1889.

NEW ZEALAND.

EDUCATION:

TEACHERS' AND CIVIL SERVICE EXAMINATIONS.

[In Continuation of E.-1A, 1888.]

Presented to both Houses of the General Assembly by Command of His Excellency.

The INSPECTOR-GENERAL of SCHOOLS to the Hon. the MINISTER of EDUCATION.

SIR,— Education Department, Wellington, 3rd August, 1889.

I have the honour to report that, in accordance with regulations, the annual examination for teachers' certificates, and the examinations required by the Civil Service Act, were held in the month of January last. The fees received from teachers amounted to £439 8s., and those received from Civil Service candidates to £166 19s. The whole cost of the examinations was £647 11s. 6d., a sum which exceeds the fees by £41 4s. 6d.

The candidates for the Senior Civil Service examination were 28 in number, and 9 of these passed. There were 129 candidates for the Junior Civil Service examination, and 71 passed. There were also three candidates at the senior examination for shorthand only, and all three passed.

The number of candidates entered for the teachers' certificate examination was 742, of whom one was a pupil-teacher examined only in drawing. Of the rest, 448 were candidates for a full examination (162 for Class D and 286 for Class E), and 293 were candidates who had previously obtained "partial pass." Of the 448 candidates for a full examination, 72 passed (45 for Class D and 27 for Class E), 9 who aimed at Class D passed for Class E, 198 obtained "partial pass" (59 for Class D and 139 for Class E), 130 failed, and 39 were absent. Of the 293 candidates for "completion," 143 were successful (3 for Class C, 56 for D, and 84 for E), 130 failed, and 20 were absent. The statistics of this paragraph are presented in detail in Tables I. and II.

TABLE I.—CANDIDATES for COMPLETION of FORMER EXAMINATION.

Total Number entered	Candidates	Passed.	Failed.	Absent.	Auckland.	Taranaki.	Wanganui.	Wellington.	Hawke's Bay.	Marlborough.	Nelson.	Grey.	Westland.	N. Canterbury.	S. Canterbury.	Otago.	Southland.
3	For Class C— Passed	3	..	..	2	..	..	..	1	..	..	..	..	..	..	..	..
95	For Class D— Passed	56	..	..	16	..	..	4	..	..	..	..	..	10	2	22	2
	Failed	..	29	..	8	..	1	2	1	2	..	..	..	7	1	6	1
	Absent	..	..	10	1	..	..	..	1	..	..	..	..	3	..	4	1
195	For Class E— Passed	84	..	..	37	2	2	8	..	1	3	..	..	11	..	14	6
	Failed	..	101	..	36	..	6	11	4	1	3	1	2	11	2	17	7
	Absent	..	..	10	5	..	..	1	..	..	..	..	..	1	..	2	1
293	Total	143	130	20	105	2	9	26	7	4	6	1	2	43	5	65	18

TABLE II.—CANDIDATES for FULL EXAMINATION.

Total Number entered.	Candidates.	Passed.	Partially successful.	Failed.	Absent.	Auckland.	Taranaki.	Wanganui.	Wellington.	Hawke's Bay.	Marlborough.	Nelson.	Grey.	Westland.	N. Canterbury.	S. Canterbury.	Otago.	Southland.
162	For Class D—																	
	Passed ..	45	..	..	..	9	1	2	1	1	1	..	..	..	6	4	18	2
	Partially successful for Class D	..	59	..	..	14	2	1	4	..	..	3	1	2	7	2	17	6
	Passed for Class E, and partially successful for Class D	..	7	..	..	..	..	..	..	..	..	..	..	..	3	1	3	..
	Completed Class E examination	..	2	..	..	..	..	..	1	..	..	..	..	..	..	..	..	1
	Partially successful for Class E	..	3	..	..	..	..	..	..	..	..	..	..	..	1	..	..	2
	Failed completely	..	..	31	..	9	1	3	5	1	1	..	1	..	8	..	2	..
	Absent ..	..	..	..	15	3	1	..	3	..	..	1	1	..	..	1	4	1
286	For Class E—																	
	Passed ..	27	..	..	..	5	1	1	2	1	..	1	..	2	7	1	3	3
	Partially successful	..	136	..	..	40	1	4	21	9	2	5	6	1	22	9	13	3
	Failed completely	..	..	99	..	21	1	4	8	7	3	12	1	1	15	1	17	8
	Absent ..	..	..	..	24	7	2	1	..	2	1	2	..	..	3	..	4	2
448	Total ..	72	207	130	39	108	10	16	45	21	8	24	10	6	72	19	81	28

Of the 741 candidates there were but 59 who have not been teachers, pupil-teachers, or normal-school students in New Zealand; and of the 59, only 14 were candidates for Class D. Of the 481 candidates for Class E. 388 were at the time teachers, pupil-teachers, or students; and 48 others had been similarly employed.

Among the 99 candidates who failed at the examination for Class E are 34 who had failed on previous occasions, 20 of them having failed once before, 6 twice, 4 three times, 1 five times, 1 six times, and 2 eight times.

Table M, on page vii. of this year's main report of the department, shows that of 1,924 teachers (above the rank of pupil-teacher) in the service of the Boards at the end of last year, 1,541 at that time either held certificates or had passed an examination for certificate, and 137 had obtained "partial pass," while 85 were candidates who had failed at former examinations, and 161 had not been examined. When the results of this year's examination are applied it is found that of the same 1,924 teachers 1,604 have passed, 113 have obtained "partial pass," 78 have failed, and 129 have not been examined. The table (M) has been revised so as to include the results of the examination, and in its revised form appears as follows :—

TABLE M (REVISED).—TEACHERS, CERTIFICATED and UNCERTIFICATED.

Education District.	Certificated, or having passed Examination.	Partial pass.	Failed.	Never examined by Department.	Total.
Auckland	376	29	8	16	429
Taranaki	33	3	4	8	48
Wanganui	89	6	4	10	109
Wellington	99	10	8	12	129
Hawke's Bay	69	10	4	5	88
Marlborough	21	2	5	17	45
Nelson	67	10	17	26	120
Grey	13	6	3	7	29
Westland	23	...	1	11	35
North Canterbury	297	13	11	4	325
South Canterbury	75	4	2	3	84
Otago	341	10	1	...	352
Southland	101	10	10	10	131
Total	1,604	113	78	129	1,924

The papers set at the examination are appended.   I have, &c.,

WM. JAS. HABENS,
Inspector-General of Schools.

EXAMINATION PAPERS.

School Management and Art of Teaching.—For Classes D and E. Time allowed : 3 hours.

SECTION I.

[Every Question to be attempted.]

1. What registers have to be kept in the public schools of the colony? State fully the uses of each of the registers. If a child marked as present in the Register of Daily Attendance leaves before a full attendance is made, how would you deal with the case?

2. Draw up a time-table for the upper division of a mixed school, consisting of Standards II., III., IV., V., and VI. : staff—master, and pupil-teacher of the third year. How would the pupil-teacher be engaged? Assign a reason for your answer.

3. Draw up notes of a lesson on one of the following subjects : (a.) Coal (Infants). (b.) The pronoun (Standard III.). (c.) The influence of pure air and water on health (Standard VI.).

4. Write a connected series of questions on the following passage, having in view the full elucidation of its meaning, and the impressing of its main facts on Fifth Standard pupils. Give the answers you would expect to receive: " When the astonishing sagacity and enterprise of the Genoese had discovered the confines of a new world across the trackless Atlantic, it was without hesitation concluded, not only by himself, but by all Europe, that the new land formed the extreme eastern shore of Asia. Hence the name of *Indies* was erroneously given to those islands—a mistake which has been perpetuated even to the present time."

SECTION II.
[Two Questions to be taken.]

5. " Mere cram is not only useless in itself, but injurious in its effect upon the mind." What harmful consequences are here alluded to ? Illustrate your answer by any of the common subjects of elementary instruction.

6. Write a short essay on—Association : its influence on the memory, and its bearing on the teacher's work.

7. State in order of importance at least four great aims that the mental trainer should keep in view. In what does their importance consist? and in what specific ways should they influence the teacher's practice?

8. Draw up, as for the guidance of a young pupil-teacher, a short code of rules designed with a view to the minimising of punishment.

SECTION III.
[Two Questions to be taken.]

9. Describe the plan of procedure you would expect a pupil-teacher in charge of the First Standard to follow in teaching reading to pupils who had no previous knowledge of the subject.

10. What are the primary essentials of good English composition? Outline the way in which you would train your pupils to acquire them.

11. What should be the characteristics of a satisfactory set of school copy-books? What is the chief drawback to the use of engraved headlines, and how would you overcome the difficulty?

12. Write out a full explanatory solution of one of the following problems : (a.) Divide £1 6s. 1d. among three persons, giving A 3s. 4d. more than B, and 2s. 6d. more than C. (b.) What is the least sum of money that can be exactly expressed in half-crowns, dollars, or rupees—a dollar being worth 4s. 2d., and a rupee 1s. 10d. ?

English.—For Class D.   Time allowed : 3 hours.

[All the Questions are to be attempted.]

1. Explain the nature of historical as contrasted with analytical grammar. Why has the former been termed the complement of the latter? Illustrate the value of both studies by words contained in the following passage : " The task of an author is, either to teach what is not known, or to recommend known truths by his manner of adorning them ; either to let new light in upon the mind, and open new scenes to the prospect, or to vary the dress and situation of common objects, so as to give them fresh grace and more powerful attractions, to spread such flowers over the regions through which the intellect has already made its progress, as may tempt it to return, and take a second view of things hastily passed over, or negligently regarded."—(JOHNSON.)

