NEW SOUTH WALES

DEPARTMENT OF EDUCATION

LEAVING CERTIFICATE EXAMINATION, 1961

TIME TABLE

NOTE.—No allowance will be made by the Board of Secondary School Studies where a candidate fails to attend an examination session through a misreading of the Time Table.

Date	Hours	Subject
November, 1961		
Tuesday, 7th	10 a.m. to 12.10 p.m.	English (Literature).
	2 p.m. to 4.10 p.m.	English (Expression).
Wednesday, 8th	9.20 a.m. to 12.30 p.m.	Modern History or Social Studies.
	1.50 p.m. to 5 p.m.	German.
Thursday, 9th	9.20 a.m. to 12.30 p.m.	Mathematics I.
	1.50 p.m. to 5 p.m.	General Mathematics.
Friday, 10th	9.20 a.m. to 12.30 p.m.	Geography.
	1.50 p.m. to 5 p.m.	Latin or Russian or Metalwork (Theory).
Monday, 13th	9.20 a.m. to 12.30 p.m.	French.
	1.50 p.m. to 5 p.m.	Needlecraft or Sheep Husbandry and Wool Science or Applied Mathematics.
Tuesday, 14th	9.20 a.m. to 12.30 p.m.	Chemistry or Combined Physics and Chemistry.
	1.50 p.m. to 5 p.m.	Descriptive Geometry and Drawing I or Theory of Music or Music (New Syllabus).
Wednesday, 15th	9.20 a.m. to 12.30 p.m.	Physics or Home Economics.
	1.50 p.m. to 5 p.m.	Descriptive Geometry and Drawing II or Italian.
Thursday, 16th	9.20 a.m. to 12.30 p.m.	Economics.
	1.50 p.m. to 5 p.m.	Botany or Biology.
Friday, 17th	9.20 a.m. to 12.30 p.m.	Mathematics II.
	1.50 p.m. to 5 p.m.	Art (Paper I) or Hebrew.
Monday, 20th	9.20 a.m. to 12.30 p.m.	Art (Paper II) or Japanese or Greek.
	1.50 p.m. to 5 p.m.	Ancient History.
Tuesday, 21st	9.20 a.m. to 12.30 p.m.	Farm Mechanics or Woodwork (Theory) or Chinese.
	1.50 p.m. to 5 p.m.	Geology or Agriculture.
Wednesday, 22nd	9.20 a.m. to 12.30 p.m.	Physiology and Hygiene or Dutch.
	1.50 p.m. to 5 p.m.	Zoology or Accountancy.
		HONOURS PAPERS
Thursday, 23rd	9.20 a.m. to 12.30 p.m.	Mathematics I.
	1.50 p.m. to 5 p.m.	English.
Friday, 24th	9.20 a.m. to 12.30 p.m.	Latin.
	1.50 p.m. to 5 p.m.	Geography.
Monday, 27th	9.20 a.m. to 12.30 p.m.	Modern History.
	1.50 p.m. to 5 p.m.	Mathematics II or Music.
Tuesday, 28th	9.20 a.m. to 12.30 p.m.	Physics or Physiology and Hygiene.
	1.50 p.m. to 5 p.m.	Botany or Biology or Greek or Italian.

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	1.50 p.m. to 5 p.m.	Botany or Biology.
Friday, 17th	9.20 a.m. to 12.30 p.m.	Mathematics II.
	1.50 p.m. to 5 p.m.	Art (Paper I) or Hebrew.
Monday, 20th	9.20 a.m. to 12.30 p.m.	Art (Paper II) or Japanese or Greek.
	1.50 p.m. to 5 p.m.	Ancient History.
Tuesday, 21st	9.20 a.m. to 12.30 p.m.	Farm Mechanics or Woodwork (Theory) or Chinese.
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	1.50 p.m. to 5 p.m.	Geography.
Monday, 27th	9.20 a.m. to 12.30 p.m.	Modern History.
	1.50 p.m. to 5 p.m.	Mathematics II or Music.
Tuesday, 28th	9.20 a.m. to 12.30 p.m.	Physics or Physiology and Hygiene.
	1.50 p.m. to 5 p.m.	Botany or Biology or Greek or Italian.
Wednesday, 29th	9.20 a.m. to 12.30 p.m.	French.
	1.50 p.m. to 5 p.m.	Economics.
Thursday, 30th	9.20 a.m. to 12.30 p.m.	Chemistry or Combined Physics and Chemistry or Japanese.
	1.50 p.m. to 5 p.m.	Zoology or Agriculture.
December, 1961		
Friday, 1st	9.20 a.m. to 12.30 p.m.	Ancient History.
	1.50 p.m. to 5 p.m.	Geology or German.

