

**ASN Sr. Sec. School**  
**Class 12**  
**HOLIDAY HOMEWORK 2018-2019**

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**SCIENCE**

**Note: Assignment Questions are to be done in respective subject notebook.**

**ENGLISH**

1. H.G. Wells has called Mrs Hall's guest 'A Strange Man' in the first chapter . Do you agree?(Ch 1)
  2. Why does Mrs Hall consider the stranger's arrival in the inn as her good fortune? Ch 1
  3. Do you agree that Mrs. Hall had excellent hospitality skills? Ch 1
  4. What explanation did the stranger give Mrs. Hall for coming to Iping and confining to a dark room? Ch2
  5. What seeds of suspicion did Henfrey sow in Mrs. Hall's mind against the guest? Ch 2
  6. Describe the incident when the stranger was bitten by Fearenside's dog. Ch 3
  7. What was the rummy case referred to by Teddy Henfrey when he talked to Fearenside at the little beer-shop of Iping Hanger?ch 3
  8. Why was Cuss so keen to see the stranger? Ch 4
  9. Describe Cuss's encounter with the stranger. Ch 4
  10. Why did Bunting fail to capture the burglar in spite of all the presence of mind and courage?ch 5
  11. Do you find the break up at the vicarage humorous? What traits of the Buntings' character impress you? Ch 5
  12. What took the Halls to their cellar in the early morning of Whit Monday? Why did Mr. Hall have to rush up immediately? What did he see there? Ch 6
  13. Why did Mrs. Hall faint after the furniture in the parlour strangely flew towards her/ Ch 6
  14. Why was Mr. Sandy Wadgers, the blacksmith sent for by the Halls early in the morning on Whit Monday? What suggestion did he give? Ch 6
  15. What inference do you draw about the stranger's increasing casual attitude towards safeguarding his invisibility? Discuss with reference to the furniture hurling episode when the Halls examine his room presuming him to be absent. Ch 6
  16. Describe the encounter between Mrs. Hall and the stranger when he opened the door at midday on Whit Monday.Ch 7
  17. Mr. Bobby Jaffers, the village constable was a brave man. Discuss in light of the episode when he arrived at the inn.Ch 7 Stranger
  18. Bring out the element of humour in the chapter "The Unveiling of the"Ch 7
  19. What flustered and perplexed Gibbons as he lay napping in a field oblivious of all that had taken place at the 'Coach and Horses' ? Ch 8
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**PHYSICS**

- I. Do prepare working model of investigatory project.
  - II. Report of project (•Title • acknowledgement • certificate • Table of contents • Introduction • Experimental techniques and methods • Results and discussion • Summary/conclusions • References • Application in daily life (if used) ) . Submit it in the first week of July.
  - III. Do write all five activities in activity file from manual along with diagram, observation table, result and graph if required.
  - IV. Do complete writing part of all 15 Experiments in experiment file.
  - V. Solve all the assignments given till date and questions of units 1, 2, 3,and 4 of question bank in assignment notebook.
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**CHEMISTRY**

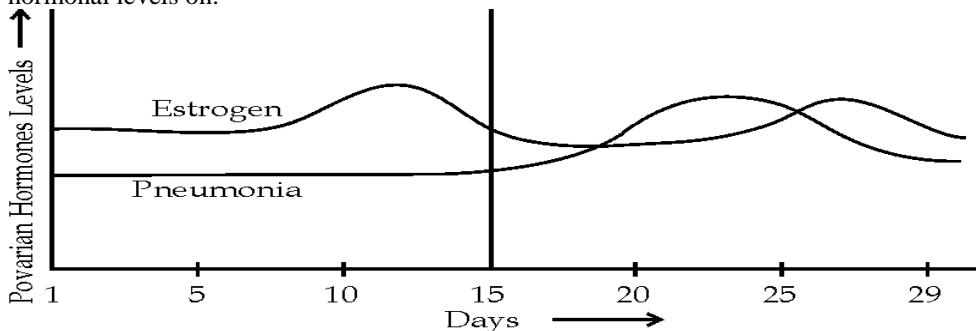
1. Prepare Investigatory Project in chemistry for board examination. Collect the information of the related project.
2. Complete NCERT Exercise given at the end of each chapter (ch-10-14) in assignment register.
3. Write name reactions, distinguish test and mechanism separately of all chapters of organic chemistry in assignment register.
4. Complete the practical file as per instructions given in lab.

