

MILESTONE ACADEMY

VACATION HOMEWORK SCIENCE

CLASS – XII

Date of submission :-29.10.25

ENGLISH:-

Literature Section

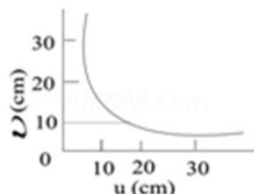
Go through the chapter “On the face of it” and “The third level” prepare handwritten presentation in about 20-25 pages (each) for the same.

PHYSICS :-

- Find the wavelength of electromagnetic waves of frequency $6 \times 10^{12} \text{ Hz}$ in free space. Give two applications of the type of wave.
- Draw a labeled diagram of telescope when the image is formed at the least distance of distinct vision? Hence derive the expression for its magnifying power?
- The magnifying power of an astronomical telescope in the normal adjustment position is 100. The distance between the objective and the eye piece is 101cm. calculate the focal length of the objective and the eye piece.
- A convex lens made up of refractive index n_1 is kept in a medium of refractive index n_2 . Parallel rays of light are incident on the lens. Complete the path of rays of light emerging from the convex lens if

- $n_1 > n_2$
- $n_1 = n_2$
- $n_1 < n_2$

- A lens forms a real image of an object. The distance of the object. From the lens is U cm and the distance of the image from the lens is cm. The given graph shows the variation of v and U



- What is the nature of the lens?
- Using the graph find the focal length of the lens?
- Draw a ray diagram to show the formation of image of same size as that of object in case of converging lens hence derive lens equation?

CHEMISTRY:-

- Draw structures of Cyanohydrin of ethanol.
- Draw structure of Hemiacetal of ethanal.
- Chemical test to distinguish propanal and propanone.
- What type of Aldehydes undergo Cannizzaro reaction?
- Write equations for name reactions. a. Hell
–Volhard –Zelinsky reaction.
b. Rosenmund reduction
c. Stephen reduction
d. Gatterman Koch reaction
e. Clemmensen reduction
f. WolffKishner reduction.
g. Aldol condensation
h. CrossAldol condensation
i. Cannizzaro reaction.
- Account for the following:-
a) $\text{Cl-CH}_2\text{COOH}$ is stronger acid than CH_3COOH .

MATHEMATICS :-

- Differentiate the following function with respect to x:
a) $F(x) = [\log(x - \sqrt{x^2 - a^2})]^n$
b) $f(x) = \log \sin \sqrt{\frac{a-x}{a+x}}$
- Differentiate $\frac{x^2}{1-x^2}$ with respect to x^2 .
- If $x = \frac{e^t}{1+e^t}$, $y = \frac{e^t + e^{-t}}{e^t - e^{-t}}$. Find $\frac{dy}{dx}$
- If cost function $C(x) = x^3 - 2x^2 + x + 5$. then find marginal cost, average cost .
- Integrate $\int \cos^{-1} \left(\frac{1-x^2}{1+x^2} \right) dx$

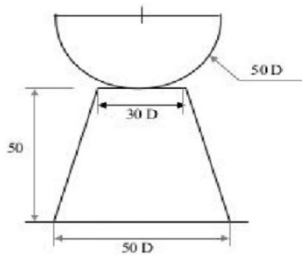
BIOLOGY:-

- 1.Make a Study Report on "Advantages of ORGANIC FARMING"
- 2.Drawing Exercise: Topic- "HYDROPHILY"