IMPORTANT (See over)

Department of Education

LEAVING CERTIFICATE EXAMINATION, 1961

Chemistry

PASS PAPER

Chief Examiner: L. E. LYONS, B.A., M.Sc., Ph.D.

Assessors: L. A. BASSER, B.Sc., Dip.Ed.
R. W. STANHOPE, M.Sc., Dip.Ed.

Part B

Attempt *all* questions.

Commence the answer to each question on a fresh page.

No answer will be considered complete unless all relevant equations are given.

Marks

1. (*a*) Commencing with sodium chloride describe how each of the following is made *industrially*:—
   (i) Sodium hydroxide.
   (ii) Sodium carbonate. **11**

   (*b*) State and explain by reference to relevant properties two uses for each of these substances. **4**

2. (*a*) Robert Boyle took a weighed quantity of lead, placed it in a larger glass container and sealed the container which was then heated over a flame. All the lead changed in appearance to powder. The container was opened, the powder removed and weighed. The powder weighed more than the original lead.

   Boyle said (A) that the heat was the only thing able to have entered the container through the glass. He then said (B) that therefore the heat had weight.

   (i) Discuss whether statement (A) is correct and whether statement (B) is correct. Does (B) follow from (A)? Explain. **5**
   (ii) Give a full description, with chemical equations, of what could have happened in the experiment. **3**
   (iii) Discuss whether Boyle's experiment was adequate to test whether heat had weight. **3**

   (*b*) If Boyle had added concentrated nitric acid to the residue in his container, what reactions could have taken place? **4**

3. A compound contains 54·5 per cent. carbon, 9·1 per cent. hydrogen and 36·4 per cent. oxygen. Its relative vapour density is 22.

   Calculate—
   (*a*) its empirical formula; **4**
   (*b*) its molecular formula; **2**
   (*c*) the volume of oxygen at standard temperature and pressure necessary for the complete combustion of 1 gram-molecule of the compound; **4**
   (*d*) the volume at 740 mm. and 24° C. of the gaseous combustion products formed from 1 gram-molecule of the compound. **5**

   (Atomic weights: H = 1; C = 12; O = 16.)

4. (*a*) The element cadmium (Cd) is always divalent. Its oxide and sulphide are insoluble; its chloride is soluble.

   1·000 g of cadmium oxide is dissolved in hydrochloric acid, and H_2S is then passed through the solution till all the cadmium has been precipitated as sulphide. The precipitate is filtered, washed and dried and then weighs 1·125 g. What is the atomic weight of Cd? **7**

   (*b*) What reactions occur when (i) potassium permanganate solution and (ii) potassium dichromate solution is added to a solution of iron (II) (i.e., ferrous) sulphate acidified with sulphuric acid? Explain why the various colour changes occur. **4**

   (*c*) Give *one* chemical test to distinguish between—

NEW SOUTH WALES

Department of Education

LEAVING CERTIFICATE EXAMINATION, 1961

English

PASS PAPER A—LITERATURE

Chief Examiner: Professor H. J. Oliver, M.A.

Assessors: Miss G. Bell, M.A.
Mr. C. W. McLaren, B.A.

Time allowed—Two hours.

Answer all *four* questions

Give up your answers in *one* bundle

Marks

24 1. Answer all four parts of this question—(*a*), (*b*), (*c*) and (*d*).

(*a*) Answer the three questions printed below the following lines from *Macbeth*:—

MACBETH. Give me your favour: my dull brain was wrought
With things forgotten. Kind gentlemen, your pains
Are register'd where every day I turn
The leaf to read them.—Let us toward the King.—
[*To Banquo*] Think upon what hath chanc'd; and at more time,
The Interim having weigh'd it, let us speak
Our free hearts each to other.

(i) What are the "things forgotten" with which Macbeth alleges his "dull brain was wrought"?

(ii) Put into your own words the phrase "the Interim having weigh'd it".

(iii) *Why* does Macbeth want Banquo to "think upon what hath chanc'd"?

(*b*) Answer the three questions printed below the following lines:—

CATHNESS. Great Dunsinane he strongly fortifies.
Some say he's mad; others, that lesser hate him,
Do call it valiant fury: but, for certain,
He cannot buckle his distemper'd cause
Within the belt of rule.

(i) What has Macbeth done, at this stage of the play, that "some" should "say he's mad"?

(ii) What evidence is there for saying that his conduct is "valiant fury"?

(iii) Give in your own words the general sense of the last two lines of the passage.

Marks

(*c*) Answer the three questions below the following lines:—

LADY MACBETH. From this time
Such I account thy love. Art thou afeard
To be the same in thine own act and valour,
As thou art in desire? Would'st thou have that
Which thou esteem'st the ornament of life,
And live a coward in thine own esteem,
Letting "I dare not" wait upon "I would,"
Like the poor cat i' th' adage?