2. Estimate the educational value of grammatical analysis of words and sentences. Can you show that this study tends to quicken the reasoning faculty ? Explain and criticize the reasoning of the following passage : " The same persons who cry down Logic will generally warn you against Political Economy. It is unfeeling, they will tell you. It recognises unpleasant facts. For my part, the most unfeeling thing I know of is the law of gravitation : it breaks the neck of the best and most amiable person without scruple if he forgets for a single moment to give heed to it. The winds and waves, too, are very unfeeling. Would you advise those who go to sea to deny the winds and waves—or to make use of them, and find the means of guarding against their dangers? My advice to you is to study the great writers on Political Economy, and hold firmly by whatever in them you find true ; and depend upon it that, if you are not selfish or hard-hearted already, Political Economy will not make you so."—(J. S. MILL.)

3. Write the following passage in modern grammar, spelling, and punctuation, adding explana-tory notes : " They alledge heere-with, that before Poets beganne to be in price, our Nation, hath set their harts delight upon action, and not upon imagination : rather doing things worthy to be written, then writing things fitte to be done. What that before tyme was, I thinke scarcely Sphinx can tell: Sith no memory is so auncient, that hath the precedence of Poetrie. And certaine it is, that in our plainest homeliness, yet never was the Albion Nation without Poetrie. Mary, thys argument, though it be leaveld against Poetrie, yet is it indeed, a chaine-shot against all learning, or bookishness, as they commonly tearme it."—(Sir PHILIP SIDNEY.)

4. Criticize the following sentences : (a.) It is not that sense of awe and gratitude which, as far as we can see, really fills the King, which blinds men to the dangers of success, but rather the absence of any such sense of awe and gratitude. (b.) Steam factories of all descriptions have sprung up by the dozen, where their very suggestion was formerly considered an offence. (c.) If with equal force of character his intellectual power had been less, we should feel the shock without the mysterious attraction. (d.) In the centre of the crowd stood a man quite as noble, and even more remarkable than either Sir Lionel, the Rector, or Martin.

5. "English grammar has gradually cleared itself of redundancies and intricacies due to Saxon and Latin influences, and our language has thus become an improved instrument for individual thinking and for the communication of thought to others." Illustrate the truth of this statement.

6. "The shortest description of modern English spelling is to say that it represents a Victorian pronunciation of 'popular' words by means of symbols imperfectly adapted to an Elizabethan pronunciation; the symbols themselves being mainly due to the Anglo-French scribes of the Plantagenet period, whose system was meant to be phonetic. It also aims at suggesting to the eye the original forms of 'learned' words. It is thus governed by two conflicting principles, neither of which, even in its own domain, is consistently carried out."—(SKEAT.) Illustrate the truth of these remarks.

7. Point out merits or defects of style in the following passages: (a.) "No man exercised so much influence on the age. The reason is obvious. On no man did the age exercise so much influence. He was perhaps the greatest of those whom we have designated as the critical poets; and his literary career exhibited, on a reduced scale, the whole history of the school to which he belonged—the rudeness and extravagance of its infancy—the propriety, the grace, the dignified good sense, the temperate splendour of its maturity. His imagination was torpid, till it was awakened by his judgment. He began with quaint parallels and empty mouthing. He gradually acquired the energy of the satirist, the gravity of the moralist, the rapture of the lyric poet."— (MACAULAY on Dryden.) (b.) "On some isolated mountain at daybreak, when the night mists first rise from off the plain, watch their white and lakelike fields, as they float in level bays, and winding gulfs, about the islanded summits of the lower hills, untouched yet by more than dawn, colder and more quiet than a windless sea under the moon of midnight; watch when the first sunbeam is sent upon the silver channels, how the foam of their undulating surface parts and passes away, and down under their depths the glittering city and green pastures lie like Atlantis, between the white paths of winding rivers; the flakes of light falling every moment faster and broader among the starry spires, as the wreathed surges break and vanish above them, and the confused crests and ridges of the dark hills shorten their grey shadows upon the plain."—(RUSKIN, "Frondes Agrestes.")

8. Write an essay, not more than seven paragraphs in length, on *one* of the following subjects: (a) Agricultural studies in schools; (b) Training in observation; (c) A lesson in history; (d) First studies in Latin.

English Grammar and Composition.—For Class E and Junior Civil Service. Time allowed: 3 hours.

1. As an exercise in spelling, write words and sentences dictated by the Supervisor.

2. State, with examples, the several uses of the present indefinite tense in English.

3. Are the following grammatically correct or not? Give a reason for your answer in each case :— Some verbs take both the nominative and the accusative cases. Who do you suppose me to be? I remember it being done. The paid officers are a Secretary and Treasurer. This house is to let. Fare thee well.

4.
> Where now thy pomp, *which* kings with envy *viewed* ?
> Where now thy might, *which* all those *kings* subdued ?
>
> But 'twas once a good *business*, I understand,
> Buying and *selling* the *Christchurch* land.

Parse the words printed in italics, and analyse the second couplet.

5. What is meant by metaphor? and by mixed metaphor? Point out anything you think faulty in the metaphorical expressions in the following sentence: The harvests of knowledge he had garnered during his earlier days were now brought before the eyes of his mind, and he wove them into golden strains which have cast a ray into many minds.

6. Punctuate the following passage, and put capital letters where required: "Their conversation was interrupted by one of the band of pensioners I was sent said he after looking at them attentively to a gentleman who hath no cloak or a muddy one you sir I think addressing the young cavalier are the man you will please to follow me he is in attendance on me said Blount on me the noble earl of sussex's master of horse I have nothing to say to that answered the messenger my orders are from her majesty and concern this gentleman only so saying he walked away followed by Walter Blount's eyes almost starting from his head with the excess of his astonishment at length he gave vent to it in an exclamation who would have thought this and shaking his head with a mysterious air he walked to his own boat embarked and returned to Deptford."

7. Explain the meaning and, as far as you can, the origin of the following phrases: Building castles in the air; to take time by the forelock; a white elephant; Hobson's choice; to carry coals to Newcastle; to win one's spurs; a Job's comforter; to bury the hatchet.

8. (a.) The Earl of Falmouth and Mr. Coventry were rivals who should have most interest in the Duke, who loved the Earl best, but thought the other the wiser man, who supported Pen, who disobliged all the courtiers even against the Earl, who contemned Pen. (b.) He was overjoyed to see him, and he sent for one of his most intelligent workmen, and told him to consider himself at his service, as he could not take him as he wished about the city. (c.) Some of his arrangements for the organization of the force are not without interest at the present day, in so many particulars do they foreshadow those of the army of Volunteers, whose efficiency, if ever hostile invasion should render their services necessary, would prove one great defence of the kingdom, as the feeling of loyalty, to which the force not only owes its origin, but which still more admirably brings it around its standards in yearly-increasing numbers, is an honour to the whole nation. Rewrite (a) and (b) so as to avoid the repetition of "who," "he," and "him," and (c) so as to express the meaning in a more coherent form.

9. Write a short essay on any English writer in prose or poetry, or specially upon any one of his works; or on any one of the phrases in Question 7.

Part of a Paper on English Grammar and Composition.—For Class E and Junior Civil Service.

[NOTE.—The Supervisor will be so good as to read through and then slowly dictate the following words and sentences, afterwards reading the whole of them again to afford opportunity for correction.]

Parliament, ominous, unwieldy, amateur, satirical, trophy, porcelain, thievish, fascinating, circuitous, dyspeptic, caricature, acquittal, philanthropist. Such limited accommodation was prejudicial to convalescence. His colleague's breach of etiquette precipitated the catastrophe. The Committee were entertained in a gorgeously-decorated pavilion. He prophesies disasters, but his prophecies are never fulfilled. The Lieutenant-Colonel accompanied us on a bicycle. Their pathetic description of the negroes' miseries excited commiseration.

English.—Paper No. 1: Composition and Précis.—For Senior Civil Service. Time allowed: 3 hours.

[All the Questions are to be attempted.]

1. Write an essay on one of the following subjects: (*a*) Shakspere's Prose; (*b*) London Life as depicted by Shakspere; (*c*) The Language of Lamb's Essays; (*d*) Lamb's Character-drawing.

2. Rewrite the following passages, adding notes: (*a.*) Another sort of men, and especially lords and gentlemen, by whom the pressures of the Government were not much felt, who enjoyed their own plentiful fortunes, with little or insensible detriment, looking no farther than their present safety and prosperity, and the yet undisturbed peace of the nation, whilst other kingdoms were embroiled in calamities, and Germany sadly wasted by a sharp war, did nothing but applaud the happiness of England, and called those ungrateful factious spirits who complained of the breach of laws and liberties; that the kingdom abounded with wealth, plenty, and all kinds of elegancies, more than ever; that it was for the honour of a people that the monarch should live splendidly and not be curbed at all in his prerogative, which would bring him into greater esteem with other princes, and more enable him to prevail in treaties; that what they suffered by monopolies was insensible and not grievous, if compared with other States; that the Duke of Tuscany sat heavier upon his people in that very kind; that the French King had made himself an absolute lord, and quite depressed the power of Parliaments, which had been there as great as in any kingdom, and yet that France flourished and the gentry lived well; that the Austrian princes, especially in Spain, laid heavy burdens upon their subjects. Thus did many of the English gentry, by way of comparison, in ordinary discourse, plead for their own servitude.—(MAY.) (*b.*) We have known many fine geniuses with that imperfection that they cannot do anything useful, not so much as write one clean sentence. 'Tis worse, and tragic, that no man is fit for society who has fine traits. At a distance he is admired, but bring him hand to hand, he is a cripple. One protects himself by solitude, and one by courtesy, and one by an acid, worldly manner—each concealing how he can the thinness of his skin and his incapacity for strict association. But there is no remedy that can reach the heart of the disease but either habits of self-reliance that should go in practice to making the man independent of the human race, or else a religion of love.—(EMERSON.)

