative organism. Specify the type of causative organism for each group

(HSE-March-2014)(2)

Typhoid,
Malaria, Pneumonia
Diphtheria
Amoebiasis

32 Prepare a pamphlet for an awareness programme in your school about the measures to prevent and control alcohol and drug abuse in adolescents (March-2014)(2)

33 The meaning of 'antibiotics' is 'against life', where as with reference to human being is is 'pro life' (March-2014)(2)
Substantiate this statement with suitable example ?

34 Prepare a pamphlet for adolescent children to make them aware of alcohol and drug abuse? (HSE-May 2013)(2)

35 "Prevention is better than cure" . This statement is true in the case of AIDS as well as immunisation . Substantiate (HSE-May 2013)(2)

36 Most often HIV Infection occur due to conscious behaviour patterns. Do you agree with this statement ? Substantiate your answer? (HSE-March 2013)(2)

37 Nature has as many verities of plants which give drugs for abuse, as there are medicinal plants which give medicines. Substantiate with two examples (HSE March 2013)(2)

38 Note the relationship between first two terms and suggest a suitable term for the fourth place (june-2012(1)
a)Erythroxylum coca : Cocaine
Papaversomniferum :.....
b)salmonella typhi : Typhoid fever
plasmodium falciparum :.....

39 One of your Friend Argued that anti-retroviral drugs are effective medicine to treat AIDS (June-2012)(3)
a)What is your opinion about it?
b)How HIV affect our immunity ?

40 Arrange the following diseases in the following coloumn in correct order (March-2012) (2)
Typhoid,Ring worm, Amoebiasis, AIDS, Malaria, Pneumonia, Common Cold

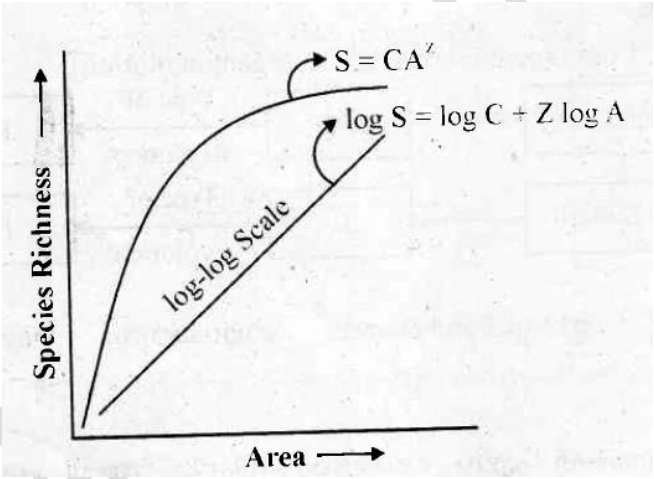
Bacteria	Virus	Protozoa (Protista)	Fungus

41 In a class room discussion a student argues that allergic reaction are more common in metro cities than in villages. (March-2012)(2)
a)Do you agree with this statement ?
b) Which type of immunoglobulin is responsible for allergic reactions?
c) suggest two drugs which reduce allergic symptoms ?

SCAN QR CODE FORE VIDEO LESSON

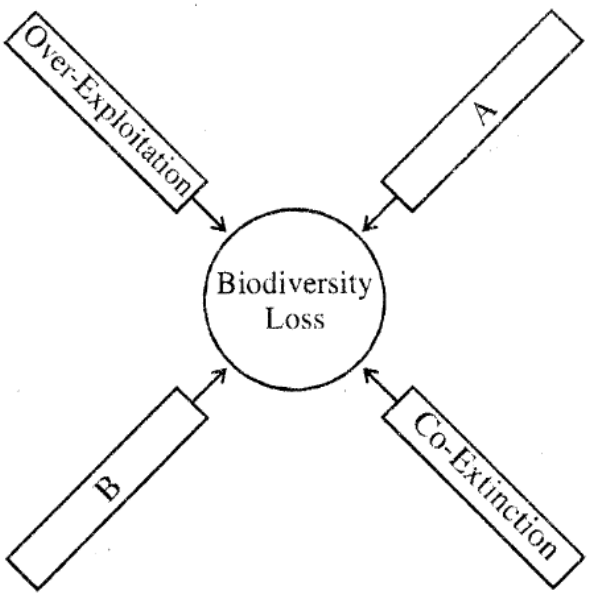
BIODIVERSITY AND CONSERVATION

1. Select the cause of extinction of Cichlid fish in lake Victoria of East Africa. (HSE-March 2020)(1)
   (a) Habitat loss and fragmentation
   (b) Over-exploitation
   (c) Alien species invasions
   (d) Co-extinctions
2. Tropical Amazonian rainforest in South America has the greatest biodiversity on earth. Do you agree with this? Explain.
   (HSE-March 2020)(2)
3. In your school the Science Club decided to conduct a seminar about "Biodiversity conservation - Approaches". You are invited to.present a paper on this seminar. List out the main points you included in the presentation.
   (**Hint : In Situ, Ex-Situ conservation)**
   (HSE-June-2019)(3)
4. Which among the following belongs to ex-situ conservation?
   Wildlife sanctuaries, Bio sphere reserves, Zoological parks, National parks, Sacred groves
   (HSE-March-2019)(1)
5. The causes of biodiversity loss are designated as "EVIL QUARTET". Explain the Evil Quartet in biodiversity loss.
   (HSE-March-2019)(2)
6. Human beings can conserve and protect ecosystem and biodiversity. Prepare a handout to show different methods of biodiversity conservation? (HSE-June 2018)(2)
7. Observe the graph and answer the following questions
   (HSE-March 2018)(3)