(i) What has Macbeth said or done to cause Lady Macbeth to attack him in this way?

(ii) Does Lady Macbeth's conduct later in the play indicate that from this time she *has* ceased to value Macbeth's love?

(iii) What is it that Macbeth is alleged to "esteem" as "the ornament of life"? Is he mistaken in so esteeming it?

(*d*) Answer the three questions below the following lines:—

MACBETH. How is't with me, when every noise appals me?
What hands are here? Ha! they pluck out mine eyes.
Will all great Neptune's ocean wash this blood
Clean from my hand? No, this my hand will rather
The multitudinous seas incarnadine,
Making the green one red.

(i) What is the "noise" to which Macbeth refers here and why is he appalled by it?

(ii) What does Macbeth mean by saying that hands pluck out his eyes?

(iii) When in the play, and why, does Shakespeare mention again the impossibility of cleaning guilty hands?

12 2. Answer *one* of the following—(*a*) *or* (*b*) *or* (*c*):—

(*a*) "Personally, I do not believe that any serious work of art can be composed except by a writer expressing his own individual, original views in complete independence."

Who wrote this? What evidence was produced to support the conclusion? How convincing did you find that evidence to be?

Or,

(*b*) "Because there is a cult of the primitive, because the white race does show a tendency to abdicate, and because our civilization does find itself in doubting or damning quotation marks, that defence has to be made."

What does the writer mean by "a cult of the primitive"? What does he mean when he says that "the white race does show a tendency to abdicate"? *What* "defence" has he in fact made? What is your opinion of his defence?

Or,

(*c*) From your study of the set texts in *It Seems To Us*, what have you learnt about the ways in which you should—or should not—express a "thoughtful opinion" on a subject of general interest?

12 3. Answer *one* of the following—(*a*) *or* (*b*) *or* (*c*) *or* (*d*) *or* (*e*):—

(*a*) Coleridge said that Wordsworth's part in the *Lyrical Ballads* was to direct the mind "to the loveliness and wonders of the world before us". Choose from the anthology you have studied this year any *two* poems (not necessarily by Wordsworth) that seem to you to achieve this aim. Show *how* they achieve it.

Marks

(*b*) "Men must work and women must weep": what different treatments of this theme do you find in *Ile* and *Riders to the Sea*? Which play seems to you the more successful in bringing out the tragedy of the woman concerned?

Or,

(*c*) "While there may be a place in the short play for full characterisation, a play can be good if it has only a few character-types, adequately distinguished from each other." Demonstrate this by a discussion of at least two plays from the prescribed selection.

Or,

(*d*) Do you agree that there is no time in the short-story for the portrayal of character? Justify your opinion, with reference to at least *two* of the following stories:—

"And Women Must Weep", "John Price's Bar of Steel", "The Stump", and "The Pelican".

Or,

(*e*) On the evidence of *Australian Short Stories*, what have you to say about the charge that Australian humour is never subtle? What types of humour have you discovered in the anthology?

12 4. Answer *one* of the following—(*a*) *or* (*b*) *or* (*c*) *or* (*d*) *or* (*e*):—

(*a*) From the anthology of poetry you have studied this year, choose *two* poems—one from each of two different periods, fifty years or more apart. By comparison and contrast, use the two poems to show that the idea of good poetry in one period differed from that in the other.

Note.—In answering this question you may *not* use poems that you have treated in answering 3(*a*).

Or,

(*b*) Do you agree or disagree with the opinion that in *David Copperfield* Dickens's humour is much better than his pathos? Base your answer on a discussion of one humorous scene and one pathetic scene.

Or,

(*c*) "Dickens was none too certain about the portrayal of *developing* character. His best people are always absolutely static." Make a brief general comment on this and then discuss the question with special reference to *two* of the following characters:—

David Copperfield, Mr. Micawber, Uriah Heep, Traddles.

Or,

(*d*) Is Irene, in *The Man of Property*, a credible character? Do you find her personality as attractive as the majority of the characters in the novel seem to find it?

Or,

(*e*) "He walked home, and going upstairs, woke Emily out of the first sleep she had had for four-and-twenty hours, to tell her that it was his impression things were in a bad way at Soames'; on this theme he descanted for half an hour, until at last, saying that he would not sleep a wink, he turned on his side and instantly began to snore." From this paragraph what do you learn about James Forsyte? about Forsytism? about Galsworthy's style?

NEW SOUTH WALES

Department of Education

LEAVING CERTIFICATE EXAMINATION, 1961

English

PASS PAPER B—EXPRESSION

Chief Examiner: Professor H. J. OLIVER, M.A.

Assessors: Miss G. BELL, M.A.
Mr. C. W. MCLAREN, B.A.