3. Make an abstract of the accompanying correspondence*, giving the important points of each letter briefly, distinctly, and so as to catch the eye readily. The abstract should contain the date of each letter, the names of the persons by whom and to whom it is written, and its subject, in as few words as possible.

4. Draw up a *précis* (*i.e.*, a brief and clear statement in narrative form, not letter by letter) of the same correspondence.

English.—Paper No. 2: Literature and Grammar.—For Senior Civil Service. Time allowed: 3 hours.

[All the Questions are to be attempted.]

1. Contrast the First and Second Parts of "Henry IV." Comment upon the following passages in these plays, and refer each passage to its context: (*a.*) Let not us that are squires of the night's body be called thieves of the day's beauty. (*b.*) Falstaff frets like a gummed velvet. (*c.*) And then I stole all courtesy from heaven. (*d.*) As that ungentle gull, the cuckoo's bird, useth the sparrow. (*e.*) You hunt counter. (*f.*) This Vice's dagger become a squire. (*g.*) You thin man in a censer.

2. Compare the female characters in "Henry V." with those in "Henry IV." Comment upon the following passages in "Henry V.," referring each passage to its context: (*a.*) The sad-eyed justice, with his surly hum. (*b.*) The gilt of France—O guilt indeed! (*c.*) His nose was as sharp as a pen, and 'a babbled of green fields. (*d.*) That is the very plain-song of it. (*e.*) Like a mighty whiffler 'fore the king.

3. Show how the Queen Anne literature reflects the social and political life of the period. What different aspects of this literature are presented by the works of Swift, Addison, and Pope? Name and briefly describe the chief works of these writers.

4. Give some account of the following authors and their works: James Thompson, Richard Bentley, John Gay, Bernard de Mandeville, John Arbuthnot, Richard Steele.

5. Write a short life of Charles Lamb, illustrating by references to the Essays of Elia. Compare Addison and Lamb as essayists.

6. Sketch the contents of *one* of the following Essays of Elia: (*a.*) Imperfect Sympathies. (*b.*) On the Artificial Comedy of the Last Century. (*c.*) The Genteel Style in Writing.

7. Point out leading grammatical differences between the language of Shakspere and modern English, adding illustrations from "Henry IV." and "Henry V."

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* Parliamentary Paper, A.-11, 1887.

8. Criticize and correct the following sentences : (*a.*) Evidently she would have preferred for the present that they should come to her rather than that she should go back to them. (*b.*) Do not trouble yourself about writing to me, except you are quite in the humour for it. (*c.*) Vico observes that the wife bringing a dowry is evidence of her freedom. (*d.*) Vested with a dignity which humanity has never possessed in any other person, this aggravation in his case was unparalleled.

9. Analyse grammatically and criticize the following passage, adding notes on parsing wherever you think fit : "My teachers," says he, "were hide-bound Pedants, without knowledge of man's nature, or of boy's; or of aught save their lexicons and quarterly account-books. Innumerable dead Vocables (no dead Language, for they themselves knew no Language) they crammed into us, and called it fostering the growth of mind. How can an inanimate, mechanical Gerund-grinder, the like of whom will, in a subsequent century, be manufactured at Nürnberg out of wood and leather, foster the growth of anything; much more of Mind, which grows, not like a vegetable (by having its roots littered with etymological compost), but like a spirit, by mysterious contact of Spirit; Thought kindling itself at the fire of living Thought ? "—(CARLYLE.)

Arithmetic.—For Class D.   Time Allowed : 3 hours.

1. A newspaper has been issued every day except Sundays since it began to be published, and has been numbered with consecutive numbers on each succeeding day : supposing that its issue on 1st January, 1889, is numbered 1562, find the date of its first publication.

2. Simplify $\dfrac{3\frac{5}{12}-2\frac{2}{3}+14\frac{3}{4}}{2\cdot19\times\cdot1\dot{2}\dot{2}}+\dfrac{4\cdot08-3\frac{1}{5}}{3\cdot\dot{1}5+2\cdot2\dot{3}\dot{6}}$.

3. Calculate, correct to five places of decimals, the value of
$$4(\tfrac{1}{5}-\tfrac{1}{3}\text{ of }\tfrac{1}{53}+\tfrac{1}{5}\text{ of }\tfrac{1}{55}-\tfrac{1}{7}\text{ of }\tfrac{1}{57}+\&c.)-(\tfrac{1}{239}-\tfrac{1}{3}\cdot\tfrac{1}{239^3}+\&c.).$$

4. If a cubic foot of water weigh 1,000oz. av., and a gallon of water weigh 10lb., find the number of cubic inches in a gallon.

5. With the data of the previous question find the depth of a 400-gallon tank which is 4ft. 5in. long and 3ft. 4in. wide. What is the weight of the water it will contain?

6. In a company there are 56,169 shares, and each shareholder holds as many shares as there are shareholders : how many shareholders are there ?

7. A man has £12,200 invested on mortgage at $6\frac{1}{2}$ per cent., and, after paying out of the income property-tax on the capital, there remains £761 4s. 7d. a year : calculate the property-tax in pence per pound.

8. Find the true discount on £400 due 159 days hence, at 7 per cent. simple interest.

9. If in four years £10,000 amounted to £12,155 1s. 3d. when invested at compound interest, find the rate per cent.

10. A father dying leaves £15,000 to be divided amongst his three sons, A, B, and C; B is to receive 25 per cent. more than C, and A 20 per cent. more than B : how much does each get?

11. If seven geese are worth as much as five turkeys, five ducks worth as much as two geese, and four ducks worth as much as five chickens, find the value of a turkey when chickens are sold at 2s. 4d. each.

12. A man climbs a pole 35ft. high ; the first 24ft. he climbs at the rate of 3ft. in two seconds ; then, becoming tired, he climbs 1ft. and slides down 8in. in alternate seconds : how long does it take him to reach the top?

13. Two people have a kilderkin (18 gallons) of ale, and they lose by leakage, &c., ·001785714$\dot{2}$ of a gallon a day ; one drinks half as much again as the other, and the ale lasts exactly fifty-six days : how much does each drink daily ?

14. Two clocks are set right at noon on 1st January, 1889 ; one loses ten seconds in twenty-four hours, and the other gains fifteen seconds in the same time : what will be the true time when they are half an hour apart, and what time will each clock show ?

Arithmetic.—For Class E and Junior Civil Service.   Time allowed : 3 hours.

[The working must be shown for each Question.]

1. Divide 2,914,004,001 by 168 in three factors. Explain the method of finding the correct remainder.

2. What is the meaning of *measure* and of *multiple* in arithmetic? Find the G.C.M. and L.C.M. of 176 and 1,000.

3. What is the rent of 29 acres 3 roods 28 perches at £2 3s. 6d. per acre?

4. In a bankrupt's estate the assets are £1,560 17s. 6d., and the liabilities £3,200 6s. 8d. : what ought a creditor to receive on a debt amounting to £1,000 ?

5. A room is $60\frac{1}{2}$ft. long, 33ft. broad, and 12ft. high : how many planks will floor it, if each plank be 22ft. long and 9in. broad ? What will it cost to paper the walls at $6\frac{3}{4}$d. per square yard, allowing for two doors each 7ft. high and 4ft. broad, and four windows each 6ft. high and 4ft. broad ?

6. Simplify $\dfrac{1\frac{3}{5}}{3+\dfrac{1}{3\frac{1}{3}}}+\dfrac{1\frac{2}{3}\text{ of }4\frac{2}{7}}{1\frac{2}{9}\text{ of }3\frac{6}{7}}$, and $3\frac{1}{2}$ of $5\frac{1}{6}+\frac{2}{3}(6\frac{1}{4}-2\frac{1}{2})-\dfrac{2\frac{1}{6}}{\frac{2}{3}}$.

7. Show how to convert a mixed circulating decimal into a vulgar fraction. Multiply 5·8$\dot{1}$ by ·458$\dot{3}$, and divide 1·1$\dot{3}$ by ·00013$\dot{2}$.

8. Find the value of $\frac{1}{3}$ of $2\frac{1}{3}$ of 5s. 3d.$+5\cdot00625$ of £1$+\cdot06\dot{3}$ of 100 guineas$-3\cdot2095328$ of 17s. 6d.

9. A reduction of 10 per cent. in the price of apples enables a purchaser to obtain 108 more for a sovereign : how many did he get for a sovereign before the reduction was made ?

10. Find the difference between the simple and the compound interest of £512 for three years at 6¼ per cent.

11. A person invests £3,600 in the 3½-per-cents. at 90; he sells out at 91, and invests the proceeds in the 4½-per-cents at 99 : what is the difference in his income ?

12. If two men earn £5 in five days, how many men will it take to earn 40 guineas in twelve days ? By what two methods can you solve this problem ?

13. A square field contains 3 acres 2 roods 7 poles 9¼ yards : find the length of its side.

14. On a certain import the new tariff raised the duty from 15 per cent. to 25 per cent., in consequence of which the consumption has fallen 20 per cent.: in what ratio is the revenue increased or decreased ?

Arithmetic.—For Senior Civil Service.   Time allowed : 3 hours.

1. Explain the terms *concrete, abstract, integral, finite,* as applied to numbers. If fifteen and five-eighths be taken as the unit, find the number which expresses one million eleven thousand and ten, and write it down in words.

2. Convert 54$\frac{11}{12}$ pounds troy into pounds avoirdupois.

3. If the weight of a cubic foot of water be 1,000oz., and if iron, bulk for bulk, be 7·76 times heavier than water, find the weight of an iron bar 16ft. 8in. long, 4½in. wide, and ¾in. thick.

