



B.V.M. PUBLIC SCHOOL

GRADE: XII Y

SUMMER BREAK HOLIDAYS HOMEWORK (2025-26)



Dear Parents

Vacations are the most appropriate time for kids to refresh and rejuvenate themselves, to be creative and to learn new skills.

Children have ample energy, which should be channelized in the right direction to get the best out of them. We have designed holiday homework, keeping this in mind. It will build their confidence and new skills.

GENERAL INSTRUCTIONS:-

- ✓ *Eat healthy food daily and drink lots of water and juices.*
- ✓ *Read every day. Watch less TV/mobiles.*
- ✓ *Good manners are essential for success. Always respect your parents, grandparents, and all elders.*
- ✓ *Appreciate nature by taking long walks in a park or garden with your family and friends.*
- ✓ *Do your homework neatly and on your own.*
- ✓ *Revise the previous work.*

SUBJECT – CHEMISTRY

- Complete your Practical File and Project File as per instructions given below: -

TOPICS FOR PROJECT WORK (3 students max. choose one project):-

Scientific investigations involve laboratory testing and collecting information from other sources. Select any one topic from the suggested Projects given below: -

1. Study of the presence of oxalate ions in guava fruit at different stages of ripening.
2. Study the quantity of casein present in different milk samples.
3. Preparation of soybean milk and its comparison with the natural milk with respect to curd formation, effect of temperature, etc.
4. Study of the effect of Potassium Bisulphate as a food preservative under various conditions (temperature, concentration, time, etc.)
5. Study of the digestion of starch by salivary amylase and the effect of pH and temperature on it.
6. Comparative study of the rate of fermentation of the following materials: wheat flour, gram flour, potato juice, carrot juice, etc.
7. Extraction of essential oils present in Saunf (aniseed), Ajwain (carum), and Illaichi (cardamom).
8. Study of common food adulterants in fat, oil, butter, sugar, turmeric powder, chilli powder and pepper.
9. Chemistry project on Electrochemical Cell.
10. Determination of the amount of acetic acid in vinegar.
11. Chemistry project on Biomolecules.
12. Determination of contents in cold drinks.
13. Analysis of Honey.
14. Check the ions present in toothpaste.

15.Preparation of Toilet Soaps.

16.Determining caffeine in tea samples.

17.Variation of conductance with temperature in electrolytes.

18.Preparation of soyabean milk.

SUBJECT- PHYSICS

#Revise the following chapters for UT

- Chapter 1 (Electrostatic charge and field)
- Chapter 2 (Electrostatic potential and capacitance)
- Chapter 3 (Electric Current)

DO FOLLOWING ACTIVITIES IN ACTIVITY FILE:

SECTION-A

1. To Assemble a Household Circuit Comprising Three Bulbs, Three (On/off) Switches, A Fuse, & A Power Source.
2. To assemble the components of a given electrical circuit.
3. To draw the diagram of a given open circuit comprising at least a battery, resistor/rheostat, key, ammeter and voltmeter. Mark the components that are not connected in proper order, and correct the circuit and also the circuit diagram.

SECTION-B

1. To observe refraction and lateral deviation (displacement) of a beam of light incident obliquely on a glass slab.
2. To observe diffraction of light due to thin slit between sharp edges of razor blade.
3. To study the Nature and Size of The Image Formed by A Convex Lens On A Screen by Using A Candle and A Screen (for different distances of the candle from the lens)

Make an investigatory project on any topic from the syllabus separate file.

Project includes

- A4-sized sheet
- 12-15 pages
- Introduction
- Certificate
- Declaration
- Acknowledgement
- index
- Aim of project
- Introduction
- Theory
- Conclusion
- Bibliography

SUBJECT: PHYSICAL EDUCATION

Learn ch- 1 to 3

Practical file

Practical-1 SAI Khelo India fitness test in school (in textbook ch-6)

Practical-2 Write the procedure, benefit, & Contradiction of any 2 asanas from each lifestyle disease.

