

S.F.D.A.V. Public School, Muzaffarnagar
Kanwar Break Homework 2017-18
Class-XII

English

Q1. With the help of uploaded videos on school website, Prepare point wise summary of following chapters. (15-20 points in each chapter)

- (i) The last lesson
- (ii) Lost spring
- (iii) Deep Water
- (iv) The Tiger King
- (v) The Enemy
- (vi) Should Wizard Hit Mommy?

Video Link

<https://www.youtube.com/watch?v=g9jq3k8Dp5k>

https://www.youtube.com/watch?v=8el_zv4CYCM

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

<https://www.youtube.com/watch?v=mmOjCo9V6pQ>

<https://www.youtube.com/watch?v=COZ7giLUojc>

<https://www.youtube.com/watch?v=9oF9mtls1ug>

Biology

Q1. Explain the process of microspirogenesis in angiosperm.

Q2. Draw a labelled diagram of mature embryo sac.

Q3. Why is the process of fertilization in angiosperm termed as double fertilization? Explain?

Video Link

<https://www.youtube.com/watch?v=uBYodyehoN0>

Chemistry

BIOMOLECULES

Very short type of questions

1. What are biocatalysts? Give an example.
2. What are enzymes?
3. Define peptide linkage.
4. What type of bonding helps in establishing the alpha-helix structure of proteins.
5. Name the deficiency diseases resulting from lack of vitamin A and E in the diet.

SHORT ANSWER TYPE QUESTIONS

6. Write the structural and functional differences between DNA and RNA.

7. Explain the meaning of the following terms-
(a) Polypeptide (b) Enzymes.
8. What are essential and non –essential amino acids ? give one example of each.
- 9 what is meant by denaturation of proteins.
- 10 . what is the structural difference between a nucleoside and nucleotide?

CHEMISTRY IN EVERY DAY LIFE

VERY SHORT ANSWER TYPE QUESTIONS

1. What are limited spectrum antibiotics? Give one example
2. What is tincture of iodine and what is it used for.
3. State a reason of the following statement:- the use of sweetener aspartame is limited to cold foods and drinks.
4. Explain the following terms with suitable examples.
(a) Cationic detergents
(b) Anionic detergents
5. Differentiate between disinfectants and antiseptics. Give one example of each group.
6. Explain the following terms with an example for (a) antifertility (b) sweetening agent.
7. Define antihistamine with and example
8. Answer the following questions:-
(a) Why should medicines not be taken without consulting doctor?
(b) What is meant by broad spectrum antibiotics ?
(c) What are the main constituent of dettol?
9. Explain
(a) Tranquilizers.
(b) Food preservatives
(c) Synthetic detergents
10. Why do soaps not work in hard water.

Video Link

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

<https://www.youtube.com/watch?v=uWRmr9n41Ho>

<https://www.youtube.com/watch?v=sgbrVU3PmhA>

IP

- Q1.What is the purpose of break statement in a loop?
- Q2.what is the purpose of default case in switch statement?
- Q3. What is the difference between if else statement and switch case statement?
- Q4.What is the difference between checkbox and Radio Button?
- Q5.what is the difference between Text field and Text area?

Q7. Explain the following

- (i) Is selected
- (ii) Get selected
- (iii) Model

Video Link

https://www.youtube.com/watch?v=oA_kcVaJQ3E

Library Science

Q1-Define Human resource management ?

Q2-Write down the methods adopted by libraries for providing user education programmers?

Q3-Why is it important to evaluate the user education programmers ?

Q4-Explain the stack maintenance ?

Q5-Define collection development policy?

Q6-Write the function of a acquisition section ?

Q7-Give the definition of a periodical section?

Q8-What do you mean by stock verification and write the advantages of stock verification in libraries ?

Q9-What is library classification?

Q10-Explain the APUPA pattern ?

Q11-What is PMEST?

Q12-Explain the fundamental categories in library classification?

Q13-Define call number?