4. Find, by Practice, the value of 342 acres 3 roods 28 perches at £3 4s. 6d. per acre.

5. A rectangular block of granite is 4ft. 9in. in length and 3ft. 6in. in width and thickness: find the cost of polishing its whole surface at 1s. 8d. per square foot.

6. Simplify $\dfrac{3\frac{3}{8}+2\frac{2}{5}-4\frac{2}{3}}{(3\frac{1}{8}-1\frac{2}{5})\ \text{of}\ (3\frac{3}{5}-2\frac{1}{4})} \div \dfrac{3\frac{3}{4}\ \text{of}\ 2\frac{1}{3}}{3\frac{3}{4}-2\frac{1}{3}}$.

7. State and prove the rule for converting a mixed repeater to a vulgar fraction. Reduce the difference between ·208$\dot{3}$ of £1 16s. and 2·886$\dot{3}$ of 2s. 9d. to the decimal of 5s. 3d.

8. How long would it take two men working together to do a piece of work which they could do separately in 10·09 and 6·16 days respectively ?

9. An express train travels 400 miles in 8½ hours : compare the velocity with that of sound, which travels in air at the rate of 101 kilomètres in 5 minutes. [1 kilomètre = ·6214 mile.]

10. At what rate per cent. will £8,030 amount to £8,219 15s. in 115 days ?

11. A bicyclist takes a three hours' ride, diminishing his average speed by 10 per cent. each successive hour : if he covers 2¾ miles less in the last hour than in the first, find the whole distance run.

12. What sum must be invested in the new 2¾-per-cent. Consols at 98½ to secure an income of £159 10s. after paying an income-tax of 8d. in the pound, the usual brokerage of ¼ per cent. being allowed on the purchase ?

13. Explain the terms "par of exchange" and "course of exchange." Calculate the par of exchange between London and Paris from the following data : A sovereign contains 11 parts in 12 of pure gold, and weighs 123·274 grains ; a napoleon contains 9 parts in 10 of pure gold, and weighs 6·4516 grammes.   1 napoleon = 20 francs ; 1 gramme = 15·432 grains.

Geography.—For Class D.   Time allowed : 3 hours.

1. "Wherever our home is, there lie all the materials which we need for the study of the entire globe." Summarise the facts that may be adduced in support of this assertion.

2. Show that the industry of a country depends to a large extent upon the configuration of its shore-line.

3. Name and account for the principal ocean-currents.

4. What functions do lakes perform in the economy of nature ? Illustrate your answer by reference to lakes of different kinds, giving an example of each kind.

5. Winds are said to be great bonds between the land- and water-surfaces : in what respect is this true ?

6. What are isotheral, isocheimonal, and isothermal lines ? Why do they not coincide with the parallels of latitude ?

7. Discuss the peculiarities of the climate of the European countries bordering on the Mediterranean, and show to what extent these peculiarities affect the occupations of the people.

8. Describe (briefly) the course and basin of any one of the most important rivers of the world, and say why you consider it one of the most important.

9. Give a sketch-map of New Zealand, and mark thereon the towns which contain upwards of 1,000 inhabitants.

10. Where are the following places, and for what are they respectively noted : Marseilles, Akyab, Xeres, Newry, Swinemünde, Cashmere, Oban, Tangier, Tegucigalpa, Cincinnati, Odessa, Oran, Waterford, Torquay, Cartagena, Yeovil, Altona, Cherbourg, Ottawa, Liège ?

Geography.—For Class E and Junior Civil Service.   Time allowed : 3 hours.

1. What are the principal causes that operate to determine climate ?

2. Distinguish between spring- and neap-tides. When do they respectively occur, and to what causes are they due ?

3. By what natural agencies have the germs of animal and vegetable life been distributed beyond their original areas ? What part has man played in this matter of distribution ?

4. Explain the following terms : Zenith, solstice, cardinal point, bluff, bore, fiord, geyser, llano, and sierra.

5. Which of the great ocean-basins receives the greatest number of large rivers ? Name some of the principal rivers that flow into it, and account for their magnitude.

6. Name four of the most important towns in Russia, Italy, United States of America, and China; and tell the position of each, and anything interesting you know about each of them.

7. What and where are the following : Atlas, Congo, Erebus, Euphrates, Hayti, Hecla, Lassa, Lewis, Madeira, Molyneux, Timbuctoo, and Valparaiso ?

8. Name (a) the chief republics and (b) the principal empires in the world ; and give the seat of Government and the present ruler in each.

9. Draw an outline-map of Australia, New Guinea, and Tasmania, naming only the capes, capitals, and straits.

10. What are the principal exports to Britain from China, Italy, and New Zealand ?

History.—For Class D.   Time allowed : 3 hours.

[Candidates are expected to attempt all the Questions.]

1. Give an outline of the Roman and the Danish conquest of Britain.

2. State briefly the place and importance of each of the following in English history : Anselm, the Constitutions of Clarendon, the Charter of the Forest, the Peace of Bretigny, and the Act of Supremacy.

3. Were the illegal acts of Charles the First the only causes of the civil war ? Examine the state of feeling in England before his reign.

4. What features in Cromwell's character and mind brought him so easily to the front ? and how does his foreign policy compare with that of the Stuarts ?

5. Describe and account for the rapid development of the power of the House of Commons between 1688 and 1837.

6. Sketch the growth of Puritan manners and modes of thought and emotion during the seventeenth century, and show how they have persisted amongst the English people, or indirectly influenced them, up to our own century.

7. Give an account of the reactionary influence of the French Revolution on English legislation, administration, and social feeling.

8. Investigate the causes of the outburst of literature in England during the close of last century and the beginning of this, and its connection with public events.

9. Compare Sir Robert Walpole, the younger Pitt, and Canning, as to character and policy.

10. What do you know of the Plantation of Ulster, Pride's Purge, Monmouth's Rebellion, Fontenoy, Culloden, the trial of Warren Hastings, and the Act for the abolition of slavery ?

History.—For Class E and Junior Civil Service.   Time allowed : 3 hours.

[Candidates are expected to attempt all the Questions.]

1. Give the names of the Saxon kings after Alfred, and the chief events of their reigns in order of time.

2. State what you know of Magna Charta, Bannockburn, Jack Cade, Perkin Warbeck, and the Spanish Armada.

3. Give a brief history of the Court of High Commission and the Star Chamber, with especial reference to the reigns of James the First and Charles the First.

4. Sketch the course of the Civil War.

5. What difficulties had William the Third to contend with in ruling England, and what elements in his character gave him the mastery ?

6. Describe the efforts which the exiled Stuarts made to regain the English throne, and show why they failed.

7. Trace the steps by which the American Colonies were led to rebel, and account for the success of the movement.

8. What part in the politics of England was taken by Fox ? by Burke ? by the younger Pitt ? by the Duke of Wellington ?

9. Write a brief life of Nelson, with special reference to his naval victories.

10. How was India brought under English sway ? Sketch the careers of Clive and Warren Hastings.

History.—For Senior Civil Service.   Time allowed : 3 hours.

[Candidates are expected to attempt all the Questions.]

1. How did Ireland affect English politics between 1688 and 1837 ?

2. Show how English manners softened during the eighteenth century, and indicate the causes of the change.

3. Describe and account for the rapid development of the power of the English House of Commons between 1688 and 1837.

4. Sketch the character of George the Third, and give a brief history of his use of power.

5. Give an account of the reactionary influence of the French Revolution on English legislation, administration, and social life.

6. Investigate the causes of the outburst of literature in England during the close of last century and the beginning of this, and its connection with public events.

7. Compare Sir Robert Walpole, the younger Pitt, and Canning, as to character and policy.

8. How did the application of steam to manufactures and locomotion influence English civilisation, economically and socially, during the last quarter of last century and the first thirty-seven years of this ?

9. Define the place of each of the following in English history : Schomberg, Mrs. Masham, Bishop Atterbury, Admiral Byng, Junius, Grattan, Thistlewood, Cobbett.

10. What do you know of the Mutiny Bill, Glencoe, Darien Scheme, Preston-Pans, Plassy, Convention of Cintra, the Gordon Riots, the Catholic Emancipation Act?

Elementary Experimental Science.—For Class D.   Time allowed: 3 hours.

1. What are the fundamental facts relating to the pressure of fluids, and how may they be proved experimentally?

2. Describe any experiments which you would make in giving a lesson on specific gravity.

3. Mention several experiments illustrative of the elasticity of gases, arranging them in two classes, the one suitable for teaching beginners, the other adapted to the instruction of more advanced pupils.

4. Explain exactly how you would exhibit to a class (a) the reflection of sound, (b) the reflection of light, (c) the refraction of light.

5. Make a sketch of the apparatus required for the distillation on a small scale of ethyl alcohol (spirits of wine), adding any explanatory remarks which you may think necessary.

6. What experiments would you regard as essential to a proper explanation of magneto-electricity, and how would you propose to make them?

7. Give an exact description of the arrangement which you would adopt for showing the decomposition of water by the electric current.

8. Describe in detail how you would prepare and collect chlorine gas. Having obtained four jars of the gas, what experiments illustrative of the properties of chlorine would you make with them?

9. Write an abstract of a lesson on the use of soap, and give an exact account of the experiments with which you would illustrate the lesson.

Elementary Science.—For Class E.   Time allowed: 3 hours.

[NOTE.—Female candidates for E, if proficient in needlework, may substitute for this paper the paper on Domestic Economy and the Laws of Health; but passing in Science will not exempt them from passing in Needlework also.]