Learn all test and their reaction of SALT ANALYSIS.

# BIOLOGY

## Human Reproduction

1. When a male is known as sterile?
2. What is meant by regeneration?
3. Which hormone in females stimulates the production of milk during lactation?
4. How many sperms will be produced from 100 primary spermatocytes and how many eggs will be produced from 100 primary oocytes?
5. What is the function of Leydig cells?
6. What is spermiogenesis?
7. Name the type of placenta in mammals.
8. Name the pregnancy hormone.
9. Why is there no menstrual cycle during pregnancy?
10. Mention the role of relaxin.
11. State differences between spermatogenesis and oogenesis.
12. What is colostrums? What is the important function attributed to it?
13. Describe the formation and the function of corpus luteum.
14. Draw a labelled diagram of the microscopic structure of a human sperm.
15. What are the different stage of spermatogenesis, show these stage diagrammatically?
16. Give a labeled diagram of the sectional view of the ovary.
17. Why is the human placenta referred to as haemochorial type? Name the hormone it secretes to facilitate parturition.
18. Study the graph given above showing the levels of ovarian hormones during menstruation and correlate the uterine events that take place according to the hormonal levels on:



- (i) 6-15 days
- (ii) 16 - 25 days
- (iii) 26 - 28 days (if the ovum is not fertilized)

19. Expand the following and explain them.

- |        |         |
|--------|---------|
| a) IVF | b) ZIFT |
| c) IUI | d) MTP  |

20. What is the role of the following hormones in the female reproductive cycle  
(i) FSH, (ii) LH, (iii) Progesterone?
21. Describe the sequence of changes in the body of a pregnant woman up to the time of parturition.
22. Where does oogenesis takes place? Describe diagrammatically the stages of the process?
23. Draw a labelled diagram of the electron microscopic view of the mammalian sperm and explain its formation.
24. Describe the male accessory glands giving their functions.
25. Draw a labelled sketch of the cross section of a part of seminiferous tubule of the testes of a adult human.
26. What is menstruation? What are the specific actions of FSH, LH, estrogen and progesterone in the menstrual cycle?
27. (a) Draw a labelled diagram of sectional view of human ovary showing different stages of oogenesis.  
(b) Where is morula formed in humans? Explain the process of its development from the zygote.
28. Give a schematic representation of oogenesis in humans. Mention the number of chromosomes at each stage.

Correlate the life phases of the individual with the stages of the oogenesis.

- (a) Give a schematic representation of spermatogenesis in humans.
- (b) At which stage of life does gametogenesis begin in human male and female respectively?
- (c) Name the organs where gametogenesis gets completed in human male and female respectively.

29. Draw a labelled diagram of sectional view of a human ovary showing various stages of follicles growing in it.

## Reproductive Health

1. What is the chemical constituent of Oral contraceptive pills.
2. Name any copper releasing IUD.
3. Name the technique used for determining the sex and condition of the foetus.
4. List two most common STDs

5. Write the full form of the following ( i) MMR , (ii) IVF.
6. Elaborate the following abbreviation.(i)GIFT (ii) ICSI (iii) ART.
7. What is ‘Saheli’? Who prepared it?
8. List some reasons of infertility.
9. Given the causal organisms of the following STDs. (i) Syphilis (ii) Genital Herpes.
10. What is periodic abstinence?
11. What is vasectomy?
12. What are test tube babies?
13. Describe the technique by which genetic disorder in a developing foetus can be detected.
14. What do you mean by STDs? Describe Gonorrhoea and Syphilis.
15. Why medical termination of pregnancy is done. Is MTP legalized in India.
- 16 What do you understand by amniocentesis? Why is there a statutory ban on this?  
Give reason.
- 17 A mother of one year old daughter wanted to space her second child. Her doctor suggested CuT. Explain its contraceptive actions.
- 18 How do surgical procedures prevent conception in humans? Mention the way it is achieved in human males.  
3 marks
19. What is birth Control? Briefly explain the surgical methods of birth control with suitable diagram.
20. Explain various special techniques used in assisted reproduction technologies