Time allowed—Two hours

Answer all *three* questions. Give up your answers in *one* bundle

Note that this paper has been so designed as to test your ability to express yourself, without making it necessary for you to write quickly. You should spend part of your time thinking, and arranging your thoughts, before you even begin to write; later you should revise what you have written, in order to be certain that your punctuation and spelling are correct and that there are no errors of expression of any kind. Your essay, in particular, will be judged on correctness of expression as well as on content and coherence.

You are advised to spend three-quarters of an hour on Question 1, three-quarters of an hour on Question 2, and half an hour on Question 3.

Marks

15 1. Below are printed twelve statements, arranged in pairs so that in each pair one statement seemingly contradicts the other. Choose any *one* of the statements and write on it an essay of about two pages in length (approximately 500 words). In your essay show that you appreciate also the point of view represented by the statement that is bracketed with the one you choose. For example, if you choose to write an essay on the topic "Look before you leap", you must make some reference to the seemingly contradictory "He who hesitates is lost"; if you choose "The returned traveller is the greatest of bores", you must pay some attention to the opinion that "Travel broadens the mind".

(*a*) (i) Look before you leap.
(ii) He who hesitates is lost.

(*b*) (i) Travel broadens the mind.
(ii) The returned traveller is the greatest of bores.

(*c*) (i) It's never too late to mend.
(ii) What's done cannot be undone.

(*d*) (i) Appearances are deceptive.
(ii) Seeing is believing.

(*e*) (i) One is never too old to learn.
(ii) You can't teach an old dog new tricks.

(*f*) (i) Clothes make the man.
(ii) You can't judge a book by its cover.

Marks

(*b*) "Men must work and women must weep": what different treatments of this theme do you find in *Ile* and *Riders to the Sea*? Which play seems to you the more successful in bringing out the tragedy of the woman concerned?

Or,

(*c*) "While there may be a place in the short play for full characterisation, a play can be good if it has only a few character-types, adequately distinguished from each other." Demonstrate this by a discussion of at least two plays from the prescribed selection.

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NEW SOUTH WALES

Department of Education

LEAVING CERTIFICATE EXAMINATION, 1961

English

PASS PAPER B—EXPRESSION

Chief Examiner: Professor H. J. OLIVER, M.A.

Assessors: Miss G. BELL, M.A.
Mr. C. W. MCLAREN, B.A.

Time allowed—Two hours

Answer all *three* questions. Give up your answers in *one* bundle

Note that this paper has been so designed as to test your ability to express yourself, without making it necessary for you to write quickly. You should spend part of your time thinking, and arranging your thoughts, before you even begin to write; later you should revise what you have written, in order to be certain that your punctuation and spelling are correct and that there are no errors of expression of any kind. Your essay, in particular, will be judged on correctness of expression as well as on content and coherence.

You are advised to spend three-quarters of an hour on Question 1, three-quarters of an hour on Question 2, and half an hour on Question 3.

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(*e*) (i) One is never too old to learn.
(ii) You can't teach an old dog new tricks.

(*f*) (i) Clothes make the man.
(ii) You can't judge a book by its cover.

Marks

15 2. Read carefully the following passage and then answer the questions printed after it. The underlining has no other purpose than to enable you to find easily the words referred to in the questions.

Behind the growth of the London waterside the docks of London spread out unsuspected, smooth, and placid, lost amongst the buildings like dark lagoons hidden in a thick forest. They lie concealed in the intricate growth of houses with a few stalks of mast-heads here and there overtopping the roof of some four-story warehouse.

It is a strange conjunction this of roofs and mast-heads, of walls and yard-arms. I remember once having the incongruity of the relation brought home to me in a practical way. I was the chief officer of a fine ship, just docked with a cargo of wool from Sydney, after a ninety days' passage. In fact, we had not been in more than half an hour and I was still busy making her fast to the stone posts of a very narrow quay in front of a lofty warehouse. An old man, with a grey whisker under the chin and brass buttons on his pilot-cloth jacket, hurried up along the quay hailing my ship by name. He was one of those officials called berthing-masters—not the one who had berthed us, but another who, apparently, had been busy securing a steamer at the other end of the dock. I could see from afar his hard blue eyes staring at us, as if fascinated, with a queer sort of absorption. I wondered what that worthy sea-dog had found to criticise in my ship's rigging. And I, too, glanced aloft anxiously. I could see nothing wrong there. But perhaps that superannuated fellow-craftsman was simply admiring the ship's perfect order aloft, I thought, with some secret pride; for the chief officer is responsible for his ship's appearance, and as to her outward condition, he is the man to praise or blame. Meantime the old salt (" ex-coasting skipper " was writ large all over his person) had hobbled up alongside in his bumpy, shiny boots, and, waving an arm, short and thick like the flipper of a seal, terminated by a paw, red as an uncooked beefsteak, addressed the poop in a muffled, faint roaring voice, as if a sample of every North-Sea fog of his life had been permanently lodged in his throat: " Haul 'em round, Mr. Mate! " were his words. " If you don't look sharp, you'll have your topgallant yards through the windows of that 'ere warehouse presently! " This was the only cause of his interest in the ship's beautiful spars. I own that for a time I was struck dumb by the bizarre associations of yard-arms and windowpanes. To break windows is the last thing one would think of in connection with a ship's topgallant yard, unless, indeed, one were an experienced berthing-master in one of the London docks. This old chap was doing his little share of the world's work with proper efficiency. His little blue eyes had made out the danger many hundred yards off. His rheumaticky feet, tired with balancing that squat body for many years upon the decks of small coasters, and made sore by miles of tramping upon the flagstones of the dock side, had hurried up in time to avert a ridiculous catastrophe. I answered him pettishly, I fear, and as if I had known all about it before.