1. A ball hangs from the ceiling: describe exactly what must be done to make it revolve in a circle; and show how, when it is revolving in a circle, you may, by a touch, make it move as an ordinary pendulum. State what principles may be illustrated by a hanging ball.

2. What is the gain of power, disregarding friction, in the case of a wheel and axle, the diameter of the barrel being 6in. and the length of the handle 3ft.? Supposing that part of the barrel were 4in. and part 6in. in diameter, and the rope were wound off the 4in. part on to the 6in. part, and passed under a pulley attached to the bucket, what would be the gain in this case?

3. Supposing that a narrow U-shaped glass tube is filled partly with water and partly with alcohol, and another similar tube is filled partly with mercury and partly with water, and that in each case the two liquids are in contact exactly at the bottom, make a sketch showing approximately the heights at which the several liquids would stand.

4. Make a sketch showing how to arrange a set of pulleys so that the gain may be 5 to 1.

5. Show by a sketch the construction of an ordinary fountain. Show also how you would illustrate the principle of the fountain by means of a tumbler of water and an indiarubber tube.

6. Draw a diagram illustrating the mode of formation of an image by a convex lens—as, for instance, the picture produced by a magic lantern. Show also how a reading-glass makes an object look larger than it really is.

7. Describe the experiments that may be made with a pair of bar-magnets, and sketch the form of the curves produced by iron-filings dusted over a card beneath which two bar-magnets are placed parallel to each other, the north ends pointing the same way.

8. Describe the effect, and give chemical equations illustrative of what happens, (1) when limestone is burnt, (2) when quicklime is placed in water, (3) when carbonic acid is passed into clear lime-water, (4) when an excess of carbonic acid is passed into lime-water.

9. State the changes that occur in the blood when it is in the external capillaries and also when it is in the lungs. Draw a diagram illustrating the circulation of the blood.

10. Give a general account of the best mode of draining a house and its surroundings. Make a sketch illustrating the plan you would adopt for connecting an indoor sink with a drain.

Domestic Economy and Laws of Health.—For Class E.   Time allowed: 3 hours.

[NOTE.—This paper is for female candidates for E who are proficient in needlework, and, in consideration of this, are allowed, if they prefer it, to be examined in Domestic Economy and the Laws of Health instead of in the general subject of Elementary Science. (See the note on the Elementary Science paper.)]

1. State the advantages of a morning bath. Under what circumstances is it disadvantageous?

2. Describe in general terms the kinds of food suitable for invalids.

3. Name the various disinfectants and antiseptics, and state the purpose for which each is more particularly suitable.

4. Make a sketch showing the course of a blood-corpuscle in its passage from the right ventricle through the capillaries back to the right auricle. Write on the sketch the names of the chief arteries and blood-vessels through which it passes.

5. What are the changes effected in the air by respiration? What occurs when clear limewater is breathed into? Express the changes by chemical symbols.

6. Draw a diagram representing the structure of the eye. What is the most suitable mode of lighting a room for school-children? Draw a section to show the kind of spectacle-glass suitable for a short-sighted person.

7. What kinds of recreation and amusement are most suitable for teachers? Why is physical exercise essential to health?

8. What are the chief disadvantages of having one's house built on low ground? What are some of the best things to do in such a case.

9. Discuss generally the effect of the moderate and of the excessive use of alcohol and other stimulants on health.

10. What are the various substances used to cause puddings, &c., to be light and porous? What are the modes of action of the several substances? State the special use of each.

Algebra.—For Senior Civil Service. Time allowed: 3 hours.

1. Find the value of $\dfrac{x^2+ax+a^2}{x-a}-\dfrac{x^2-ax+a^2}{x+a}$, when $x=-\tfrac{3}{2}a$.

2. Multiply $x^{-2}-2x^{-1}+1$ by x^2+x-1.
Test the result by making $x=2$.

3. Divide $a^4+a^3(x-y)-a^2xy+az(x+y)-z^2$ by a^2+ax-z.

4. Resolve $(a^3z^2-a)^2$, $(a^2+b^2)^2-a^2b^2$, $x^2+y^2-2xy-x+y$, into elementary factors; and reduce $\dfrac{x^m+^ny^n}{x^my^{m+n}}$, $\dfrac{x^4-xy^3}{x^2y+xy^2+y^3}$, $\dfrac{x^3-x^2-3x+2}{x^2-3x+2}$, to their lowest terms.

5. Simplify—

   (a.) $\dfrac{1}{x-1}-\left\{\dfrac{1}{x+1}-\left(\dfrac{1}{x-2}-\dfrac{1}{x+2}\right)\right\}$.

   (b.) $\left(1+\dfrac{1}{x-1}\right)\left(1-\dfrac{1}{x+1}\right)\left(1+\dfrac{1}{x-2}\right)\left(1-\dfrac{1}{x+2}\right)$.

   (c.) $\dfrac{1}{1-\dfrac{1}{1-\dfrac{1}{x+1}}}\div\dfrac{1}{1-\dfrac{1}{1-\dfrac{1}{x+2}}}$.

6. Find the value of—
   $\dfrac{a-x}{1+ax}-\dfrac{b-x}{1+bx}$, when $x=\dfrac{a+b}{1-ab}$.

7. Solve the equations—

   (a.) $\dfrac{4}{4x-10}-\dfrac{3}{4x-9}=\dfrac{1}{4x-14}$.

   (b.) $\dfrac{a}{x+b}-\dfrac{b}{x-a}=\dfrac{a-b}{x-a+b}$.

   (c.) $(x-a)(y-b)=xy=(x-2a)(y-2b)$.

8. A rectangular paddock contained 5 acres; but when a border, 8 yards wide, was taken off all round for planting, it contained less than 4 acres by 40 square yards. Find the length and breadth of the paddock.

9. In a municipal election there were two candidates. One of them polled half the constituency, obtaining a majority of a votes over his opponent. Supposing that $\dfrac{1}{n}$th part of the constituency refrained from voting, find the number of votes polled by each candidate.

Algebra.—For Class D and Junior Civil Service. Time allowed: 3 hours.

1. If $a=1$, $b=9$, and $c=8$, find the numerical value of
   $$\sqrt[3]{a}+\sqrt{2c}\sqrt[3]{\dfrac{bc}{9}}-4\sqrt[3]{b-a}\ ;$$
and if $x=0$, $y=3$, $z=5$, find the value of
   $$\dfrac{2xy}{z}-\dfrac{3(x+y)}{z}+\dfrac{5z}{y}.$$

2. Write down the algebraical expression for the following: From the quotient obtained by dividing the number x by the number y is subtracted half the quotient obtained by dividing the number y by the number x; the excess is multiplied by itself, and the result is divided by three times that number which when multiplied by itself gives the quotient obtained by dividing the number x by the number y.
   Explain the meaning of the following expression: $\left(\dfrac{a^2}{b}+\dfrac{2b^2}{a}\right)+\dfrac{\sqrt{a-b}}{a+b}$.

3. Divide (i.) $x^8-2x^4z^4+z^8$ by $x^3-z^3-x^2z+xz^2$.
   (ii.) $4a^3b^2-4ab^2c^2-8a^2b^3-c^2a^3+16ab^4-a^2c^3$ by $(2b+c)a$.

4. Simplify $3\{a-2(b-3c)\}+4a-(5b+2c)-[3c-\{a+2(b-c)\}]$;
   $$\dfrac{2a-\tfrac{1}{2}(b-c)}{3}-\tfrac{1}{4}(3b+2c)-\tfrac{1}{2}\{3a-\tfrac{1}{3}(3b-2c)\}.$$

5. Resolve into elementary factors—
   $21a^2+29ab-10b^2$;
   $(x^2+y^2)^2-y^2(x+y)^2$;
   $4a^2-9b^2-c^2+6bc$.

6. Reduce to its lowest terms $\dfrac{6x^3+7x^2y-xy^2+3y^2}{14x^4+25x^3y-5xy^3+6y^4}$;
and find the lowest common multiple of $x+1$, x^2-1, $x+2$, x^3+8, x^2+x-2.

7. Simplify $\dfrac{3xy-2y^2}{6x^3-x^2y-2xy^2}+\dfrac{x(2x+y)}{6x^2y+7xy^2+2y^3}$;
and find the value of $\dfrac{x^2-y^2}{x^2+y^2}$ when $x=\dfrac{a+b}{a-b}$, and $y=\dfrac{a-b}{a+b}$.

8. Solve the equations—

$$\frac{6x+8}{2x+1} - \frac{2x+38}{x+12} = 1.$$

$$\frac{1}{ax+b} - \frac{1}{bx+a} = \frac{b-a}{abx}.$$

9. A composition of copper and tin containing 100 cubic inches weighs 505oz. How many ounces of each metal does it contain, supposing a cubic inch of copper to weigh 5¼oz. and a cubic inch of tin to weigh 4¼oz. ?

Euclid.—For Class D and Junior Civil Service. Time allowed: 3 hours.

1. Define a " polygon." What is meant by a *regular* polygon? What are the names given to regular three-sided and four-sided figures?

2. Define " parallel straight lines " and a " parallelogram." Quote the axiom on which Euclid's treatment of parallel lines is based. What are the properties of parallel straight lines? What are the conditions of the equality of parallelograms?

3. To make a triangle of which the sides shall be equal to three given straight lines; but any two whatever of these must be greater than the third. Draw figures showing how the construction will fail if the limitation in the last clause of the enunciation be neglected.

4. The opposite sides and angles of a parallelogram are equal to one another, and the diameter bisects it—that is, divides it into two equal parts. " If a diagonal of a quadrilateral bisects it, the figure is a parallelogram." Is this true? If not, amend it so as to make it the true converse of the latter part of the proposition given above, and prove it.