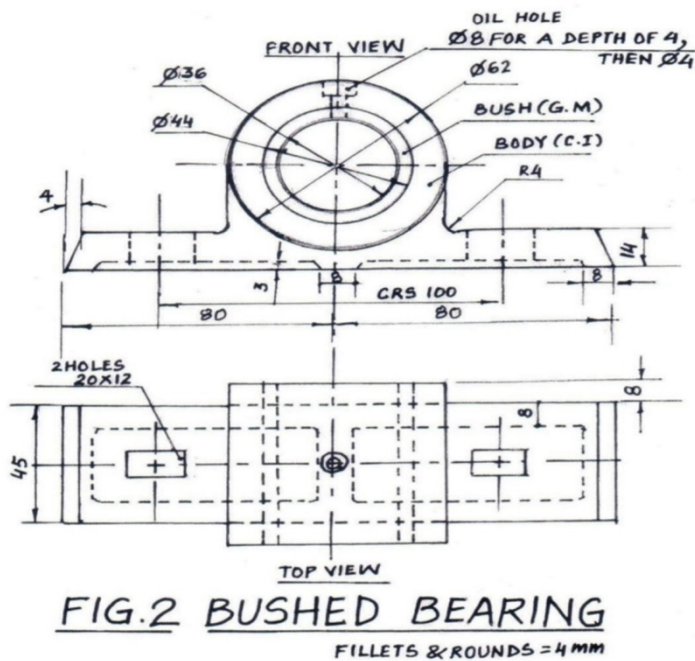
ENGINEERING GRAPHICS:-

Vacation Home Work

- 1. Draw the isometric view of a pentagonal pyramid having a base , with a 30 mm side and 50mm long axis (a) when the its axis is vertical (b) when the its axis is horizontal?
- 2. Draw an isometric view of Frustum of Hexagonal Pyramid having 35 mm base side 20 mm top side and 80mm long axis, resting on its base on the HP with an Edge of the base parallel to the VP?
- 3. Draw the isometric view of the given orthographic projection of the object:
- 4. Figure 2 shows the assembly of a BUSHED BEA



- 5. RING. Disassemble the parts and then draw the following views of the following components to scale 1:1, keeping their position same with respect to H.P. and V.P.



- (i) BODY
 - a) Front view, left half in section. (9marks)
 - b) Side view. (7marks)
 - (ii) BUSH
 - a) Front view. (3marks)
 - b) Side view in section (3marks)
- Print the titles and the scale used. Draw the projection symbol. Give 6 important dimensions (6marks)

Hindi - रचनात्मक लेखन लिखिए।

क. आत्मनिर्भर भारत

ख. एक सुबह जब मैं उठी

PHYSICAL EDUCATION :-

- 1. State about Basal Metabolic Rate and it's calculation.
- 2. Explain partial curl ups and modified push ups for girls along with its purpose and procedure.
- 3. Discuss about BMI with its purpose and procedure.
- 4. Discuss the factors determining speed.
- 5. What do you understand by fracture? How can fractures be classified? Explain.

INFORMATIC PRACTICES:-

1	What are DDL and DML? Give one command of each.
2	Which command is used to add new column in existing table?
3	Which clause is used to search for NULL values in any column?
4	Which command is used to see information like name of columns, data type, size etc. ?
5	Which clause is used for pattern matching? What are the 2 main characters used for matching the pattern?
6	Which clause is used to see the output of query in ascending or descending order?
7	Which clause is used to eliminate the duplicate rows from output?

8	What is the minimum number of column required in MySQL to create table?
9	Which command is used to remove the table from database?
10	Which command is used to add new record in table?
11	Which option of ORDER BY clause is used to arrange the output in descending order?
12	Which command is used to change the existing information of table?
13	Raj is a database programmer, He has to write the query from EMPLOYEE table to search for the employee whose name begins from letter „R“, for this he has written the query as: <code>SELECT * FROM EMPLOYEE WHERE NAME=“R%“</code> ; But the query is not producing the correct output, help Raj and correct the query so that he gets the desired output.
14	Raj is a database programmer, He has to write the query from EMPLOYEE table to search for the employee who are not getting any commission, for this he has written the query as: <code>SELECT * FROM EMPLOYEE WHERE commission=null</code> ; But the query is not producing the correct output, help Raj and correct the query so that he gets the desired output.
15	Raj is a database programmer, has to write the query from EMPLOYEE table to search for the employee who are working in „Sales“ or „IT“ department, for this he has written the query as: <code>SELECT * FROM EMPLOYEE WHERE department=“Sales“ or „IT“</code> ; But the query is not producing the correct output, help Raj and correct the query so that he gets the desired output.

COMPUTER SCIENCE :-

1. A binary file “student.dat” has structure [rollno, name, marks].

i. Write a user defined function insertRec() to input data for a student and add to student.dat.

ii. Write a function searchRollNo(r) in Python which accepts the student’s rollno as parameter and searches the record in the file “student.dat” and shows the details of student i.e. rollno, name and marks (if found) otherwise shows the message as ‘No record found’.

2. Write a python program to create binary file dvd.dat and write 10 records in it:

Dvd id,dvd name,qty,price

Display those dvd details whose dvd price is more than 25.

Write a Python program that reads data from a CSV file named "inventory.csv" using the **csv.DictReader()** class. The CSV file contains columns for "Product", "Quantity", and "Price".

Your program should calculate the total value of each product in inventory (quantity * price) and print a summary report showing each product's name and total value.

Identify and correct the error in the following Python code that attempts to open a CSV file named "data.csv" for writing using the **csv.writer()** object.

What is the purpose of using the csv module in Python?

Discuss the importance of newline handling when working with CSV files.

Differentiate between writerow() and writerows() methods in the csv.writer() object.

Describe the data format of a CSV file.

Explain the concept of a delimiter character in CSV files.