Practical-3 Write fundamentals of any one IOA recognised team game of your choice (Baseball, Handball, Football, Kabaddi, cricket, etc.) write history, fundamental skills, rules and regulations, awardees/ famous personality terminology.

SUBJECT : MATHEMATICS

1. Write 8 different mathematics activity.
2. Prepare a project on daily life application of the following topics.
 - a) Matrices and Determinants.(RN1-4)
 - b) Application of derivatives (RN5-8)
 - c) Application of integration (RN9-12)
 - d) Application of differential equations (RN 13-16)
 - e) Application of vectors and three dimensions (RN17-20)
 - f) Application of Linear Programming(RN 21-22)
 - g) Application of Probability (RN23 -30)

Date of submission

1.7.25 to 4.7.25

SUBJECT : IP

- 1) Which attribute of Data Frame is used to user defined index value?
- 2) What is dataframe ? Give example.
- 3) Write 5 attributes of a dataframe.
- 4) Name any two attributes of Series in Python.
- 5) Explain any three methods of Pandas Series.
- 6) What do you mean by Series in Python?
- 7) Write a code to add a new column "RollNo" with values (21,22)in a dataframe d1.
- 8) Which attribute of dataframe is used for the following.
 1. To display column labels.
 2. To display data type of each column in the DataFrame.
 3. To display all the values in the DataFrame.
 4. To display number of rows and columns in a tuple .
 5. To display row labels.
 6. To display total number of values in the dataframe .
 7. To transpose the dataframe .
 8. To return the value True If DataFrame is empty and False otherwise

9. How to delete Rows and columns from a Pandas DataFrame?

10. A dictionary Grade contains the following data:

```
Gr1={"Name":["Rahul","Mukesh","Priya","Neha","Raghav"],"Grade":["A1","A2","B1","A2","A1"]}
```

Write the statement for the following:

- a) Create a data frame called Gr.
- b) Find the output of Gr.iloc[0:5] and Gr[0:5]
- c) Add a column called Percentage with the following data:[76,45,None,67,93]
- d) Rearrange the columns as Name, Percentage and Grade.
- e) Drop the column (i.e. ,Grade) by name.
- f) Delete the 2nd and 4th record

Write a Pandas program to create and display a one-dimensional array-like object containing an array of data using Pandas module.

- 1) Write a Pandas program to convert a dictionary to a Pandas series. Sample Series:

Original dictionary:

```
{'a':100,'b':200,'c':300,'d':400,'e':800}
```

Converted series:

a100

b200

c 300

d400

e800

dtype:int64

- 2) What are the purpose of following statements

1. df.columns
2. df.iloc[:, :-5]
3. df[2:8]
4. df[:]
5. df.iloc[: -4, :]

- 3) Write the output for the following code: -

a) import pandas as pd

```
S1=pd.Series([1,2,2,7,'Raghav
```

```
',77.5]) print(s1.head())
```

```
print(s1.head(930))
```

b) import pandas as pd df=pd.

```
DataFrame(index=[0,1,2,3,4,5],
columns=['one','two']) print df['one'].sum()
c) What will be the output of df.iloc[3:7,3:6]?
d) Import pandas as pd
data=[{'a':10,'b': 20},{'a':6,'b':32,'c': 22}]
df1 =
pd.DataFrame(data,columns=['a','b'])
df2=pd.DataFrame(data,columns=['a',
'b1']) print(df1)
print(df12)
e) import pandas as pd
d={'Student':['Ali','Ali','Tom',
"Tom"],
'House':['Red','Red','Blue','Blue'],
'Points':[50,70,60,80]}
df = pd. DataFrames(d)
df1=df.pivot_ table(index='Student',columns='House',values='Point
s', aggfunc='sum')
print(df1)
```