5. To a given straight line to apply a parallelogram which shall be equal to a given triangle, and have one of its angles equal to a given rectilineal angle.

6. In any right-angled triangle, the square which is described upon the side subtending the right angle is equal to the squares described upon the sides which contain the right angle. Show how to find a square that shall be half of a given square.

7. If a straight line be divided into any two parts, the squares of the whole line and of one of the parts are equal to twice the rectangle contained by the whole and that part together with the square of the other part. Show that this is equivalent to the following: "The square on the difference of two straight lines is equal to the sum of the squares on the two straight lines diminished by twice the rectangle contained by the two straight lines."

8. In obtuse-angled triangles, if a perpendicular be drawn from either of the acute angles to the opposite side produced, the square of the side subtending the obtuse angle is greater than the squares of the sides containing the obtuse angle by twice the rectangle contained by the side upon which, when produced, the perpendicular falls and the straight line intercepted without the triangle between the perpendicular and the obtuse angle. ABCD is a parallelogram having the angle ABC equal to an angle of an equilateral triangle : prove that $BD^2 = BC^2 + CD^2 + BC \cdot CD$.

Euclid, Books I.–IV.—For Senior Civil Service. Time allowed: 3 hours.

1. Enunciate the various propositions in the First Book in which Euclid proves that two triangles are equal in all respects. If two triangles have two sides of the one equal to two sides of the other each to each, and an angle of one equal to the corresponding angle of the other, are the triangles necessarily equal in all respects? State the various cases which may arise, and the conclusion in each case.

2. The opposite sides and angles of a parallelogram are equal, and its diagonals bisect one another.

3. Divide a given straight line into two parts such that the difference of their squares may be equal to a given square.

4. Describe a square equal to a given rectilineal figure.

5. Show how to draw a pair of tangents to a circle from an external point, and prove that they are equal to one another. Investigate the condition which must be satisfied for a quadrilateral to be such that a circle can be inscribed in it.

6. The opposite angles of a quadrilateral inscribed in a circle are together equal to two right angles. Prove this proposition, and state and prove its converse.

7. Inscribe a circle in a given triangle. If three circles be drawn each touching the side of a given triangle and the other two produced, show that the lines joining their centres pass through the angular points of the triangle.

Trigonometry.—For Senior Civil Service. Time allowed: 3 hours.

1. Given the magnitude of an angle in degrees, show how to find its circular measure.

A piece of string placed on the circumference of a circle whose radius is 25 inches subtends an angle of 30° at the centre : find the length of the string.

2. Define the tangent of an angle, and trace the changes in its value as the angle increases from zero to two right angles.

If $\text{Sec } x = \frac{a+b}{a-b}$, find Tan x and Sin x.

3. Prove that Sec $(A + 180°) = -$ Sec A, and that Cot $(A - 90°) = -$ Tan A.

4. Prove the identities,—

$$\left(\frac{\text{Cos A}}{\text{Sin A}} + \frac{\text{Sec A}}{\text{Cosec A}}\right) \text{Cot A} + \frac{\text{Cot A}}{\text{Tan A}} - 1 = 2 \text{ Cot}^3\text{A}.$$

$$\text{Tan 6A} - \text{Tan 4A} = \text{Tan 6A Tan 4A Tan 2A} + \text{Tan 2A}.$$

5. If A, B, C, are the angles of a triangle, prove that

$$\text{Sin } A + \text{Sin } B + \text{Sin } C = 4 \text{ Cos} \frac{A}{2} \text{Cos} \frac{B}{2} \text{Cos} \frac{C}{2}.$$

(Cot A + Cot B) (Cot B + Cot C) (Cot C + Cot A) = Cosec A Cosec B Cosec C.

6. Define the logarithm of a number, and prove the method of extracting a root by the aid of logarithms.

Assuming that the volume of a sphere of radius r is equal to $\frac{4}{3}\pi r^3$, find the radius of a sphere which contains a cubic foot; having given log. 2 = ·3010300, log. 3 = ·4771213, log. 3·1416 = ·4971509, log. 7·4442 = ·8718181.

7. Prove that in any triangle $\text{Cos } A = \frac{b^2 + c^2 - a^2}{2bc}$; and deduce that $\frac{\text{Sin } A}{a} = \frac{\text{Sin } B}{b} = \frac{\text{Sin } C}{c}$.

8. A lighthouse stands on the edge of a vertical cliff, and the captain of a ship approaching the cliff finds the angular elevation of its top to be a, and that of the top of the lighthouse to be β. If the height of the lighthouse be h, prove that the distance of the ship from the foot of the cliff is h Cos a Cos β Cosec $(\beta - a)$, the height of the captain's eye above the sea being neglected.

Chemistry.—*For Class D and Junior and Senior Civil Service.   Time allowed: 3 hours.*

1. Write down the names and formulæ (symbols) of all the oxides of the following elements: Phosphorus, chlorine, hydrogen, nitrogen, sulphur, carbon.

2. Write down the names and formulæ of all the acids that contain (a) chlorine, (b) phosphorus, (c) sulphur.

3. State what you know of ozone under the following heads: (1) Its manufacture, (2) its properties, (3) tests for it.

4. What substances have a property by virtue of which they give a blue colour to starch?

5. Describe processes (giving the equations) for making the following gases: (a) Carbonic oxide, (b) ammonia, (c) chlorine, (d) hydrosulphuric acid (sulphuretted hydrogen).

6. Explain (giving equations) how *one* of the following substances may be made: Phosphorus, bromine, iodine.

7. Describe briefly the process for the manufacture of sulphuric acid on the large scale.

8. Explain (giving equations) how nitric acid is manufactured from saltpetre.

9. Show by equations the chemical changes that accompany the explosion of the following gases with oxygen: (a) Marsh-gas or fire-damp (methane), (b) phosphoretted hydrogen, (c) sulphuretted hydrogen, (d) coal-gas, (e) hydrogen.

Mechanics.—*For Class D and Senior Civil Service.   Time allowed: 3 hours.*

1. Define "mass" and "density." Assuming that 1 cub. ft. of water weighs 1,000oz., find the volume of 11cwt. of iron, the density of which with respect to water is 7·7.

2. Define "acceleration" and "kinetic energy." A stone of 10lb. weight is projected vertically upwards with a velocity of 120ft. per second: find the height to which it will rise; find also its kinetic energy when it reaches a point 100ft. above the ground.

3. Quote Newton's Second Law of Motion, and obtain from it the expression $F = ma$, where F denotes the force, m the mass, and a the acceleration. If 1lb. be the unit of mass and 1ft. per second per second the unit of acceleration, what unit of force is assumed in the formula?

4. A mass of 30lb. is moving with an acceleration of 20ft. per second per second: find the work done by the accelerating force in 6 seconds.

5. Find in magnitude and direction the resultant of two like parallel forces. A uniform iron bar, 4ft. long and weighing 15lb., rests horizontally on a peg, with two weights, of 9lb. and 20lb. respectively, hanging from its ends: find the distance of the peg from the middle point of the bar.

6. Explain the terms "stable," "unstable," and "neutral" equilibrium, giving instances. Forces represented by OA, OB, OC, are in equilibrium at O: show that O is the centre of gravity of the triangle ABC.

7. Find the relation of the power to the weight in the wheel and axle, neglecting friction. Show that the work done by the machine is the same as the work applied to it.

8. A cubical vessel, whose edge is 6in., is filled with mercury: taking the specific gravity of mercury as 13·6, find the pressures upon the base and one side of the vessel.

9. What are the conditions of equilibrium of a floating body? How much will the mass of iron in Question 1 weigh when it is completely immersed in water?

10. A gas occupies a volume of 100 cub. in. under the pressure of 30·15in. of mercury: find its volume when the pressure is increased, without change of temperature, to 48·24in. of mercury.

Physics.—*For Class D and Junior and Senior Civil Service.   Time allowed: 3 hours.*

1. What are the respective advantages and disadvantages of mercury and air thermometers? Describe the method of graduating a centigrade thermometer. The coefficient of expansion of air at 27° C. is ·003 for 1° C. Adapt these figures to the Fahrenheit scale.

2. State the laws of the expansion of gases by heat. Explain what is meant by the absolute zero of temperature. If a gas occupy 350 cubic inches at the temperature of 7° C., what volume will it occupy when its temperature is raised to 51° C. under the same pressure?

3. A pound of ice is taken at the temperature of − 10° C., and heat is continually communicated to the substance under atmospheric pressure until its temperature becomes 110° C. Describe the successive physical changes which the substance undergoes, and calculate the whole quantity of heat communicated. [Specific heat of ice = ·5; specific heat of steam = ·48.]

4. Give an account of the different modes in which heat may be communicated. What are the grounds for believing that radiant heat is identical in nature with light?

5. Enunciate the law of the refraction of light. Sketch the path of a ray of light—(1) which passes through a thick, flat plate of glass; (2) which passes through a double-convex lens; (3) which passes through a prism.

6. Taking the apparent diameter of the sun as half a degree, find the size of the sun's image which is formed at the principal focus of a concave spherical mirror of 12ft. radius.

7. Give the laws of the transverse vibration of a stretched string. Describe an instrument designed for the quantitative verification of these laws.

8. Explain the terms "magnet," "magnetic substance," "magnetic moment," "magnetic field," "magnetic meridian." State in general terms the position which a freely-suspended magnet will assume in New Zealand. A compass needle vibrates 108 times in ten minutes at a station where the earth's horizontal force is ·189, and at another station it makes 120 vibrations in the same time. What is the value of the earth's horizontal force at the latter station?

9. What are the essential parts of an electrical condenser? Explain its action; and state the conditions on which the condensing power depends.