   a) Name S,A,C and Z in the graph
   b) Name the scientist who explained species-area relationship
8. "The accelerated rates of species extinction that the world is facing today is largely due to human activities". (HSE-Model 2018)(3)
   Do you agree with this statement. Justify your answer.
9. Explain the levels of biodiversity? (HSE-JUNE-2017)(3)
10. Explain different types of biodiversity conservation with example (HSE-JUNE-2017)(3)
11. Distinguish between *in situ* conservation from *ex situ* conservation with one example each ? (HSE-March-2017)(2)

12. "When we conserve and protect the whole ecosystem, its biodiversity at all levels is protected". Based on this statement explain the strategies of biodiversity conservation (HSE-June 2016)(3)
13. "when need turns to greed, it leads to biodiversity loss". Substantiate this statement by explaining two causes of biodiversity loss. (HSE-June 2016)(3)
14. Observe the concept diagram of Evil Quartet of biodiversity loss (HSE-March 2016)(2)

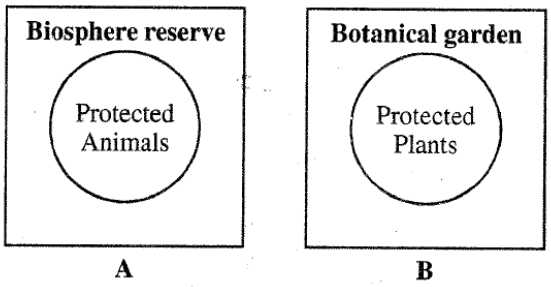


a)Write A and B
b)What is co-extinction ?

15. Read the statement and chose the correct option (HSE-March 2014)(1)

A : Sacred grooves are examples of *in situ* conservation
B : Biodiversity hotspots have low degree of endemism.
C : Biodiversity increases when number of organisms in a particular species increases.
(a) Statement 'A' alone is correct.
(b) Statements 'A' and 'B' are correct.
(c) Statements 'A' and 'C' are correct.
(d) Statement 'C' alone is correct.

16. Two approaches for the conservation of biodiversity is shown as A and B(HSE-June 2015)(3)



a)Identify the type of conservation shown in A and B?
b)Write the difference between two types of biodiversity conservation shown in A and B?
c)Which of the above approach is more desirable when there is an urgent need to save species ?

17. We have moral responsibility to take good care of earth's biodiversity and pass it on in good order to next generation.
a)Define biodiversity?
b)write causes for biodiversity loss?
c)Name two type of biodiversity conservation ?(HSE-March 2015)(3)
18. a)Variety of species are present around us, what they constitute and comment?
b)comment on in situ conservation and ex situ conservation?
c)In these aspect explain the concept of hot spot with example- give importance to recent issues with regard to western ghat (HSE-June 2014)(3)
19. "Nature provides all for the need of man but not for his greed"

a)Do you agree with this statement? Justify your answer

b)distinguish between two types of biodiversity conservation ?

(HSE-March 2014)(3)

20. While preparing the species are relationship graph of 4 areas, the following Z values are obtained

Area A =0.1

Area B= 0.8

Area C =1.2

Area D= 0.3

a)Which area show maximum species richness ?

b)what are the expected reasons for the loss of biodiversity in area with low species richness ?

(HSE-May 2013)(3)

21. "Nature does lot of service for which an economic value or price tag cane put" substantiates giving examples. (HSE-March 2013)(2)

22. "Conservation of biodiversity is a collective responsibility of all nations". Write a slogan stressing the significance of biodiversity conservation? (HSE-March 2013)(1)

23. Last twenty years alone have witnessed the disappearance of 27 animal species from earth.

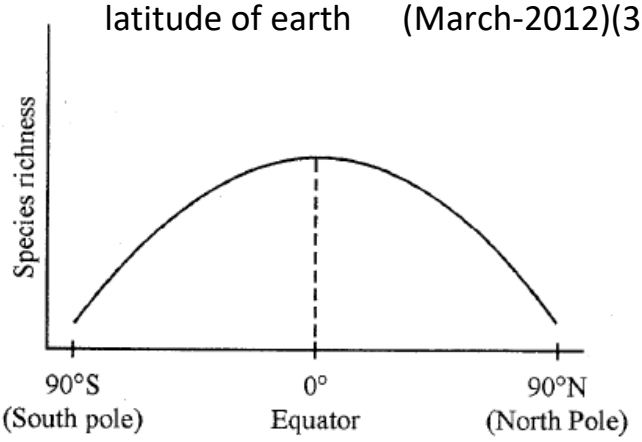
(June2012)(3)

a)Name the animal disappeared recently

b) What may be the causes of this loss ?

c) How can we conserve biodiversity?

24. The given graph shows the distribution of insects in different latitude of earth (March-2012)(3)



a)What is your observation ?

b)List the three reasons for greater biodiversity in tropical region ?

c)Write 2 causes of biodiversity loss ?

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