SUBJECT: ENGLISH

ENGLISH PROJECT

1. MARKING SCHEME

- The project consists of **10 MARKS**.
- Out of which, **5 MARKS** will be allotted for the **PROJECT FILE**, and the remaining **5 MARKS** for the **VIVA** based on the file.
- The **viva** will be conducted by the **EXTERNAL EXAMINER**
- **Submission Date: 01 July 2025.**

2. CONTENT OF THE PROJECT FILE:

The project file may include the following:

- **Cover page**, with the title of the project, school details and details of the student (**sample will be sent**)
- **Certificate of Completion** under the guidance of the teacher (**sample will be sent**)
- **Objectives** of the topic

- **Action Plan** for the completion of assigned tasks (**steps involved in doing the project**)
- The 800-1000 words essay/report
- Student reflections (**what new learning experience/outcome you have achieved after completing the project**)
- If possible, **photographs** that capture positive learning experience of the students (**collages/pics from various online sources**)
- **List of Resources/Bibliography** (Last page of the project file)

3. TOPICS:

INSTRUCTIONS:

- ✓ **Refer to the links of the videos attached with each topic (You can also select different videos available on YouTube, relevant to your topic)**
- ✓ **Listen to these podcasts, documentaries, interviews etc. on the given topics**
- ✓ **Do a thorough research on the topic assigned**
- ✓ **Prepare a report/essay in about 800-1000 words describing the topic/issue/giving your own opinion/suggestions/measures/viewpoints/its impact on people/your learning experience**
- ✓ **You can also state the name of various speakers/people (in the given documentaries/video links), quote them and express their viewpoints**
- ✓ **The project should be neat, legible, with an emphasis on quality of content, accuracy of information, creative expression, proper sequencing and should be relevant as per your assigned topic**
- ✓ **PROJECT TO BE TYPED ON A4 SHEET.**
- ✓ **No repetition or copying of project work would be accepted.**
- ✓ **Please don't share your work with anyone. If the External examiner points out any repetition or copying of the project, the consequences would be severe.**
- ✓ **No marks will be awarded for a casual approach to completing the project**
- ✓ **There are 15 topics. Topics are distributed Roll-No Wise**
- ✓ **Roll no 16 will get topic no 1 and so on...**

Given below is a list of some suggestive topics for the project.

1. MENTAL HEALTH DURING COVID TIMES:

Links for reference:

<https://www.youtube.com/watch?v=xzNMABRELPg>

<https://www.youtube.com/watch?v=CVvGvoMRUhk>

https://www.youtube.com/watch?v=UE_H9QhGktE

2. BIOTERRORISM (BIOWAR & BIO WEAPONS):

Links for reference:

<https://youtu.be/Faftnz8cg7E>

<https://youtu.be/b6NI97v2buc>

https://youtu.be/6Af6b_wyiwl

3. DRUG ABUSE, DRUG TRAFFICKING & ADDICTION:

Links for reference:

<https://youtu.be/pzhD2MyeIbY>

<https://youtu.be/b6Dte96WdqM>

<https://youtu.be/lwP9H9qTuUY>

4. CYBER CRIME AND SECURITY:

Links for reference:

<https://youtu.be/AVBlvtEthtc>

<https://youtu.be/DpjoZGOONiQ>

https://youtu.be/1A3sQO_bQ_E

5. ONLINE AND OFFLINE TEACHING DURING COVID:

(Due to COVID, education industry has seen many new startups, discuss how this has affected many in positive and negative way)

Links for reference:

<https://youtu.be/8FKR35OidyU>

https://youtu.be/PVM3_0_nKSI

<https://youtu.be/7XyvN5dPTxE>

6. PATRIARCHY AND FEMALE SUBJUGATION:

Links for reference:

<https://youtu.be/R0LXAC2PXuU>

<https://youtu.be/MRfDzznfEOU> <https://youtu.be/H-9fTS5cAiA>

7. NATIONWIDE LOCKDOWN HAS LED A DENT ON ECONOMY (Discuss in detail)

Links for reference:

<https://youtu.be/NbvrG1FR1X0>

<https://youtu.be/9ndmW5RLhPg>

<https://youtu.be/JmGfqusjxeo>

8. MOB LYNCHING:

Links for reference:

<https://dai.ly/x7gg8sz> https://youtu.be/Jox_CYyitGU

<https://economictimes.indiatimes.com/news/politics-and-nation/government-sets-up-4-member-committee-to-suggest-measures-to-deal-with-moblynching/videoshow/65107450.cms>

9. GENERATION GAP:

Links for reference:

<https://youtu.be/IEqX4QhMj3k>

<https://youtu.be/uEd6dhOegn4>

<https://youtu.be/p656FvLHupY>

10. SOCIAL NETWORKING PLATFORMS: IS SOCIAL MEDIA AN EFFECTIVE TOOL FOR QUICK AND CONVENIENT COMMUNICATION, OR IS IT JUST A SOPHISTICATED MEANS FOR STALKING PEOPLE?

Links for reference:

<https://youtu.be/ABOgsV2XTEk>

<https://www.intelligencesquaredus.org/?jwsourc=cl>

https://www.ted.com/talks/cal_newport_why_you_should_quit_social_media

11. DO YOU THINK THE SIGHTINGS OF UFOS ARE TRUSTWORTHY? DO ALIENS REALLY EXIST?

Links for reference:

<https://youtu.be/ZBtMbBPzqHY>
<https://youtu.be/30r45P1JFys>
<https://youtu.be/EVBCLAaflaw>

12. SHOULD ANIMAL TESTING BE BANNED?

Links for reference:

<https://youtu.be/G393z8s8nFY>
<https://youtu.be/FfRQDgu6pX4>
<https://youtu.be/Mo25wUKNySg>

13. CLIMATE CHANGE IS THE GREATEST THREAT FACING HUMANITY TODAY:

Links for reference:

<https://youtu.be/vy3gMVGwjuc>
https://youtu.be/cl4Uv9_7KJE
<https://youtu.be/ViboIJvWgiw>

14. VIOLENT VIDEO GAMES SHOULD BE BANNED:

Links for reference:

https://youtu.be/uaf_Xjz6Mxs
<https://youtu.be/vxUeDIiBYMY>
<https://youtu.be/gv1SsYeKXXE>

15. THE DEVELOPMENT OF ARTIFICIAL INTELLIGENCE WILL HELP HUMANITY:

Links for reference:

<https://youtu.be/wTbrk0suwbg> <https://youtu.be/-orTIDWqBN0>

विषय - हिंदी

1. दिए गए विषयों पर ग्रुप के अनुसार एक सचित्र प्रोजेक्ट फाइल तैयार कीजिए ।
2. प्रथम इकाई परीक्षा का संपूर्ण पाठ्यक्रम याद कीजिए ।

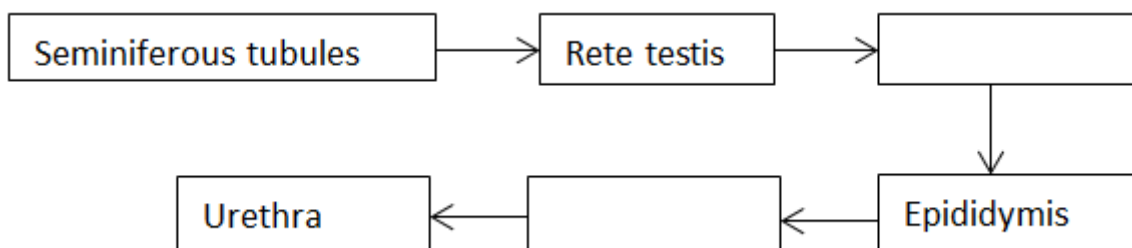
'HINDI FILE' XII th		Page No.	Date
Group 1	Angel Anshika	→	आदिकाल
Group 2	Anuj Bhuvnesh	→	भक्तिकाल
Group 3	Humant Harshit Rishi	→	शीतिकाल
Group 4	Harshit Sh. Ishant	→	आधुनिक काल
Group 5	Khushi Megha	→	जनसंचार माध्यम
Group 6	Mahisha Manvi	→	सोशल मीडिया के व्यापक आयाम
Group 7	Niharika Parvish	→	जनसंचार के मुहित माध्यम
Group 8	Priyanshu Prayag	→	जनसंचार माध्यम के रूप में सिनेमा
Group 9	Vanshika Vidhi	→	पत्रकार लेखन के विविध आयाम
Group 10	Yashika Nidhi	→	विशेष लेखन
Group 11	Ram Pawan	→	कहानी और लघुकथा