10. Describe some method of measuring the electro-motive force of a voltaic cell. A battery contains six Daniell's cells, each cell having an E.M.F. of 1·1 volt and a resistance of ·6 ohm: find the current which will be produced in an external circuit of 6 ohms resistance—(1) by a single cell, (2) by the six cells connected in series, (3) by the six cells connected in parallel.

Latin.—For Class D and Junior and Senior Civil Service. Time allowed: 3 hours.

1. Parse *abstulerit, prodesset, retusus, venierunt, emensus, adolevit.* Decline, in the singular number only, *utrumque litus, tota respublica, iste praedo, qualis conjux.* Distinguish the meanings of *aliquis, quisquam, quivis, quispiam.* Explain the formation of the adverbs *huc, istuc, prorsus, quorsum.* Give Latin expressions for—In the evening; by night and day; within a few days; on the tenth of March; at a small price; for how much? for ten sesterces.

2. Translate into English—(1.) Adolescentium greges Lacedaemone vidimus ipsi incredibili contentione certantes pugnis, calcibus, unguibus, morsu denique, cum exanimarentur prius quam victos se faterentur. Quae barbaria India vastior aut agrestior? in ea tamen gente primum ei qui sapientes habentur nudi aetatem agunt, et Caucasi nives hiemalemque vim perferunt sine dolore, cumque ad flammam se applicaverunt sine gemitu aduruntur. Mulieres vero in India, cum est communis earum vir mortuus, in certamen judiciumque veniunt quam plurimum ille dilexerit (plures enim singulis solent esse nuptae); quae est victrix ea laeta prosequentibus suis una cum viro in rogum imponitur, illa victa maesta discedit. (2.) Lex erat Thebis quae morte multabat, si quis imperium diutius retinuisset quam lege praefinitum foret. Hanc Epaminondas cum rei publicae conservandae causa latam videret ad perniciem civitatis conferre noluit et quatuor mensibus diutius quam populus jusserat gessit imperium. Postquam domum reditum est collegae ejus hoc crimine accusabantur. Quibus ille permisit ut omnem causam in se transferrent suaque opera factum contenderent ut legi non obedirent. Qua defensione illis periculo liberatis nemo Epaminondam responsurum putabat quod quid diceret non haberet.—Explain fully the construction of the last sentence. Why is *haberet* subjunctive?

3. Translate into Latin—He says that he will not be wanting to his friends. How does it happen that all of you prefer death to slavery? Do not impute this to me as a fault. I hope to see him to-morrow: if I do, I will do my best to persuade him to pardon your fault. When quite a young man he left Rome and settled at Athens. Diogenes ordered himself to be cast forth unburied. "What!" said his friends, "to the birds and beasts?" "By no means," said he; "but put a stick by me to drive them away with."

French.—For Class D and Senior and Junior Civil Service. Time allowed: 3 hours.

1. Translate into English—Quand on a vécu vingt ans dans l'administration on ne s'entend plus guère à faire autre chose, fatigué, banalisé par le ronflant et le vide de l'existence officielle. Personne ne savait mieux que lui tourner une lettre administrative, dans ce style arrondi, incolore, qui a horreur du mot propre, ne doit viser qu'à une chose: parler sans rien dire. Personne ne connaissait plus à fond le formulaire des salutations hiérarchiques, comment on écrit à un président de tribunal, à un évêque, à un chef de corps, un "cher ancien camarade;" et pour tenir haut le drapeau de l'administration en face de la magistrature, son irréconciliable ennemie, et pour la passion du bureau, de la paperasse, fiches (*labels*), cartons verts, régistres à souches (*blocks*), pour les visites d'après-midi à la présidente, à la générale, débiter debout—le dos à la cheminée, en écartant ses basques—toutes sortes de phrases enveloppées, jamais compromettantes, de façon à être avec chaleur de l'avis de tout le monde, louer brutalement, contredire avec douceur, le binocle en l'air: "Ah! permettez;" pour présider au son de la musique et des tambours un conseil de révision, un comice agricole, une distribution de prix, citer un vers d'Horace, une malice de Montaigne, moduler son intonation selon qu'on s'adresse à des enfants, à des conscrits (*recruits*), des prêtres, des ouvriers, des bonnes sœurs, des gens de campagne, bref pour tous les clichés (*stereotyped plates*), poses et grimaces de la figuration administrative, Lorie-Dufrêne n'avait de pareil que Chemineau. Mais à quoi tout cela lui servait-il maintenant?—*L'Evangéliste:* ALPHONSE DAUDET.

2. Translate into French—Schiller's endeavour to avoid all that is common and mean led him to the opposite extreme of ideal abstraction. His views of human life were lofty, but were not comprehensive. If he did not despise he neglected to study many common, lowly realities. His poetry is therefore the antithesis of such poetry as was written by our English realist, George Crabbe. "Nature's sternest painter" could look on life with a poet's eye—as his story of "The Lover's Journey" might prove—but he would not describe either an Arcadia or a Utopia as possible in a world like this. As he travelled through life he stayed to look into workhouses,

prisons, and " the huts where poor men lie," and he became so much interested in his duties as an inspector of miseries that he forgot all about Utopia. His poor people hardly ever look up to heaven. Crabbe lived in the present, and looked around on the objects—the hard facts—presented by every-day life; Schiller looked around him, but more frequently upwards and onwards, as we see him in one of his portraits. He despised or he defied low realities, and boldly uttered his belief that, after all the failures of which history is the record, men shall enjoy first moral, then political and social, freedom. The poet who will pass through all Crabbe's realism and arrive at Schiller's idealism will be a new phenomenon in literature.—JOSEPH GOSTWICK and ROBERT HARRISON.

3. Write in French (using *finir* and *craindre*)—(*a.*) (In order that) he may finish. (*b.*) (In order that) he might finish. (*c.*) He finished (imperfect). (*d.*) Would you fear him? (*e.*) You used not to fear him (imperfect).

4. Give the feminine of *violet, discret, coi, baron, compagnon, abbé, gouverneur, supérieur, pêcheur*.

5. Give the French for—a summer coat, a steamboat, a milk-jug, a water-mill, toothache, wedding presents.

6. Write down the third person singular of the preterite indicative and imperfect subjunctive of *loger, reconnaître, se repentir, savoir, teindre*.

7. Transcribe these sentences in the singular:—Ils ravagèrent tout le pays. Messieurs les généraux son arrivés. Faites entrer. Je voudrais qu' elles chantassent. À qui sont dus ces titres?

8. Distinguish between—*Voilà des pommes* and *il y a des pommes; je serais* and *je serrais; deux mille* and *deux milles; une quinzaine* and *un quinzième; la demie* and *la moitié*.

9. Write in French words—180 men; 290 horses; $\frac{7}{8}$; $\frac{2}{3}$; on the 10th of July, 1889; the eleventh volume; Charles the Fifth, Emperor of Germany.

10. Give the masculine forms of these words: *Expresse, maligne, sèche, duchesse, déesse, servante, tierce, ambigüe*.

11. Give the participles present and past of—*Avoir, tracer, maudire, médire, teindre, réussir, fleurir, bénir*.

12. Give the French for—Too many times; how many times? once or twice; several times; once more; once too many.

13. Translate into English—Les sauvages de l'Amérique auxquels nous avons donné de l'eau-de-vie, nous ont donné en échange le tabac, dont la fumée les enivrait dans les grandes occasions. C'est par cet aimable échange de poisons qu' ont commencé les relations entre les deux mondes.

14. What are the French names for the natives of—La Russie, l'Irlande, la Pologne, l'Italie, la Chine, l'Afrique, l'Asie?

15. Write out the imperative and the present subjunctive of *supplier*.

16. Write a short essay on the syntax of the *participe passé*. Exemplify.

17. How do you account for the use of the dative *lui* and the accusative *le* respectively in these sentences?—Il faut *lui* faire tout avouer. On *le* fit lire toute la soirée.

18. What specific meaning does the suffix *âtre* give to adjectives? Give examples, and state the origin of that suffix.

German.—For Class D and Junior and Senior Civil Service. Time allowed : 3 hours.

1. Translate into English—(1) Ich wohne in einem neuen Hause; (2) Es gefällt mir sehr gut; (3) Die Fenster haben eine schöne Aussicht; (4) Man sieht viele Leute vorbeigehen; (5) Einige scheinen glücklich, andere unglücklich; (6) Ich bin jetzt oft mit Thackeray beschäftigt; (7) Das Lesen wird zuweilen unterbrochen; (8) Ein Freund nickt mir von der Strasse zu; (9) Ich denke, ich will einen Spaziergang machen; (10) Oder soll ich mein Dreirad gebrauchen?

2. Translate into German—(1) I went into the nearest valley; (2) The weather was very hot; (3) A little rain fell for a few minutes; (4) I met two professors, who were looking for plants; (5) They enjoyed their holidays; (6) All work was over for several months; (7) We had a short conversation; (8) Then they went away, and I returned; (9) I remembered there was to be a book-auction; (10) The prices were ridiculously low.

3. Grammatical questions:—(1.) How would you translate, " Come and rest" (spoken to a little child)? (2.) How, if spoken to several children? (3.) How, if spoken to an intimate friend? (4.) How, if spoken to a stranger? (5.) What parts of a verb end in the letter *n*? (6.) What parts of a verb end in the letter *t*? (7.) Where do you use the prefix *ge* in the conjugation? (8.) Where is it necessary to omit the prefix *ge*? (9.) Where does the past participle look exactly like the present infinitive? (10.) How many feminine nouns are declined like *Mutter*? (11.) Are there any neuter nouns of the weak declension? (12.) What is the German for " the sick man"? (13.) What for " a sick man"? (14.) How do you address a letter to " Doctor Allwissend"? (15.) Give three words of neuter gender denoting female persons. (16.) What is the difference between *ich kann* and *ich kannte*? (17.) What is the difference between *ich kenne* and *ich konnte*? (18.) How do you explain that " I rose" is *ich stand auf*, and " when I rose" is *als ich aufstand*? (19.) Give three verbs conjugated with " to be" instead of " to have." (20.) How do the Germans say, " I cannot but speak to my neighbour"?