### Practical

1. Complete your practical file
2. Complete the project work and record it in file on the topics discussed in the class.

## PHYSICAL EDUCATION

1. All the Students ( regular and additional) have to complete their practical files on the following different skill tests:-
  - i. Physical fitness AAHPER Test-Enclusing - Pull ups (for boys) and fixed arm hang (for girls)
  - ii. Flexed legs sit-ups.
  - iii. Shuttle Run ( 5x5m. )
  - iv. Standing Broad Jump
  - v. 50 yards
  - vi. 600 yards run walk
2. Skill of any one team, games on choice from the given :  
Athletics, Basketball, Football, Handball, Hockey, Kho-Kho, Rifle Shooting and Volley Ball.
3. Conduct barrow three items , general motor ability test of ten students;
  - i. Standing Broad jump (for measuring leg strength).
  - ii. Zig- Zag Run (for measuring energy and speed.)
  - iii. Medicine Ball put (for measuring arm and shoulder strength)
4. Procedure , Benefits and contradiction of any two Asanas for lifestyle diseases.

## COMPUTER SCIENCE

### Project Work

The project has to be developed in C++ language with Object Oriented Technology and also should have use of Data files. Theme of the project can be Any subsystem of a System Software or Tool Any Scientific or a fairly complex algorithmic situation School Management, Banking, Library Information System, Hotel or Hospital Management System, Transport query system Quizzes / Games Tutor, Computer Aided Learning Systems

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## PSYCHOLOGY

CASE STUDY FILE: Case study is an in-depth analysis of a person. You are required to choose a person on whom you want to do your case study. The person should be from 14-18 years of age and willing to cooperate with you.

## ECONOMICS

Prepare ONE hand written project of 30-40 pages (approx.) following the given guidelines-

1. Choice of topic:
    - i) What is going around us:
      - a) GST
      - b) Demonetisation
      - c) Brexit
      - d) Globalisation- origin and recent trends
      - e) Micro and small scale industries in India
      - f) Food supply channels in India
      - g) Make in India- case study of a start-up firm
      - h) Contemporary employment situation in India
      - i) Inclusive Growth Strategy
      - j) Human Development Index
      - k) Self Help Groups
      - l) Any other relevant topic
    - ii) Analyse any concept from the syllabus
  - 2) Following essentials are required to be fulfilled in the project:
    - Use A4 size sheets.
    - Draw borders
    - follow the sequence of: Title page, acknowledgement, index, introduction ..... bibliography
    - page count starts from 'introduction' page.
    - Explanation of the project:
      - Introduction
      - Meaning and relevance of the subject/topic
      - Explanation (use newspaper articles diagrams, graphs, statistics, pictures)
      - Application of the concept
      - Student's opinion/learning/suggestion.
- .....

## MATHS

### Continuity & Differentiation

#### VERY SHORT ANSWER TYPE QUESTIONS (1 MARK)

1. Let  $f(x) = \sin x \cos x$ . write down the set of points of discontinuity of  $f(x)$ .
2. Given  $f(x) = \frac{1}{x+2}$ , write down the set of points of discontinuity of  $f(f(x))$ .
3. For what value(s) of  $n$ , the function  $f(x) = \begin{cases} x^n \sin \frac{1}{x}, & x \neq 0 \\ 0, & x = 0 \end{cases}$

Is continuous at  $x = 0$ .

4. Write the set of points of continuity of  
 $f(x) = |x - 1| + |x + 1|$
5. Write the number of points of discontinuity of  $f(x) = [x]$  in  $[3, 7]$ .
6. If  $y = e^{\log(x^5)}$ , find  $\frac{dy}{dx}$ .
7. If  $f(x) = x^2 g(x)$  and  $g(1) = 6$ ,  $g'(x) = 3$ , find the value of  $f'(1)$ .
8. If  $y = a \sin t$ ,  $x = a \cos t$  then find  $\frac{dy}{dx}$

#### VERY SHORT ANSWER TYPE QUESTIONS [2 MARKS]

9. Differentiate  $\sin(x^2)$  w. r. t.  $e^{\sin x}$
10.  $y = x^x$  then find  $\frac{dy}{dx}$
11. If  $y = x^x + x^3 + 3^x + 3^3$ , find  $\frac{dy}{dx}$
12. If  $x = a \cos^3 \theta$ ,  $y = a \sin^3 \theta$ , find  $\frac{d^2y}{dx^2}$
13. If  $y = e [\log(x+1) - \log(x)]$ , find  $\frac{dy}{dx}$
14. Differentiate  $\sin^{-1} [x \sqrt{x}]$  w. r. t.  $x$ .