SUBJECT: BIOLOGY

CHAPTER 2: HUMAN REPRODUCTION

1. List the following events observed in human reproduction in chronological order.
Fertilization, gametogenesis, insemination, gestation, parturition, implantation.

2. Fill in the missing boxes exhibiting the route of sperm transport.



3. State the significance of cervix in the female reproductive system.

4. Q.4. What is the reason for the absence of menstrual cycles during conception or pregnancy?
5. Q.5. Fill up the missing data in the table where Column A shows female reproductive organs and Column B shows its respective functions.

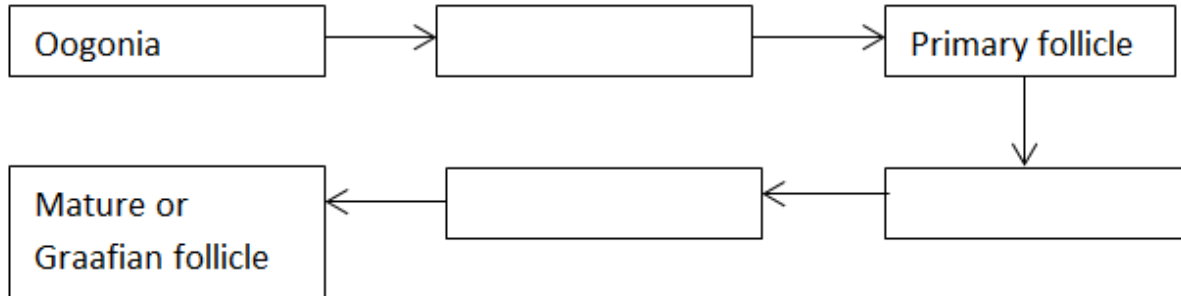
Column A (Organs)	Column B (Corresponding Functions)
Ovaries	Ovulation
Oviduct	
	Pregnancy
Vagina	Birth

6. Name the hormone crucial in parturition. Does the parturition signal originate from the mother or the fetus?
7. State the role of the epididymis in male fertility.
8. List the names of the hormones, endocrine glands along with functions of the hormones that are crucial in causing spermatogenesis.

Name of the hormone	Endocrine glands where the hormone is released	Functions of the hormone
Gonadotropin-releasing hormone(GnRH)	Hypothalamus	
Luteinising hormone(LH)		Triggers the production and secretion of androgens

Follicle
Stimulating
Hormone (FSH)

9. Fill in the missing boxes for the levels in the transformation of mother germ cells into a mature follicle.



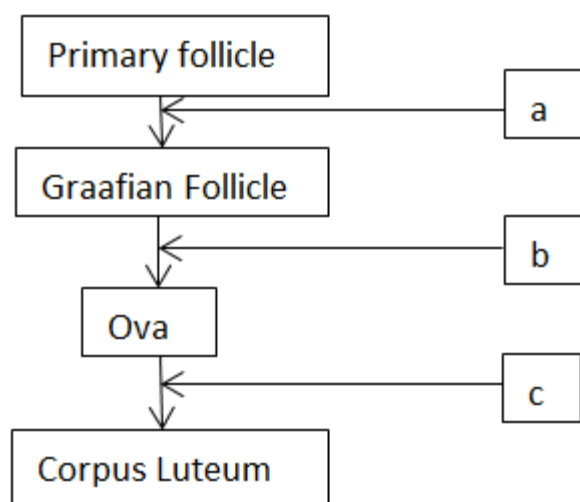
A.9. The various steps in the formation of the mature follicle are as follows:

