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HOLIDAY HOMEWORK (2017-18)
CLASS X
Last Date of Submission of Holiday Homework is 1 July 2017

MATHS

Q. 1 Prove the following identities

a) $(\sin\theta - Sec\theta)^2 + (\cos\theta - cosec\theta)^2 = (1- sec\theta\ x\ cosec\theta\ )^2$

b) fd $\frac{1-\sin\theta}{1+\sin\theta} = (\sec\theta - tan\theta)^2$

c) $(\text{cosec}\,\theta - sin\theta)\ \ (\sec\theta - \cos\theta)\ (\tan\theta + \cot\theta) = 1$

d) $\frac{\sec\theta - tan\theta}{\sec\theta + tan\theta} = 1\text{-}2\sec\theta\tan\theta + 2\ tan^2\theta$

e) fd $\frac{(1+cotA+\tan A)(sinA-cosA)}{sec^3A-cosec^3A} = sin^2Acos^2A$

Q. 2 If secA + tan A = p show that $(p^2 - 1)/(p^2 + 1) = \sin A$

Q3. Find the value of following expressions

a) $\frac{cos^2 20° + cos^2 70°}{sec^2 50° - cot^2 40°} + 2\ cosec^2 58° -$

$2\cot 58°\tan 32° - 4\tan 13°\tan 37°\tan 45°\tan 53°\tan 77°$

b) $\frac{sec39°}{cosec51°} + 2/\sqrt{3}\tan 17°\tan 38°\tan 60°\tan 52°\tan 73° - 3(sin^2 31° + sin^2 59°)$

c) $\frac{sec^2 45° - cos^2 36°}{cosec^2 51° - tan^2 33°} + 2\ sin^2 38° sec^2 52° - sin^2 45°$

ENGLISH

1. Creatively make a cover page for your novel-'The Story of My life'
2. Write a Character sketch of the following characters in 200 words in your class work copy.
   a) Helen Keller (b) Miss Sulhvan (c) Acthur H. Keller (d) Kate Adams Keller (e) Mildred (f) Martha Washington (g) Mr. Anagnos (h) Mr. Keith (i) Dr. Alaxander G. Bell (j) Bishop Books (k) Dr. Hale (l) Mr. and Mrs. Hutton (m) Mr. Arthur Gilman (n) Mr. Williani Endicott (o) Mr. Frons.

PHYSICS **PART-I**

Q.1 Light travels from rarer medium 1 to denser medium 2.The angle of incidence and refraction are respectively 45^o and 30^o.Calculate the refractive index of second medium with respect to the first medium.

Q.2 Light of wave length 500nm in air enters a glass plate of refractive index 1.5 . Find speed , frequency and wave length of light in glass .Assume that frequency of light remains same in both mediums.

Q.3 Under what condition in an arrangement of two plane mirrors, incident ray and reflected ray will always be parallel to each other whatever be angle of incidence. Show the same with the help of a diagram.

Q.4 How does frequency of a beam of ultraviolet light change when it goes from air to glass?

Q.5 Draw ray diagrams for following cases when a ray of light
(i) Passing through centre of curvature of concave mirror is incident on it.
(ii) Parallel to principal axis is incident on convex mirror.
(iii) Is incident at pole of a convex mirror.
(iv) Passing through focus of a concave mirror is incident on it.

Q.6 A convex lens having focal length 20 cm forms an image on screen. If the height of this image is twice the height of object, find the position of object and image from the lens.

Q.7 Convex mirrors are commonly used as rear view mirrors in vehicles .Suppose you are sitting in a parked car. You noticed a jogger approaching you in your side view mirror. The radius of curvature of side view mirror is 2cm. If jogger is running at speed of 5m/s, how fast the image of jogger appears to move when jogger is 9 m away from the mirror?

Q.8 Find the position, nature and size of image of an object 4cm high placed at a distance of 10 cm from a concave mirror of focal length 20 cm .

Q.9 A concave lens has focal length of 30 cm .Calculate at what distance should the object be placed from lens so that it forms an image at 60 cm on the other side of lens .Find the magnification produced by lens in this case .

Q.10 Calculate the focal length of convex lens which produces a virtual image at distance of 25 cm of an object placed 10 cm in front of it.

Q.11 Light enters from air to glass plate which has refractive index of 1.5.Calculate the speed of light in glass.

Q.12 A 1.2 cm long pin is placed perpendicular to the principal axis of convex mirror of focal length 12cm at distance of 8cm from it. Find location of the image, height of image and nature of image.

Q.13 Two lenses have powers of 2D and - 4D. State the nature and focal length of each and combination of lenses.

Q.14 Name the type of lens that can be used to obtain
(i) A magnified and virtual image, (ii) A diminished and virtual image . Draw labelled ray diagram to show the formation of required image in each of above two cases. Which of these lens can also form a magnified and real image of an object? Draw labelled diagram to show the position of object and image of such lens.

Q.15 Draw ray diagrams of all possible positions to show the position and nature of images formed when an object is placed in front of (i) concave mirror , (ii) convex mirror.

PART II

Read the chapter – 10 (light) and frame 10 high order thinking fill ups with answer

BIOLOGY

1. Draw the following diagrams in new copy (3 times)
   (a) Human Digestive System (b) Human Respiratory System (c) Structure of Nephron (d) Structure of Heart (e) Stomata (f) Nerve impulse conduction (g) Structure of Brain (h) Female reproductive system (i) Tropic and nastic movement
2. Worksheet.

HINDI - Solve the given worksheet.

SANSKRIT

i) अपठित अनुच्छेद (प्रथम सत्राय) in language book

ii) पत्र (प्रथम सत्राय) in language book

iii) अपठित पद्यांश (प्रथम सत्राय) in language book

iv) चित्र वर्णन (प्रथम सत्राय) in language book

SOCIAL SCIENCE

- Project

  Choose any one (man-made or natural) disaster which your area may be vulnerable.

  Eg : Natural – Earthquakes, floods etc

  Manmade – Laboratory accidents, health hazards due to toxic waste disposal etc.

  - Prepare a survey schedule of different areas (Factories, slum, dump yard)
  - Collect data and prepare a report
  - Make a plan to deal with the disaster.
  - Create activities to make people aware of the disaster.
  - Project file should consist of 10-15 pages.

PPT

Choose a non-democratic country and show the conditions (socio, economic, political and cultural) of people and compare them with a democratic country.