#### SHORT ANSWER TYPE QUESTIONS (4 MARKS)

15. Examine the continuity of the following functions at the indicated points.

(I)  $f(x) = \begin{cases} x^2 \cos\left(\frac{1}{x}\right) & x \neq 0 \\ 0 & x = 0 \end{cases}$  at  $x = 0$

(II)  $f(x) = \begin{cases} x - [x] & x \neq 0 \\ 0 & x = 1 \end{cases}$  at  $x = 1$

$$(III) \quad f(x) = \begin{cases} \frac{1}{e^x-1} & x \neq 0 \\ \frac{1}{e^x+1} & x = 0 \end{cases} \text{ at } x = 0$$

$$(IV) \quad f(x) = \begin{cases} \frac{x - \cos(\sin^{-1}x)}{1 - \tan(\sin^{-1}x)} & x \neq \frac{1}{\sqrt{2}} \\ \frac{-1}{\sqrt{2}} & x = \frac{1}{\sqrt{2}} \end{cases} \text{ at } x = \frac{1}{\sqrt{2}}$$

16. For what values of constant K, the following functions are continuous at the indicated points.

$$(I) \quad f(x) = \begin{cases} \frac{\sqrt{1+kx} - \sqrt{1-kx}}{x} & x < 0 \\ \frac{2x+1}{x-1} & x > 0 \end{cases} \text{ at } x = 0$$

$$(II) \quad f(x) = \begin{cases} \frac{e^x-1}{\log(1+2x)} & x \neq 0 \\ K & x = 0 \end{cases} \text{ at } x = 0$$

$$(III) \quad f(x) = \begin{cases} \frac{1 - \cos 4x}{x^2} & x < 0 \\ K & x = 0 \\ \frac{\sqrt{x}}{\sqrt{16+\sqrt{x}-4}} & x > 0 \end{cases} \text{ at } x = 0$$

17. For what values a and b

$$f(x) = \begin{cases} \frac{x+2}{|x+2|} + a & \text{if } x < -2 \\ a+b & \text{if } x = -2 \\ \frac{x+2}{|x+2|} + 2b & \text{if } x > -2 \end{cases}$$

Is continuous at  $x = -2$

18. Find the values of a, b and c for which the function

$$f(x) = \begin{cases} \frac{\sin[(a+1)x] + \sin x}{x} & x < 0 \\ c & x = 0 \\ \frac{\sqrt{x+bx^2} - \sqrt{x}}{bx^{3/2}} & x > 0 \end{cases}$$

Is continuous at  $x = 0$

$$19. \quad f(x) = \begin{cases} [x] + [-x] & x \neq 0 \\ \lambda & x = 0 \end{cases}$$

Find the value of  $\lambda$ ,  $f$  is continuous at  $x = 0$  ?

$$20. \quad \text{Let } f(x) = \begin{cases} \frac{1 - \sin^3 x}{3 \cos^2 x} & ; \quad x < \frac{\pi}{2} \\ a & ; \quad x = \frac{\pi}{2} \\ \frac{b(1 - \sin x)}{(\pi - 2x)^2} & ; \quad x > \frac{\pi}{2} \end{cases}$$

If  $f(x)$  is continuous at  $x = \frac{\pi}{2}$ , find  $a$  and  $b$ .

$$21. \quad \text{If } f(x) = \begin{cases} x^3 + 3x + a & x \leq 1 \\ bx + 2 & x > 1 \end{cases}$$

Is everywhere differentiable, find the value of  $a$  and  $b$ .

22. For what value of p

$$f(x) = \begin{cases} x^p \sin(1/x) & x \neq 0 \\ 0 & x = 0 \end{cases} \text{ is derivable at } x = 0$$

23. Differentiate  $\tan^{-1}\left(\frac{\sqrt{1-x^2}}{x}\right)$  w.r.t  $\cos^{-1}(2x\sqrt{1-x^2})$  where  $x \neq 0$ .