Q14-Define class number?

Q15-What do you mean by collection number?

Video Link

https://www.youtube.com/watch?v=F61DdVl_GtU

<https://www.youtube.com/watch?v=l3WCZiVsDDY>

Maths

1. Solve for x: $\sin^{-1} 6x + \sin^{-1} 6\sqrt{3}x = \frac{-\pi}{2}$

2. Prove that: $\tan^{-1} \frac{1}{4} + \tan^{-1} \frac{2}{9} = \frac{1}{2} \cos^{-1} \frac{3}{5}$

3. Consider $f: \mathbb{R} \rightarrow [-9, \infty]$ given by $f(x) = 5x^2 + 6x - 9$. Prove that f is invertible with $f^{-1}(y) = \frac{\sqrt{54 + 5y} - 3}{5}$.

4. Show that the relation R defined by $R = \{(a,b) : a - b \text{ is divisible by } 3; a, b \in \mathbb{N}\}$ is an equivalence relation.

5. For what value of x, the matrix $\begin{bmatrix} 5-x & x+1 \\ 2 & 4 \end{bmatrix}$ is singular?

6. If matrix $A = \begin{bmatrix} 2 & -2 \\ -2 & 2 \end{bmatrix}$ and $A^2 = MA$, then visit the value of M.

7. Using properties of determinants prove that;

$$\begin{vmatrix} a & b & c \\ a^2 & b^2 & c^2 \\ bc & ca & ab \end{vmatrix} = (a-b)(b-c)(c-a)(ab+bc+ca)$$

8. Using properties of determinants, prove that;

$$\begin{vmatrix} x+y & x & x \\ 5x+4y & 4x & 2x \\ 10+8y & 8x & 3x \end{vmatrix} = x^3$$

9. Discuss the continuity of the following function at $x=0$

$$f(x) = \begin{cases} \frac{x^4 + 2x^3 + x^2}{\tan^{-1} x} & ; x \neq 0 \\ 0 & ; x = 0 \end{cases}$$

10. If $u = \sin^{-1}\left(\frac{2x}{1+x^2}\right)$ and $v = \tan^{-1}\left(\frac{2x}{1-x^2}\right)$ find du/dv

11. If $y = \log\left[x + \sqrt{x^2 + a^2}\right]$ find dy/dx

12. Verify Rolle's Theorem for the function

$$f(x) = \sin 2x \quad \text{in } \left[0, \frac{\pi}{2}\right]$$

13. Verify Mean value theorem for the function

$$f(x) = (x-3)(x-6)(x-9) \quad \text{in } [3,5]$$

14. If $x = 2\cos\theta - \cos 2\theta$ and $y = 2\sin\theta - \sin 2\theta$ then prove that $\frac{dy}{dx} = \tan\left(\frac{3\theta}{2}\right)$

15. If $y = e^{m\sin^{-1}x}$ then prove that, $(1-x^2)\frac{d^2y}{dx^2} - \frac{xdy}{dx} - m^2y = 0$

16. If $y^x = e^{y-x}$, prove that $\frac{dy}{dx} = \frac{(1+\log y)^2}{\log y}$

17. Differentiate $\tan^{-1}\frac{x}{\sqrt{1-x^2}}$ w.r.t. $\sin^{-1}(2x\sqrt{1-x^2})$

If $y = me^{ax} + ne^{bx}$ prove that $\frac{d^2y}{dx^2} - (a+b)\frac{dy}{dx} + aby = 0$

