

HOLIDAY HOMEWORK / CLASS: XII / 2018-19

NOTE: Holiday H.W. has to be done in the H.W. copy of the respective subject.

	English (Submit English Holiday Home Work in a folder)
1.	Module 1 Reading Comprehension – Worksheet 1 to 5
2.	Module 2 Note-Making – Worksheet 21 & 22
3.	Read the Novel ‘The Invisible Man’ by H.G.Wells.
	Maths
	<p>Do the following questions</p> <ol style="list-style-type: none"> 1. Let $f(x) = \begin{cases} x+1, & x \leq 1 \\ 2x+1, & 1 < x \leq 2 \end{cases}$ and $g(x) = \begin{cases} x^2, & -1 \leq x < 2 \\ x+2, & 2 \leq x \leq 3 \end{cases}$. Find $f \circ g$ & $g \circ f$. 2. Let $f: R \rightarrow R$ be a function defined by $f(x) = \frac{\alpha x^2 + 6x - 8}{\alpha + 6x - 8x^2}$. Find the intervals of values of α for which f is onto. Is the function one to one for $\alpha = 3$? Justify your answer. 3. Let $f: R \rightarrow R$ be a function defined by $f(x) = \frac{e^x - e^{-x}}{2}$. Show that f is invertible. Hence find f^{-1}. 4. Let $f: R \rightarrow R$ be a function defined by $f(x) = x^3 + x^2 + 3x - \cos x$. Prove that f is bijective. 5. Find the values of x for which the following functions are identical. <ol style="list-style-type: none"> (a) $f(x) = x$ & $g(x) = \frac{1}{1/x}$. (b) $f(x) = \cos x$ & $g(x) = \frac{1}{\sqrt{1 + \tan^2 x}}$. (c) $f(x) = \frac{\sqrt{16 - x^2}}{\sqrt{x - 2}}$ & $g(x) = \sqrt{\frac{16 - x^2}{x - 2}}$. (d) $f(x) = \tan^{-1} x + \tan^{-1}\left(\frac{1}{x}\right)$ & $g(x) = \sin^{-1} x + \cos^{-1} x$. 6. Find the range of $f(x) = \min\{\tan x, \cot x\}$. 7. Find the range of $f(x) = \max\{\sin x, \cos x\}$. 8. Let $f(x) = 2\cos^2 x + \sqrt{3}\sin 2x + 1$. Find the domain and range of the function so that f is invertible. Also find $f^{-1}(x)$. 9. Let $f: R \rightarrow R$ be a function defined by $f(x) = x^3 + ax^2 + bx + c \sin x$, $a, b, c \in R$. Find the condition that should be imposed on a, b and c so that the given function becomes invertible. 10. Let $f: A \rightarrow B$ be a function defined by $f(x) = a \sin\left(x + \frac{\pi}{4}\right) + b \cos x + c$. If f is bijective then find the sets A and B. 11. Let $f: R \rightarrow R$ be a function defined as $f(x) = \frac{x - a}{(x - b)(x - c)}$, $b > c$. If f is onto then prove that $a \in (b, c)$. 12. Solve: $\tan^{-1}\left(\frac{1}{x^2 - 3x + 2}\right) = -\pi + \cot^{-1}(x^2 - 3x + 2)$. 13. Solve: $\sec^{-1} x > \operatorname{cosec}^{-1} x$. 14. Solve: $(\tan^{-1} x)^2 + (\cot^{-1} x)^2 = \frac{5\pi^2}{8}$. 15. Find the value of $\tan^{-1} \sqrt{\frac{a\lambda}{bc}} + \tan^{-1} \sqrt{\frac{b\lambda}{ca}} + \tan^{-1} \sqrt{\frac{c\lambda}{ab}}$, $a, b, c > 0, \lambda = a + b + c$. 16. Solve: $\cos^{-1}\left(\frac{6x}{1 + 9x^2}\right) = -\frac{\pi}{2} + 2 \tan^{-1}(3x)$. 17. Find the domain of $f(x) = \sin^{-1}\left(\frac{1 + x^2}{2x}\right)$. 18. Find the range of $f(x) = \cot^{-1}(2x - x^2)$.