24. If  $y = x^{x^x}$ , then find  $\frac{dy}{dx}$ .

25. Differentiate  $(x \cos x)^x + (x \sin x)^{\frac{1}{x}}$  w.r.t.  $x$ .

26. If  $(x + y)^{m+n} = x^m \cdot y^n$  then prove that  $\frac{dy}{dx} = \frac{y}{x}$
27. If  $(x - y) \cdot e^{\frac{x}{x-y}} = a$ , prove that  $y \left( \frac{dy}{dx} \right) + x = 2y$
28. If  $x = \tan \left( \frac{1}{a} \log y \right)$  then show that
- $$(1+x^2) \frac{d^2y}{dx^2} + (2x-a) \frac{dy}{dx} = 0$$
29. If  $y = x \log \left( \frac{x}{a+bx} \right)$  prove that  $x^3 \frac{d^2y}{dx^2} = \left( x \frac{dy}{dx} - y \right)^2$ .
30. Differentiate  $\sin^{-1} \left[ \frac{2^{x+1} \cdot 3^x}{1+(36)^x} \right]$  w.r.t  $x$ .
31. If  $\sqrt{1-x^6} + \sqrt{1-y^6} = a(x^3 - y^3)$ , prove that
- $$\frac{dy}{dx} = \frac{x^2}{y^2} \sqrt{\frac{1-y^6}{1-x^6}}, \text{ Where } -1 < x < 1 \text{ and } -1 < y < 1 \text{ [HINT: put } x^3 \sin A \text{ and } y^3 \sin B]$$
32. If  $f(x) = \sqrt{x^2 + 1}$ ,  $g(x) = \frac{x+1}{x^2+1}$  and  $h(x) = 2x - 3$  find  $f'[h'(g'(x))]$ .
33. If  $\sec \theta - \cos \theta$  and  $y = \sec^n \theta - \cos^n \theta$ , then prove that  $\frac{dy}{dx} = n \sqrt{\frac{y^2+4}{x^2+4}}$
34. If  $x^y + y^x + x^x = m^n$ , then find the value of  $\frac{dy}{dx}$ .
35. If  $x = a \cos^3 \theta$ ,  $y = a \sin^3 \theta$  then find  $\frac{d^2y}{dx^2}$
36. If  $y = \tan^{-1} \left[ \frac{\sqrt{1+\sin x} - \sqrt{1-\sin x}}{\sqrt{1+\sin x} + \sqrt{1-\sin x}} \right]$  where  $0 < x < \frac{\pi}{2}$  find  $\frac{dy}{dx}$

## AOD

### Very Short Answer Type Questions (1 Mark)

- Find the angle  $\theta$ , where  $0 < \theta < \frac{\pi}{2}$ , which increases twice as fast as its sine.
- Find the slope of the normal to the curve  $x = a \cos^3 \theta$  and  $y = a \sin^3 \theta$  at  $\theta = \frac{\pi}{4}$ .
- A balloon which always remains spherical has a variable radius. Find the rate at which its volume is increasing with respect to its radius when the radius is 7cm.
- Write the interval for which the function  $f(x) = \cos x$ ,  $0 \leq x \leq 2\pi$  is decreasing



5. For what values of  $x$  is the rate of increasing of  $x^3 - 5x^2 + 5x + 8$  is twice the rate of increase of  $x$  ?
6. Find the point on the curve  $y = x^2 - 2x + 3$  where the tangent is parallel to x-axis.
7. Write the maximum value of  $f(x) = \frac{\log x}{x}$ , if it exists.
8. Find the least value of  $f(x) = ax + \frac{b}{x}$ , where  $a > 0$ ,  $b > 0$  and  $x > 0$ .
9. Find the interval in which the function  $f(x) = x - e^x + \tan(\frac{2\pi}{7})$  increases.
10. For the curve  $y = (2x + 1)^3$  find the rate of change of slope of the tangent.
11. Find the value of  $a$  for which the function  $f(x) = x^2 - 2ax + 6$ ,  $x > 0$  is strictly increasing.

**VERY SHORT ANSWER TYPE QUESTIONS (2 MARKS)**

12. Find the co-ordinates of the point on the curve  $y^2 = 3 - 4x$ , where tangent is parallel to the line  $2x + y - 2 = 0$
13. The sum of the two numbers is 8, what will be the maximum value of the sum of their reciprocals.
14. Find the maximum value of  $f(x) = 2x^3 - 24x + 107$  in the interval  $[1, 3]$
15. If the rate of change of Area of a circle is equal to the rate of change its diameter. Find the radius of the circle.
16. The sides of an equilateral triangle are increasing at the rate of  $2 \text{ cm/s}$ . Find the rate at which the area increases, when side is 10 cm.