10. What are the events that cause the chromosome number of gametes to go from $2n$, n , and again back to $2n$ during reproduction?
11. How is a primary oocyte different from a secondary oocyte?
12. State the role of the ampullary-isthmic junction in the female reproductive tract..
13. How is polyspermy checked by the zonapellucida of the ovum?
14. What is the significance of LH surge through the menstrual cycle?
15. During which stage of cell division are spermatids formed from the secondary spermatocytes?

Short Answer Type Questions

- State the significance of the following stages during the lifetime of a female. Menarche and Menopause
- Answer the following
 - How many spermatozoa does one secondary spermatocyte produce?
 - Where in zygote does the first cleavage division occur?
- Why does corpus luteum stay active throughout pregnancy and in the absence of fertilization, is active only for 10-12 days?
- What is foetal ejection reflex? How does it cause parturition?

5. What are the functions of placenta other than its endocrine function?.
6. Why is breastfeeding recommended during the initial stages of infant growth?
7. Q.7. What are the different stages of the follicular phase of the menstrual cycle taking place in ovary and uterus?
8. Draw a schematic diagram depicting oogenesis. (Label without description)
9. Mention the changes taking place during the transition of a primary follicle to Graafian follicle in the oogonia.
10. Write the main functions each of testis and ovary?
11. Mention the names of the hormones responsible for ovarian changes during the menstrual cycle in the boxes provided.



Long Answer Type Questions

1. Explain the role of pituitary gonadotropins during the follicular and ovulatory phases of the menstrual cycle. Describe the shifts in steroidal secretions.
2. Explain in detail the difference between the meiotic division of oogenesis and spermatogenesis.
3. Explain in detail the various developmental stages of the zygote until implantation with suitable diagrams..
4. With the help of a neat labelled diagram of the female reproductive system, depict the following sites:
 - (a) production of gamete
 - (b) site of fertilization

- (c) site of implantation
- (d) birth canal

5. Explain the organization of the mammary gland with the help of a diagram.
6. What is Reproduction? Explain how humans reproduce their young ones?
7. How many eggs does a woman have?
8. What is the female reproductive system?
9. What is Menopause?

CHAPTER 3: REPRODUCTIVE HEALTH

1. Our government has intentionally imposed strict conditions for MTP in our country. Justify giving a reason. (Delhi 2017)
2. Name an IUD that you would recommend to promote the cervix hostility to sperms. (Delhi 2014C)
3. State one reason, why breastfeeding the baby acts as a natural contraceptive for the mother. (Delhi 2014C)
4. Mention one positive and one negative application of amniocentesis. (Delhi 2010)
5. Why is tubectomy considered a contraceptive method? (Foreign 2010)
6. Mention the problems that are taken care of by Reproduction and Child Healthcare Programme. (All India 2016)
7. What is amniocentesis? How is it misused? (Delhi 2014C)
Or
Why there is a statutory ban on amniocentesis? Why is this technique so named? (Delhi 2012C)

Or
What is amniocentesis? Why has the government imposed a statutory ban inspite of its importance in medical field? (Foreign 2010)
8. What do oral pills contain and how do they act as effective contraceptives? (Delhi 2014C)
9. Why is Cu-T considered a good contraceptive device to space children? (Delhi 2011)
10. Name an oral pill used as a contraceptive by human females. Explain, how does it prevent pregnancy? (Delhi 2011)

Or

Why is Saheli a well-accepted contraceptive pill? (Foreign 2010)