" All right, all right! can't do everything at once."

He remained near by, muttering to himself till the yards had been hauled round at my order, and then raised again his foggy, thick voice:

" None too soon," he observed, with a critical glance up at the towering side of the warehouse. " That's a half-sovereign in your pocket, Mr. Mate. You should always look first how you are for them windows before you begin to breast in your ship to the quay."

It was good advice. But one cannot think of everything or foresee contacts of things apparently as remote as stars and hop-poles.

Marks

(*a*) Suggest a suitable title for this passage.

(*b*) Of what period is the author writing? Briefly give your reasons for the dating you suggest.

(*c*) What is meant by " a strange conjunction " of roofs and masts? In particular, why is the " conjunction " strange?

(*d*) Express in your own words the phrase " with a queer sort of absorption ".

(*e*) Why is the old man called a " superannuated fellow-craftsman "? Explain both those words.

(*f*) Explain the meanings of the following words and phrases (they are given in the order in which they appear in the passage):—

(i) placid;
(ii) writ large all over his person;
(iii) bizarre;
(iv) coasters;
(v) flagstones;
(vi) pettishly.

(*g*) Write down two similes used in the passage.

(*h*) What other title is used of the Chief Officer of a sailing ship?

10 3. Answer all three parts of this question—i.e. (*a*), (*b*) and (*c*).

(*a*) Make any necessary corrections, or desirable improvements in expression, in the following paragraph. You must also explain carefully *why* you have made each alteration:—

Some tennis players, as Hoad and Rosewall, have been so successful in England as literally to have set the Thames on fire; and when one looks at their performance from a population angle, one sees that Australia is quite unique in having produced so many fine athletes. Moreover, as soon as one good player loses his form, he is quickly substituted by another just as good; each of them carry on where the others leave off.

(*b*) Copy out the following passage and then punctuate it (*as one sentence*):—

I didn't get as far as Adelaide my car wasn't good enough for that but the towns that I did see were interesting for three reasons they showed the colonial style of architecture they had different trades and occupations and best of all they illustrated the wealth of the country

(*c*) In each of the following sentences replace the underlined phrase by one word that gives the exact meaning. (Do not use the names of people or literary characters.)

(i) When the building was completed, the temporary framework on which the builders stood or sat to work was removed.

(ii) The players were superior in number to the spectators.

(iii) There are times when people who naturally incline to the cheeriest view are unwelcome.

(iv) The difference between what he said and what he did showed that he was a man who hid his true feelings and thoughts by pretending to be better than he really was.

NEW SOUTH WALES

Department of Education

LEAVING CERTIFICATE EXAMINATION, 1961

French

PASS

Chief Examiner: Dr K. J. GOESCH

Assessors: Mr K. L. MORRIS
Mr C. A. WATSON

Time allowed—Three hours

The answers are to be given up in FIVE SEPARATE BOOKS, *which are to be marked clearly* **A, B, C, D** *and* **E.**

Part A

Marks

20 1. Translate into English:

Entrant dans mon petit champ, j'y vis quelque chose qui se roulait sur le dos, les pattes en l'air, écrasant le blé à droite et à gauche, se relevant, sautant, broutant, et ayant l'air d'être tout à fait à son aise. Je fus un moment sans oser

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Marks

courir dessus, ne connaissant pas quelle bête c'était. Je n'en distinguais bien que les oreilles, qui étaient trop longues pour appartenir à un cheval; mais le corps était trop noir et trop gros pour être celui d'un âne. Je m'en approchai doucement; la bête ne paraissait ni méchante ni farouche, et je connus alors que c'était un mulet, quoique je n'en eusse pas vu souvent, car on n'en élève point dans nos pays, et les muletiers n'y passent guère. Je m'apprêtais à le prendre et le tenais déjà à la crinière, quand, se levant d'un bond et lâchant une douzaine de ruades contre lesquelles je n'eus que le temps de me protéger, il sauta comme un lièvre par-dessus le fossé et se sauva si vite qu'en un moment je l'eus perdu de vue.