Video Link

<https://www.youtube.com/watch?v=Qn2KX-6W748>

Physics

- Q1. State Gauss – Theorem in electrostatics. Apply this theorem to derive an expression for the electric field intensity at a point.
- Due to an infinitely long thin uniformly charged straight wire.
 - Due to an infinitely large thin plane sheet of charge.
- Q2. Three capacitors C_1 , C_2 and C_3 are connected (i) in series (ii) in parallel. Show that the energy stored in series combination is the same as that in parallel combination.
- Q3. A voltage of 30 V is applied across a colour coded carbon resistor with first, second and third rings of blue, black and yellow colours. Calculate the value of current in mA, through the resistor.
- Q4. What is meant by the drift velocity of free electrons in a metal? Establish a relation between drift velocity v_d of an electron in a conductor of cross – section A carrying a current I and having n as concentration of free electron per unit volume. Hence obtain the relation between current density and drift velocity.
- Q5. Define electrical resistivity of a material does it depend on temperature.
- Q6. Define electric conductivity of a material. Give its S.I. unit.
- Q7. Explain with diagram the principle of a potentiometer. How can its sensitivity be increased? Why is it superior to a voltmeter?
- Q8. State the principle of a potentiometer with the help of a circuit diagram. Describe the method for the determination of internal resistance of a cell using a potentiometer. Derive the formula to be used.
- Q9. Write the condition under which the potential difference between the terminal of a battery and its E.M.F. are equal.
- Q10. A battery of E.M.F. E and internal resistance r gives a current of .5A with an external resistance of 12 and current of 0.25 amp with an external resistance 25 . Calculate internal resistance r and E.M.F. E of the cell.
- Q11. A parallel plate capacitor is charged by a battery which is then disconnected. A dielectric slab is then inserted to fill the space between the plates. Explain the changes if any that occur in the values of

Charge on the plates (ii) Capacitance (iii) Pd. Between the plates (iv) Electric field between the plates.

Video Link

<https://www.youtube.com/watch?v=DbSpDR-mKMY>

<https://www.youtube.com/watch?v=xvLs80c6JEg>

<https://www.youtube.com/watch?v=0nCPA4XcNDw>

Engineering Graphics

1. Construct the isometric scale.
2. Construct the isometric projection, to isometric scale, of a frustum of a pentagonal pyramid, whose base side 30 mm, top side 55 mm and height is 70 mm, is resting on the H.P. on its smaller base, its one base edge is normal to V.P. Give all dimensions.
3. Construct the isometric projection of a frustum of a cone, whose base diameter is 70 mm, top diameter 45 mm and height is 65 mm, is resting on the H.P. on its circular base. Give all dimensions.
4. Construct the isometric projection of a sphere, diameter of sphere is 60mm. Give all dimensions and indicate the direction of viewing.
5. A square prism (base edge 80mm and height 30mm) is resting on H.P., with its square base on it, and one edge of the base is parallel to V.P. A hexagonal pyramid (base edge 30mm and height 70mm) is placed centrally, on the top square face of the prism, with its hexagonal base on it. One base edge of the pyramid is parallel to V.P. Draw the isometric projection of the solids, placed together, to isometric scale. Draw the common axis and show the direction of viewing. Give all dimensions.
6. A hexagonal pyramid base edge 30mm, height 50mm, having its axis vertical and two of its base edge parallel to V.P., is standing vertically over the top face of equilateral triangular prism of base edges 100mm and height 25mm, having one of its rectangular face parallel to V.P. and nearer the observer. Draw an isometric projection of the combination of solids. Give all dimensions and indicate the direction of viewing.
7. A pentagonal prism with base side 35 mm and height 60 mm is centrally placed with its pentagonal end on the top circular face of a cylindrical disc with diameter of 100 mm and thickness 35 mm. One side of the pentagonal end at the bottom is normal to V.P. and the common axis is normal to H.P. and parallel to V.P. Draw the isometric projections of the two solids, placed together. Give all dimensions.
8. Draw to scale 1:1, the standard profile of a Metric external and internal thread (enlarged pitch 50 mm). Give all standard dimensions.
9. Draw to scale 1:1, the standard profile of a B.S.W. thread (enlarged pitch 50 mm). Give all standard dimensions.
10. Draw to scale 1:1, the standard profile of a Metric Square and knuckle thread (enlarged pitch 50 mm). Give all standard dimensions.