11. Describe the lactational amenorrhea method of birth control. (All India 2011)
12. At the time of Independence, the population of India was 350 million, which exploded to over 1 billion by May 2000.
List any two reasons for this rise in population and any two steps taken by the government to check this population explosion. (Foreign 2011)
13. How do copper and hormone releasing IUDs act as contraceptives? Explain. (All India 2010).
 - (i) List any four characteristics of an ideal contraceptive.
 - (ii) Name two intrauterine contraceptive devices that affect the motility of sperms. (All India 2016)
14. Name two hormones that are constituents of contraceptive pills. Why do they have high and effective contraceptive value? Name a commonly prescribed non-steroidal oral pill. (All India 2014)
15. If implementation of better techniques and new strategies are required to provide more efficient care and assistance to people, then why is there a statutory ban on amniocentesis? Write the use of this technique and give reason to justify the ban. (All India 2014)
16. A woman has certain queries as listed below, before starting with contraceptive pills.
17. (i) Name any two copper releasing IUDs.
(ii) Explain, how do they act as effective contraceptives in human females. (All India 2014)
18. Name and explain the surgical method advised to human males and females as a mean of birth control. Mention its one advantage and one disadvantage. (Foreign 2014)
19. How do 'implants' act as an effective method of contraception in human females? Mention its one advantage over contraceptive pills. (Delhi 2012)
20. Your school has been selected by the Department of Education to organise and host an interschool seminar on 'Reproductive Health Problems and Practices'. However, many

parents are reluctant to permit their wards to attend it. Their argument is that the topic is 'too embarrassing'.

Put forth four arguments with appropriate reasons and explanation to justify the topic to be very essential and timely. (All India 2015)

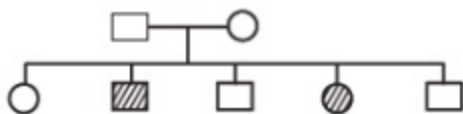
21. Name any two assisted reproductive technologies that help infertile couples to have children. (Delhi 2012C)
22. Expand GIFT and ICSI. (All India 2012C).
23. After a brief medical examination a healthy couple came to know that both of them are unable to produce functional gametes and should look for an 'ART' (Assisted Reproductive Technique). Name the 'ART' and the procedure involved that you can suggest to them to help them bear a child. (Delhi 2015)
24. An infertile couple is advised to adopt test tube baby programme. Describe two principal procedures adopted for such technologies. (Delhi 2015)
Or
Explain the Zygote Intra Fallopian Transfer Technique (ZIFT). How is Intra Uterine Transfer (IUT) Technique different from it? (All India 2010)
25. A childless couple has agreed for a test tube baby programme. List only the basic steps the procedure would involve to conceive the baby. (Delhi 2015C)
Or
(i) Give any two reasons for infertility among young couple.
(ii) Test tube baby programme is a boon to such couples. Explain the steps followed in the procedure. (All India 2010C)
26. 'Intra Cytoplasmic Sperm Injection (ICSI)' and 'Gamete Intra Fallopian Transfer (GIFT)' are two assisted reproductive technologies. How is one different from the other? All (India 2014C)
27. Why is ZIFT a boon to childless couples? Explain the procedure. (Delhi 2013C)
28. State any four methods to overcome infertility in human couples. (Delhi 2011C)
29. A couple where both husband and wife are producing functional gametes, but the wife is still unable to conceive, is seeking medical aid. Describe any one method that you can suggest to this couple to become happy parents. (All India 2014)

30. Suggest and explain any three Assisted Reproductive Technologies (ART) to an infertile couple. (All India 2013):
31. (i) Explain one application of each one of the following (Delhi 2019)
(a) Amniocentesis
(b) Lactational amenorrhea
(c) ZIFT
(ii) Prepare a poster for the school programme depicting the objectives of 'Reproductive and Child Healthcare Programme'.
32. A large number of married couples in the world are childless. It is shocking to know that in India, the female partner is often blamed for the couple being childless.
(i) Why in your opinion the female partner is often blamed for such situations in India? Mention any two values that you as a biology student can promote to check this social evil.
(ii) State any two reasons responsible for the cause of infertility.
(iii) Suggest a technique that can help the couple to have a child where the problem is with the male partner. (All India 2016).