Part B

20 2. Translate into English:

Quelques instants plus tard, Jacques rentra dans sa chambre, la figure gonflée par les larmes, le regard en feu. Il s'avança vers la glace et se dévisagea férocement. Mais il entendit marcher dans le couloir; sa serrure n'avait plus de clef; il entassa une barricade contre la porte. Puis, se précipitant à sa table, il griffonna quelques lignes au crayon, glissa le feuillet dans une enveloppe, écrivit l'adresse, mit un timbre, et se leva. Il était comme égaré. A qui confier cette lettre? Il entrouvrit la fenêtre. Le matin était gris; la rue déserte. Mais, là-bas, une vieille dame et un enfant venaient sans se presser. Jacques laissa tomber la lettre, qui tournoya, tournoya, et vint se poser sur le trottoir. Il recula précipitamment. Lorsqu'il hasarda de nouveau la tête au-dehors, la lettre avait disparu; la dame et l'enfant s'éloignaient.

Alors, à bout de forces, il poussa un gémissement de bête blessée et se jeta sur son lit, mordant l'oreiller pour étouffer ses cris: il lui restait juste assez de conscience pour vouloir priver les autres du spectacle de son désespoir.

Part C

Marks

30 3. Translate into French:

It was hot in the classroom, and the lesson was most boring. The French teacher, Mr Jones, was busy writing a long sentence on the blackboard, so John quietly opened his bag and took out his birthday present. It was a physics book. John wanted to become an engineer when he left school.

"Stand up, Smith," said Mr Jones, turning round suddenly and pointing at John before the latter could hide his book. "What are you reading under the desk?"

"It's a book, sir," replied John, handing it to the teacher. "It is my birthday to-day, and my uncle gave it to me. I didn't have time to look at it before I left home."

"You ought to be ashamed of yourself," exclaimed Mr Jones impatiently. "May I ask how old you are?"

"I'm sixteen, sir."

"Very good! I shall give it back to you in sixteen days' time. In future, I want you to pay attention to what I am saying."

Part D

15 4. Write *one* complete French sentence of from twenty to twenty-five words in answer to each of any *five* of the following questions:

(*a*) Quel genre de livres aimez-vous lire? Pourquoi?

(*b*) Si vous ne pouviez plus vivre en Australie, dans quel autre pays aimeriez-vous vivre? Pourquoi?

(*c*) Quel est d'après vous le sport le plus dangereux? Pourquoi?

(*d*) Que pensez-vous des examens?

Marks

(*e*) Dans quelles circonstances se sert-on d'une torche électrique?

(*f*) Quel est d'après vous le meilleur métier? Pourquoi?

(*g*) Vous avez étudié en classe cinq contes modernes; lequel préférez-vous? Pourquoi?

(*h*) Que feriez-vous si vous trouviez dans la rue un objet de valeur?

(*i*) Si vous aviez le choix entre un film dramatique et un film comique, lequel iriez-vous voir? Pourquoi?

(*j*) Que feriez-vous si vous étiez le seul témoin d'un grave accident sur la route?

Or,

Write in French a composition of about 100 words on the following subject:

Une vieille automobile raconte son histoire.

Or,

Write *five* complete French sentences, each of no less than twenty words, using *in each sentence* at least two different words taken from the following list:

Lycée, horloge, sonner, hiver, saigner, froid, plage, amusant, arbre, pleuvoir, jouer, film, soleil, voler, liberté, maison, cour, baigner, manger, cinéma, courir, captivité, pêche, bateau, oiseau, policier, camarade, cher, jeu, mer, élève, pelouse, comique, nid, blessé, marcher, tronc, voiture, étudier, bruit, cloche, cartable.

Part E

The passages quoted in this Part are not to be translated

15 5. Answer briefly the questions set on *five* of the following passages:

(*a*) Le drame éclata le lendemain. Le Kommandant se plaignit amèrement au *Doyen* de « l'incorrection et de l'indélicatesse » des officiers français. Le *marchand de spectacles*, à l'entendre, était un philanthrope, dont on avait, cruellement, abusé la généreuse candeur.

(i) To what incident does the above passage refer?

(ii) Explain the word *Doyen.*

(iii) Who was the *marchand de spectacles*?

(*b*) Il n'y avait que quelques pas à faire. Le fleuve était là, coulant au-dessous de vous, entre ses digues. Elle a jeté le *paquet* dans le fleuve, en le tenant par l'autre bout de la ficelle qu'elle n'a plus eu qu'à attacher au tronc d'un arbre.

(i) What was the *paquet*?

(ii) Explain the reason for the action described.

(iii) Describe briefly the setting of the story from which this passage is taken.