4. Translate into English—

(1.) Der Tod das ist die kühle Nacht,
Das Leben ist der schwüle Tag.
Es dunkelt schon, mich schläfert,
Der Tag hat mich müd' gemacht.

Über mein Bett erhebt sich ein Baum,
Drin singt die junge Nachtigall;
Sie singt von lauter Liebe,
Ich hör' es sogar im Traum.
—HEINE.

(2.) Sprichwort bezeichnet Nationen;
Musst aber erst unter ihnen wohnen.
—GOETHE.

Maori.—For Junior Civil Service.   Time allowed : 3 hours.

1. Translate into English the following : I Hawaiki a Ruatapu e noho ana, he tama ia na Uenuku, na tana wahine mokai na Paimahutanga.   I tetahi rangi ka whakahorohoro a Ruatapu i tana manu taratahi, te tapokotanga tau ana ki runga ki te whare o tona matua o Uenuku.   Katahi tera a Ruatapu ka piki ki te tiki i tona manu taratahi.   Ka rongo a Uenuku ka patai ake, " Ko wai tenei e takahi nei i taku whare ? "   Te kiinga iho a Ruatapu, " Ko au."   Ka patai ake ano a Uenuku, " Ko koe !   Ko wai ? "   Katahi ka whakahokia iho, " Ko au ra, ko Ruatapu."   Ko te kiinga ake a Uenuku, " E tama, heke ki raro i taku whare, mau rawa e kake taku uru tapu.   Ka pa ano ra ma Kahutiaterangi te tama rangatira tena mau ! he tama meamea noa ra koe naku ! " Katahi ka mamae te ngakau o Ruatapu ki nga kupu a tona matua a Uenuku.   Te rongonga o Ruatapu, ka noho te ngakau mauahara i roto i a ia, ka tahuri tonu ia ki te tarai i tetahi waka nui.

2. Translate into Maori the following : The Ngatimamoe, after the destruction of their pa at Kaikoura, retreated south as far as Kaiapoi, in the Canterbury Province, where they were left unmolested for a time, while the Ngaitahu were engaged in building fortified pas at Kaikoura.   As soon, however, as these were fairly established there they despatched a war-party in canoes to the east coast of Banks Peninsula, where they stormed a pa occupied by the Ngatimamoe, called Pare Wakatu.   Soon after this the Ngatimamoe were again defeated, at a place called Parekakariki, and then at Waikaikai, where one of their chiefs, named Tutekawa, was killed, and another, named Rangitamau, was taken prisoner.   After this Ngaitahu advanced on Kaiapoi, where Tukiau had fled after murdering Manawa at Kaikoura ; there they killed and drove out the Ngatimamoe and took possession of the country, killing or keeping as slaves all that fell into their hands.   The Ngatimamoe, weakened and dispirited, retreated south beyond Taumutu.

3. Put the following into Maori :—Where are you going ?   Do you know where Willie left my book ?   As you go to school leave this letter at the post-office.   In former days the Maori lived on high ground, and were not so liable to disease as they are now.   These fish were caught by Peter and James this morning.   The gale will be over by to-morrow morning.

4. Put the following into English : He whare nunui etahi o nga whare o mua i hanga hoki hei nohoanga mo nga manuhiri, hei whare korero mo nga huihuinga tangata i kiia nei he runanga.   E aha ana korua i konei?   E tiaki ana maua i te tamaiti a Henare.   Nawai ena hoiho i roto i te taiepa na ?   Kihai ia i haere ki Makara inanahi.   Ki te karanga koe i a Hori e kore ia e haere mai. Kua tae ranei koe ki Rotomahana.   Ki te haere a Tame Parata ki Otepoti, mana e hoko etahi pukapuka ma taua.   Hei konei koe noho ai.   E kore rawa ia e haere.

5. Give three examples in Maori, with translation, of sentences without verbs.   Give three examples in Maori in which the English active should be translated by the Maori passive.

6. Translate into Maori : I, Te Tangata Totika, aboriginal native of New Zealand, do solemnly and sincerely declare—(1) That I am one of the vendors of the block of land known as Whenua-Momona, situated at Hawaiki, containing 19,273 acres, to the Crown ; (2) that neither spirituous liquors, arms, nor warlike stores form any part of the consideration for the said block of land ; (3) that there is sufficient land in possession of the vendors, over and above the land now offered by us for sale, for all our future wants.   And I make this solemn declaration conscientiously believing the same to be true, and by virtue of an Act of the General Assembly intituled " The Justices of the Peace Act, 1866."—Na Te TANGATA TOTIKA.   Declared by the said Te Tangata Totika, this second day of May, 1876.—JONATHAN ROBERTS, J.P.

Elementary Biology.—For Class D and Junior and Senior Civil Service.   Time allowed :
3 hours.

ZOOLOGY (alternative with Botany).

1. Describe the form and structure of the vertebral column.   Why is it composed of numerous pieces ?

2. " The blood is the great means of communication of material between the tissues."   Explain fully what is meant by the above statement.

3. Give an account of the structure of the heart, and explain how the valves act.   Do you know of any valves other than those of the heart ?

4. What are the lymphatics and lymphatic glands ?   What is their function ?   What is the microscopic character of the lymph, and what is its fate ?

5. Mention the chief digestive ferments, and explain the kind of action which they exert on the food.   Why are the changes they produce in the food necessary ?   Describe any experiments by which you could support your answer.

6. What are the general properties of nerves ?   Describe any experiments which show the connection between nerves and muscles.

7. Describe the appearance under the microscope of a transverse section of the spinal cord. What kind of action is the spinal cord capable of performing when isolated from the brain ?   Give examples.

8. What is the temperature of the body ?   What is the source of the animal heat, and how is it regulated ?

9. Describe the structure of the eye.   A man is reading a book and suddenly turns his eyes to observe a distant object : what alterations take place in his eyes, and how are they effected ?

BOTANY (alternative with Zoology).

1. Describe, with examples, the chief modes of branching found in stems.   How is the branching of the stem related to the arrangement of the leaves ?

2. Describe the characters of a typical vegetable cell, and point out those which are essential.

3. What is the circulation of the sap?   To what causes is it due, and what course does it take ?

4. Describe the different structures seen in a fibro-vascular bundle, and state how they are related to a simple vegetable cell.

5. Explain how the stem of a dicotyledon increases in length and thickness.

6. What is chlorophyll, and in what form does it occur in plants? From what organs is it always absent? Describe any experiments or observations which throw light on the use of chlorophyll.

7. What is pollen, and how is it formed? Describe the process of fertilisation of any flower. What is cross-fertilisation, and in what ways may it be effected? What are its advantages?

8. Describe as many different fruits as you can in common garden-plants belonging to the Rosaceæ, and show how they are formed from the flowers.

9. Describe the characters of the flower and fruit in plants belonging to the Coniferæ, Compositæ, Ranunculaceæ, Cyperaceæ, Umbelliferæ, and Polygoneæ.

Shorthand.—For Junior and Senior Civil Service. Time allowed: 3 hours.

INSTRUCTIONS TO SUPERVISORS.

1. Inform candidates before the time for taking up this subject that they may use pen or pencil, and ruled or unruled paper, as they please, for taking notes, but that they must transcribe those notes into longhand with pen and ink.

2. Inform candidates that when once you have commenced to dictate you cannot stop until the passage is finished.

3. Dictate the passages at the following rates of speed : — Junior: (a) 50 words per minute, (b) 80 words per minute, (c) 100 words per minute. Senior: (a) 80 words per minute, (b) 120 words per minute, (c) 150 words per minute.

N.B.—It will be well to practise reading these aloud some time beforehand, looking at a clock, so as to accustom yourself to the speed.

4. Candidates are at liberty to take down the three passages, if they choose. If they do so, all the passages are to be dictated to them before they commence transcribing. If a candidate takes only one or two of the passages he is to commence transcribing as soon as he has finished taking notes. .

5. Inform candidates that rapidity in transcribing notes into longhand is essential, and note carefully on the transcribed copy the exact time taken in transcription.

6. Inform them also that the clearness and accuracy of the shorthand notes (which must in every case be sent in attached to the transcript) will be taken account of by the examiner.

PASSAGES FOR DICTATION.

Junior.—(a.) At the rate of 50 words per minute : " Mr. Speaker, as one of the youngest . . . . lying there still."—*Hansard*, No. 1, 1888, pp. 5, 6. (Takes 10 minutes.) (b.) At the rate of 80 words per minute : " Sir, in rising . . . . disposal of all Native lands."—*Hansard*, No. 1, 1888, p. 9. (Takes 10 minutes.) (c.) At the rate of 100 words per minute : " As we are not . . . . revival of the mining industry."—*Hansard*, No. 1, 1888, pp. 16, 17. (Takes 5 minutes.)

Senior.—(a.) At the rate of 80 words per minute : " I am very glad . . . . kept in employment."—*Hansard*, No. 1, 1888, pp. 22, 23. (Takes 10 minutes.) (b.) At the rate of 120 words per minute : " So that the Bill . . . . term of three years."—*Hansard*, No. 4, 1888, pp. 271, 272. (Takes 10 minutes.) (c.) At the rate of 150 words per minute : " I think the one great . . . . after their death."—*Hansard*, No. 5, 1888, p. 273. (Takes 5 minutes.)