

4. Describe the muscles of the eyeball, and name the cerebral nerves which supply their innervation.
5. Describe the morbid effects of different kinds of impurities in impure air, so as to indicate the relation of cause and effect.
6. Discuss, from a physiological point of view, some of the more popular beverages believed to be injurious.
7. Describe, briefly, some common forms of "Delusion of Judgment."
8. Describe the manner in which you would demonstrate the character of muscular tissue with the microscope, stating the character of object glasses, slides, etc., used, and the preparation of the material so as to indicate your acquaintance with the practical use of the microscope in physiological or anatomical work.

NATURAL PHILOSOPHY.

(Candidates are at liberty, as per Syllabus of Examination, to write on such two of the three subjects given below as they may choose. No credit will be given to papers on all subjects from the same candidate.)

1. What velocity (feet per second) must be given to a bullet discharged from a fire arm to hit a balloon 1 mile high, supposing the actual height reached to be on account of the resistance of the air $\frac{1}{2}$ of the height which would be attained in vacuo?
2. A steam engine moves a train weighing 70 tons on a level road from rest, and acquires a speed of 6 miles an hour in 4 minutes. If the same engine moves another train, and gives it a speed of 8 miles in 10 minutes, find the weight of the train supposing the resistance to amount to the same in both cases?
3. From two beams in a scaffold, 15 feet apart, hang two chains, 9 and 12 feet long, respectively. The terminal links are then hooked together by a third chain which has to support a weight of 4,000 lbs. What will be the tension of the three different chains, neglecting their own weight?
4. A cubic inch bubble of gas starts upward from the ooze of the bottom of the Atlantic, five miles below the surface of the ocean. What should its volume be when it reaches the surface?
5. A litre of air at 0° C. and under 760 mm barometric pressure weighs 1.293 gram. Show how to find the weight of 20 litres at 15° C. and under 720 mm pressure?
6. (a) Explain the meaning of the optical formula $\frac{1}{v} - \frac{1}{u} = \frac{1}{f}$
(b) Find the focal length of spectacles which might probably suit the eyes of a person who reads ordinary print at a distance of 15 inches (10 inches being taken as normal vision).
7. (a) Define the principal focus of a mirror, and find the position of the principal focus, (b) for a concave spherical mirror, and (c) for a convex spherical mirror.

CHEMISTRY.

1. Calculate the weight of $KClO_3$ necessary to produce 10 gallons of O_2 gas at ordinary temperature and pressure.
2. Calculate the weight of Zn necessary to eliminate from H_2SO_4 the exact amount of H, for complete combination with 10 gallons of O_2 .
3. Describe, briefly, the manufacture of P from bones.
4. Give chemical reactions sufficient to distinguish between chlorides, bromides, iodides, and flourides.
5. Explain the chemical reactions, stating the ultimate products when (a) baking soda and hydrochloric acid are put together; (b) limestone and hydrochloric acid; (c) sulphuric acid added to result of (b); (d) potassium chlorate and sulphuric acid; and (e) lead and platinum heated together.
6. Give a test each for K, H_2SO_4 , Fe, Pb, Ag, Au, Cu, HNO_3 and Hg.
7. Explain the different portions and functions of the blowpipe flame.

FRENCH.

Translate into English:—

Un grand événement est survenu dans ma vie. Au milieu de la route monotone que je parcourais tranquillement, et sans y penser, un carrefour vient tout à coup de s'ouvrir.

Deux chemins se présentent entre lesquels je dois choisir.

L'un n'est que la continuation de celui que j'ai suivi jusqu'à ce jour; l'autre, plus large, montre de merveilleuses perspectives; sur le premier, rien à craindre, mais aussi peu à espérer; sur l'autre, les grands périls et les opulentes réussites.

Il s'agit, en un mot, de savoir si j'abandonnerai le modeste bureau dans lequel je devais mourir pour une de ces entreprises, hardies ou le hasard seul est caissier.

C'est là sans doute ce qui me fait trouver tant de charmes à la collection que j'examine. Ces tasses grossièrement modelées par le sauvage m'initient à une partie de ses habitudes; ces vases d'une élégance confuse qu'a pétris l'Indien me révèlent l'intelligence amoindrie dans laquelle brille encore le crépuscule d'un soleil autrefois étincelant; ces cruches surchargées d'arabesques montrent la fantaisie arabe grossièrement traduite par l'ignorance espagnole! On trouve ici le cachet de chaque race, de chaque pays et de chaque siècle.

1. Account for the forms: *hardies, amoindrie, surchargées, traduite.*
2. Give the relative position of the personal pronouns in a sentence when used objectively, also of *en* and *y*.
3. When should *ce* instead of *il* be used as the subject of the verb *être*?
4. Give the principal parts of the following verbs: *parcourais, vient, dois, craindre, savour, mourir, ouvrir, agit, fait.*

Translate into French:—

All these people have been very kind to me. The curfew was introduced into England by William the Conqueror. The rules of decency and good manners condemn this action. Every good citizen owes obedience to the laws and the constitution of his country. Good example is a language any one can understand. When you go out, buy me some pencils and pens. I am now living near the railway. During the ceremony a thunderstorm burst over the town. Although he is going to London he will not see his friend. These vegetables are pickled in vinegar. These colors will never become you. They were felling a tree. He knows his lesson wonderfully well.

LATIN COMPOSITION.

(A lexicon may be used, but no other book.)

TRANSLATE INTO LATIN;—

1. Not only have you never desired repose, but you have never desired any war except one which was infamous.
2. It is characteristic of folly to discover the faults of others, to be forgetful of its own.
3. In the year of Rome four hundred and fifty-eight, the Romans undertook an expedition against the island of Corsica.
4. The consuls, neither by a decree of the senate nor by letter, had instructed me what to do.
5. Would that this might prove a pleasure to him.
6. To this Caesar replied that he would preserve the city, if, before the battering ram touched the walls, they had surrendered themselves.
7. Even if there be nothing for you to write, yet I should like you to write this very thing, that you had nothing to write, only not in these words.
8. It is not denied that Demosthenes possessed very great eloquence; but it is also agreed that he was very fond of hearing Plato.

GREEK COMPOSITION.

(A lexicon may be used, but no other book.)

TRANSLATE INTO GREEK:—

1. The soldiers marched out of the city, in number about two thousand men, and at last they came to a river, about forty feet in width.
2. After the capture of the city, the general gave a share of the booty to the soldiers.
3. I will help you as far as I am able.
4. The wise among men rule themselves.
5. I have written this in order that you may come.
6. If we should be willing to die in behalf of what is just we shall have a good reputation.
7. The Athenians sent forty ships, thinking at the same time that the war would be brought to a conclusion more quickly.

ROMAN HISTORY.

1. Relate the legend of the Books of the Sibyl.
2. What was the origin of the war with Pyrrhus?
3. Describe the Catalinarian conspiracy.
4. Name and describe in order the conflicts which terminated the three Punic wars.
5. Write a brief sketch of any one of the following: Cato, Marius, Pompey or Anthony.

GREEK HISTORY.

1. Give an outline of the legislation ascribed to Lycurgus.
2. Mention the most important Greek Colonies, and show the importance of a knowledge of their history.
3. Who was Dacros, and what was the character of his laws?
4. Write a note on the conquests of Alexander.
5. What was the origin of the Drama among the Greeks? Mention the great dramatists, and the principal words of each.