(*c*) A gauche, l'habituel groupe des bavards était à l'abri d'un hangar. Une matinée comme les autres; et pourtant, il n'était personne pour ignorer que l'*Enez-Sun*, en plus de sa *cargaison coutumière*, avait jeté ce jour-là dans l'île un *lambeau de mystère.*

(i) In what way does the name *Enez-Sun* indicate the setting of the story?

(ii) What was its *cargaison coutumière*?

(iii) What was the *lambeau de mystère* that had been brought to the island?

(*d*) C'était sur elle que s'abattait invariablement *la mauvaise chance.* La persienne qui claqua toute la nuit au rythme brutal de la tempête, c'était celle de sa chambre, de sorte qu'elle ne ferma l'œil qu'au petit jour. Et alors, chacun se donna le mot pour ouvrir et

refermer bruyamment *la porte d'en face*, et cela finissait chaque fois par un vacarme de chasse d'eau.

(i) To whom does this passage refer?

(ii) Give one other example of how this person was pursued by *la mauvaise chance*.

(iii) Explain the reference to *la porte d'en face*.

(*e*) — Mater Ernest Romazilhe? Pauvre petite! Ecoutez-moi... Vous n'avez pas de billet de retour? Non, naturellement... C'est dommage! Si nous avions fait connaissance à la gare de Bordeaux, je vous aurais dit de prendre un billet de retour. Savez-vous ce que vous devriez faire? C'est de rester dans le train, il repart de Millasse à 9 heures; vous serez revenue à Bordeaux vers minuit. Le *dix-huitième institutrice* ne sera même pas descendue du train... Ça! par exemple!

(i) Who is the speaker?

(ii) Why does he give this advice?

(iii) What is the significance of *dix-huitième institutrice*?

(*f*) Le drôle passa tout près d'elle, sans la voir, tenant à la main une bougie. Il avait jeté un couvre-pied rouge sur ses épaules et ainsi déguisé, avec ses jambes nues, son beau visage un peu *gras et bilieux*, ses yeux de fièvre, c'était un *Néron enfant*: un petit César prisonnier, gardé à vue dans son palais.

(i) What incident is referred to in this passage?

(ii) Explain *gras et bilieux*.

(iii) What is the significance of the expression *Néron enfant* in this context?

(*g*) Je n'aurai pas eu longtemps à attendre le plaisir de vous donner de mauvaises nouvelles. La présente est pour vous avertir qu'elles sont aussi épouvantables que possible: avec Mme Lanosse, nous avons découvert que cette poison avait jeté un sort aux Romazilhe (et même je me demande comment vous n'avez pas reçu le sort, vous aussi, puisqu'on a dû vous emmener de force, pauvre malheureuse femme que vous êtes !).

(i) To whom is the letter from which this passage is extracted addressed?

(ii) In what way does it reveal the character of its writer?

(iii) Name two incidents to which the writer refers.

NEW SOUTH WALES

Department of Education

LEAVING CERTIFICATE EXAMINATION, 1961

Mathematics I

PASS PAPER

Chief Examiner: T. G. Room, Sc.D.

Assessors: H. Mulhall, B.Sc., Ph.D.
E. S. Rolfe, B.Sc., Dip.Ed.

Time allowed—Three hours

Candidates may attempt all questions.

Question 1 carries 30 marks and the other questions 10 marks each.

Except in Question 1, marks will not be awarded to answers where the work is not shown.

Marks will be deducted for careless or badly arranged work.

Mathematical Tables and Squared Paper will be provided.

Slide rules may not be used.

Answers to the two Parts of this Paper are to be returned in *separate books* marked A or B.

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Part A

1. (i) Simplify

$$\frac{1}{\sqrt{3}-1} - \frac{\sqrt{3}-1}{2}.$$

(ii) Find a and b if

$$\sqrt{8-\sqrt{60}} = \sqrt{a} - \sqrt{b}.$$

(iii) Find x if

$$a^x = cb^x.$$

(iv) If α, β are roots of the equation

$$3x^2 - 15x + 7 = 0,$$

calculate

$$\frac{1}{\alpha} + \frac{1}{\beta}.$$

(v) Given that

$$\frac{dy}{dx} = \frac{1}{x^2},$$

and that $y = 2$ when $x = 1$, what is the value of y when $x = 2$?

(vi) Find the equation of the tangent to the curve

$$y = x^2 + \frac{2}{x^2}$$

at the point where $x = 1$.

(vii) Find the value of

$$\sum_{n=1}^{10} (10n + 2^n).$$

(viii) A particle moves along a straight line so that its distance x from a fixed point O at time t is given by

$$x = 2\cos \tfrac{1}{4}t.$$

What is the acceleration of the particle when $t = \frac{4\pi}{3}$?

(ix) If

$$x^2 + 2y^2 = 17,$$

find the value of $\frac{dy}{dx}$ when $x = -3$ and $y = 2$.