<p>19. Solve: $\frac{(\sin^{-1} x)^3 + (\cos^{-1} x)^3}{(\tan^{-1} x + \cot^{-1} x)^3} = 7.$</p> <p>20. Find the set of values of parameter 'a' so that the equation $(\sin^{-1} x)^3 + (\cos^{-1} x)^3 = a\pi^3$ has a solution.</p> <p>21. Solve: $\left \sin^{-1} \cos x \right + \left \cos^{-1} \sin x \right = \sin^{-1} \cos x - \cos^{-1} \sin x .$</p> <p>22. Find the principal value of $\sin^{-1}(\sin 1000).$</p> <p>23. Find the value of $\cos^{-1} \sqrt{\frac{2}{3}} - \cos^{-1} \left(\frac{\sqrt{6} + 1}{2\sqrt{3}} \right)$</p> <p>24. Find the sum of the solutions of the equation $2\sin^{-1} \sqrt{x^2 + x + 1} + \cos^{-1} \sqrt{x^2 + x} = \frac{3\pi}{2}.$</p>
<p>Physics</p>
<p>(a) Prepare one investigatory project or working model on any specific topic of physics along with file.</p> <p>(b) Prepare activity file.</p>
<p>Chemistry</p>
<p>Prepare an investigatory project on any topic of chemistry along with file according to the instructions given below:</p> <ol style="list-style-type: none"> It must be handwritten in your neat handwriting. It should include the main topic, certificate, acknowledgement followed by the index and main content. Project must be neat and clean. Make it more interesting by pasting pictures, photographs or samples wherever required. Last page includes conclusion of the experiment and then ends with bibliography. Selection of topic is as per the contents given in the syllabus (lab manual) or can search at cbse.nic.in Analyze your result of the experiment in proper observation table with proper data.
<p>Biology</p>
<p>Prepare one investigatory project on any specific topic of Biology along with file.</p>
<p>Business Studies</p>
<p>1. You all have studied in detail about 'Principles of Management' in Chapter 2. You also have practically seen how these 'Principles of Management' are applied in the realistic business environment in your field trip organized by the school.</p> <p>For the purpose of summer vacation project, visit any one of the following:</p> <ol style="list-style-type: none"> A departmental store. An Industrial unit. A fast food outlet. Any other organization approved by the teacher. <p>You are required to observe the application of the general Principles of Management advocated by Fayol.</p> <p><u>Fayol's Principles</u></p> <ol style="list-style-type: none"> Division of work. Unity of command. Unity of direction. Scalar chain Espirit de corps Fair remuneration to all. Order. Equity.

<p>9. Discipline</p> <p>10. Subordination of individual interest to general interest.</p> <p>11. Initiative.</p> <p>12. Centralization and decentralization.</p> <p>13. Authority and Responsibility</p> <p>14. Stability of tenure.</p> <p>OR</p> <p>You may enquire into the application of scientific management techniques by F.W. Taylor in the unit visited.</p> <p><u>Scientific Techniques of Management</u></p> <p>1. Functional foremanship.</p> <p>2. Standardization and simplification of work.</p> <p>3. Method study.</p> <p>4. Motion Study.</p> <p>5. Time Study.</p> <p>6. Fatigue Study</p> <p>7. Differential piece rate plan.</p> <p><u>Essentials of submission:</u></p> <p>(a) The whole project should be prepared in the A4 format and presented in a neat spiralled folder.</p> <p>(b) The project must be hand written.</p> <p>(c) The total length of the project must be 25-30 pages.</p> <p>(d) Students must make extra efforts to give proof of the research work done by them like photographs , written certificate of visit by the owner/manager etc. It is the responsibility of the student to prove the authenticity of his project work.</p>
<p>Accountancy</p>
<p>1. You are required to prepare a Comprehensive Project of any sole proprietorship/partnership form of business. This may state Journal entries and their ledgering, preparation of Trial balance, Trading and Profit and Loss Account and Balance Sheet. Expenses, incomes and profit (loss), assets and liabilities are to be depicted using pie chart / bar diagram. You are also required to prepare a report on the performance of the business you have mentioned in your case study.</p>
<p>Economics</p>
<p>1. Prepare a Project Report on any of the following topics :</p> <p>a) PPC and its relevance</p> <p>b) Demand and its determinants</p> <p>c) Consumer Equilibrium Analysis</p>
<p>Informatics Practices</p>
<p>Write Synopsis for the java application project by creating the form in Net beans and table structure in My SQL . Specify the objective and software/hardware requirements of the Project.</p>
<p>PHE</p>
<p>Select any one game, either Volleyball or Basketball. Draw a labeled diagram of the field and write about equipments, rules, terminologies and skill.</p>