

Examination Papers.

EDUCATION DEPARTMENT, ONTARIO,
JULY EXAMINATIONS, 1885.

FIRST CLASS TEACHERS—GRADES A AND B.

ANCIENT HISTORY AND GEOGRAPHY.

Examiner—Cornelius Donovan.

1. Briefly describe Xerxes' invasion of Greece, from the passage of the Hellespont to the battle of Salamis, inclusive.
2. State the causes which led to the preeminence of Athens among the Grecian states; and show how this preeminence affected the welfare of Greece.
3. Give a short description of the condition of the Roman Republic after the conquest of Carthage and Greece.
4. Sketch the leading events in the life of Julius Caesar, and show the influence of his career on the era in which he flourished.
5. Write notes on—Arcopagus, Socrates, Achaean League, Licinian Law, Cato, Mithridates.
6. Draw an outline map of *Mare Mediterraneum*, marking the locations and the ancient names of its islands, and of the principal countries and cities on its shores.
7. What and where were the following;—Propontis, Iberus, Euboea, Sequana, Utica, Coreyra, Jura, Chersonesus, Lugdunum, Gades?

MECHANICS.

Examiner—J. C. Glashan.

1. Prove that the moment of any two coplanar forces with respect to any point in their plane is equal to the algebraic sum of the moments of the forces with respect to the same point.
Four rods jointed at their extremities and forming a quadrilateral capable of being inscribed in a circle are kept in equilibrium by two strings joining the opposite angular points. Show that the tensions of the strings and the stresses along the rods are inversely proportional to the lengths of the respective strings and rods along which they act.
2. Assuming the truth of the parallelogram of forces for the magnitude, prove it for the direction of the resultant.
A roof weighing 20 lbs. per square foot and having a pitch of 60°, rests on side walls 24 ft. apart. Determine the magnitude and direction of the pressure on the foot of each rafter, they being 4 ft. apart.
3. Two heavy particles of masses, M and m respectively, are connected by a perfectly flexible string of insensible mass, passing over a smooth peg. Determine the motion of each particle and the space passed over by it in the first t seconds after the beginning of the motion.
A balloon which with its attachments and load weighs 1,200 lbs., and which is capable of sustaining 300 lbs. additional but no more, is allowed to rise freely through the air. What would be the weight if the balloon were not ascending, of a mass which in the car of the ascending balloon weighs 10 lbs on a spring balance?
4. State the principal laws of friction and briefly describe how they may be verified experimentally.
A body of mass, M , is caused to slide on a rough horizontal plane by a force of m pounds weight. After acting for t seconds, the force is suddenly withdrawn and the body is allowed to slide on till brought to rest by friction, when it is found that the whole length described from rest to rest again is s feet. Determine the coefficient of friction.
5. Enunciate the Second Law of Motion, and show that "change of motion" may be interpreted either as time-rate of change of momentum, or as space rate of change of kinetic energy.
Hence show that if the force be constant $fs = \frac{1}{2}mv^2$.
A particle of mass m , projected with velocity v , at an angle of elevation α , strikes at right angles a plane inclined at an angle θ to the horizon. Find the energy of impact.

6. Enunciate the Third Law of Motion, and show that it may be regarded as a statement of, —1st, the equality of the forces constituting a stress; 2nd, the conservation of momentum; 3rd, the conservation of energy.

A , B , and C are homogeneous spheres whose masses are 4, 2, and 1 respectively, whose common elasticity is $\frac{1}{2}$, and whose centres are in a straight line. B and C are at rest touching each other. A moving with a velocity of 1 ft. per second impinges on B . Determine the positions and velocities of the spheres one second after contact.

7. A particle of mass m , describes a circle of radius r , with uniform velocity v , under the action of a force f directed towards the centre. Show that $fr = mv^2$.

Find the weight of a railway train travelling due west at the rate of 60 miles per hour in the latitude of 45°, the train when at rest weighing 200 tons.

CHAUCER, POPE, AND WORDSWORTH.

Examiner—John Seath, B.A.

I.

1. Name the chief characters of Chaucer's Prologue other than the Person, quoting from Chaucer a descriptive phrase suitable to each.

2. A good man was ther of religioun,
And was a poure Person of a toun;
But riche he was of holy thought and werk.
He was also a lerned man, a clerk
That Cristes gospel trewly wolde preche;
His parisschons devoutly wolde he teche.
Benigne he was, and wonder diligent,
And in adversite ful pacient;
And such he was i-proved ofte sithes.
Ful loth were him to curse for his tythes,
But rather wolde he geven out of dowte,
Unto his poure parisschens aboute,
Of his offrynge, and eek of his substaunce.
He cowde in litel thing han suffisaunce.
Wyd was his parissche, and houses fer asonder,
But he ne lasse not for royaume ne thonder,
In sicknesse nor in mischief to visito
The ferreste in his parissche, moche and lite,
Upon his feet, and in his hond a staf.
This noble ensample to his sheep he gaf
That first he wroughte, and afterward he taughte.....
He was a scheperde and no mercenarie.
And though he holy were, and vertuous,
He was to sinful man naught despitous,
Ne of his speche dangerous ne digne,
But in his teching discret and benigne.
To drawe folk to heven by fairnesse
By good ensample, this was his busynesse:
But it were eny persone obstinat,
What so he were, of high or lowe estat,
Him wold he snybbe scharpely for the nones,
A bettre preest I trowe, ther nowher non is.
He waytede after no poms and reverence,
Ne maked him a spiced conscience,
But Cristes lore, and his apostles twelve,
He taughte, but first he folwede it himselve.

(a) Write in modern literary English the preceding extract.

(b) By means of this extract, illustrate the differences (one illustration for each difference) between Chaucer's English and modern English, explaining, when possible, the origin of Chaucer's peculiar forms.

(c) Illustrate from the above what Matthew Arnold calls "the lovely charm of Chaucer's movement."

II.

3. The "Prologue to the Satires" has been described as a poetical apology by Pope for his life. Discuss this statement.

4. Peace to all such, but were there one whose fires
True genius kindles, and fair fame inspires;
Blest with each talent and each art to please,
And born to write, converse, and live with ease;