CHAPTER 4: PRINCIPLES OF INHERITANCE AND VARIATION

Very Short Answer Type Questions

1. What is the cross known as when the progeny of F₁ and a homozygous recessive plant is crossed? State its advantage.
2. What are the criteria for selecting organisms to perform crosses to study the inheritance of a few traits?
3. The following pedigree shows a particular trait which is absent in the parents but found in the subsequent generation irrespective of the sexes. Analyze the pedigree and draw a conclusion.



4. Why did Mendel self-pollinate the tall F₁ plants to get the F₂ generation and crossed a pure breeding tall plant with a pure breeding dwarf plant to obtain the F₁ generation?

5. **How are the alleles of a gene different from each other? What is its importance?**
6. **How far are the genes and environment responsible for the expression of a particular trait?**
7. **What is the genetic basis of the wrinkled phenotype of pea seed?**
8. **Why does an individual have only two alleles even if a character shows multiple alleleism?**
9. **How is a mutation induced by the mutagen? Explain with examples.**
10. **Differentiate between dominance, co-dominance and incomplete dominance.**
11. **Define the chromosomal theory of inheritance?**
12. **Define Linkage?**

Short Answer Type Questions

1. **How is it possible for a child to have a blood group O if the parents have blood groups A and B?**
2. **Explain Down's syndrome.**
3. **Why is it that women exceeding 40 years of age have more chances of having a child with Down's syndrome?**
4. **How was it known that the genes are located on chromosomes?**
5. **A plant with yellow flowers was crossed with a plant with red flowers. The F₁ progeny obtained had orange flowers. What is the inheritance pattern?**
6. **Mention the characteristics of a true-breeding line.**
7. **Who had proposed the chromosomal theory of inheritance?**
8. **What is recombination? Mention its applications with reference to genetic engineering.**
9. **Why does sickle-cell anaemia persist in the human population when it is believed that the harmful alleles get eliminated from the population after a certain time?**

10. **Define artificial selection. Has it affected the process of natural selection?**

11. What are Sex chromosomes?

12. What are chromosomes and who discovered chromosomes?

Long Answer Type Questions

1. **What is aneuploidy? Differentiate between aneuploidy and polyploidy..**

2. **Differences between aneuploidy and polyploidy**

3. **Describe the individuals with the following chromosomal abnormalities:**

❖ **Trisomy at chromosome 21**

❖ **XXY**

❖ **XO**

4. **A colour-blind father has a daughter with normal vision. The daughter marries a man with a normal vision. What is the probability of her children to be colour blind? Explain with the help of a pedigree chart.**

A.3.

5. **A tall plant with red flowers (dominant) is crossed with a dwarf plant with white flowers (recessive). Work out a dihybrid cross and state the dihybrid ratio. What will be the effect on the dihybrid ratio if the two genes are interacting with each other?**

6. **Why is Drosophila used extensively for genetic studies?**

7. List out the characteristics of the chromosome theory of Inheritance.

8. Define autosome, hemizygous, homozygous, and heterozygous?

9. What is Sex-linkage?

10. **Why is colour blindness more prominent in males than females?**

11. Why did scientists select fruit flies for his genetics experiments?

PROJECT FILE

To prepare investigatory file of 25-30 pages on the topic already discussed It should include:

- Cover page
- Index
- Acknowledgement

- Certificate
- Introduction
- Details about the project
- Annexure
- Bibliography

REVISION

Revise following chapters for UNIT TEST:

Chapter-2: Sexual Reproduction in Flowering Plants

Chapter-3: Human Reproduction

Chapter-4: Reproductive Health

Chapter-5: Principles of Inheritance and Variation

Chapter-6: Molecular Basis of Inheritance