(x) Calculate

$$\int_1^4 \left(\sqrt{x} - \frac{2}{\sqrt{x}}\right) dx.$$

2. (i) Differentiate—

(a) $\frac{1}{x}\sqrt{(1+x^2)}$;

(b) $x^2 \cos 2x$.

(ii) Integrate—

(a) $\frac{1}{\sqrt{(2+3x)}}$;

(b) $\cos^2 x$.

(iii) What is the value of $\int_0^{\frac{1}{2}\pi} \cos^2 x \, dx$?

3. On the same diagram draw the graphs of the relations—

(a) $\frac{y}{10} = -2 + x \log_{10}\frac{5}{4}$;

(b) $\frac{y}{10} = \log_{10} x - 1$,

each for values of x between 20 and 30. Careful attention should be given to the selection of scales in the graphs.

Use your graphs to find an approximate value for the root of the equation $10x = (\frac{5}{4})^x$ that lies in this range, and check your answer from the tables.

Part B

4. (i) Solve the equations

$$2x - y = 4$$
$$8x^3 - y^3 = 28.$$

(ii) Show that

$$\frac{1}{(\sqrt{3}-1)^4} + \frac{1}{(\sqrt{3}+1)^4} = \frac{7}{2}.$$

5. (i) The intensity, x, of illumination produced at a point by a source of light is proportional to the strength, S, of the source and inversely proportional to the square of the distance, d, of the point from the source. Write down an equation expressing these relations.

A source of strength 36 units is 12 feet from a given point P. If the source is moved to a position 20 feet from P to what value must its strength be increased if the intensity of illumination at P is to remain unaltered?

(ii) A is a fixed point on the circumference of a circle centre O and of radius 1 foot. A point P moves at uniform speed round the circumference so as to describe it once in 1 second.

When the angle AOP is 60° find the rate of increase of—

(*a*) the length of the chord AP;

(*b*) the area of the triangle AOP.

6. Find the gradient of the curve

$$y = -x^3 + x^2 + 2x$$

at each of the points where it cuts the x-axis.

Draw a sketch of this curve (not on graph paper).

On the same diagram sketch the curve $y = x(2 - x)$ and calculate the area enclosed by the two curves between $x = 0$ and $x = 2$.

7. Find the maximum value of

$$y = (1 - x)^2(5x)^{\frac{1}{2}},$$

for values of x between 0 and 1.

Find the volume enclosed by the surface which is generated when this curve rotates about the x-axis.

8. How many five-digit numbers can be formed from the digits 1, 2, 3, 4, 5—

(*a*) without repeating any digit;

(*b*) allowing each digit to be used any number of times?

Consider now the numbers less than 3,000 which can be formed from four or fewer of the digits 1, 2, 3, 4, 5 (without repeats)—

(*c*) how many of these are there altogether;

(*d*) one of these numbers is selected at random. What is the probability that it is divisible by 5?

(ii) A is a fixed point on the circumference of a circle centre O and of radius 1 foot. A point P moves at uniform speed round the circumference so as to describe it once in 1 second.

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(*d*) one of these numbers is selected at random. What is the probability that it is divisible by 5?

NEW SOUTH WALES

Department of Education

LEAVING CERTIFICATE EXAMINATION, 1961

Mathematics I

HONOURS PAPER

Chief Examiner: Professor T. G. Room, Sc.D.

Assessors: H. Mulhall, B.Sc., Ph.D.
G. M. Kelly, B.A., Ph.D., B.Sc.

Time allowed—Three hours

Candidates may submit answers to *eight* questions only.

The questions are of equal value.

Marks will not be awarded to answers where the work is not shown.

Marks will be deducted for careless or badly arranged work.

Mathematical tables and squared paper will be provided.

1. Find the indefinite integrals—

(i) $\int \frac{x\,dx}{(1-x)(1+x^2)}$;

(ii) $\int x\cos^2 x\,dx$;

(iii) $\int \frac{dx}{(1-x)\sqrt{1+x}}$.

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2. Calculate the definite integrals—

(i) $\int_0^{\pi/2} \frac{dx}{\cos^2 x + 2\sin^2 x}$;

(ii) $\int_1^2 \frac{(x+1)dx}{\sqrt{-2+3x-x^2}}$.

3. Write down the power series expansion for $\log(1+x)$. For what values of x does this series converge?

Express the sums of the series

$$a = \frac{1}{10} + \frac{1}{2.10^2} + \frac{1}{3.10^3} + \ldots,$$

$$b = \frac{4}{100} + \frac{4^2}{2.100^2} + \frac{4^3}{3.100^3} + \ldots,$$

$$c = \frac{1}{80} - \frac{1}{2.80^2} + \frac{1}{3.80^3} - \ldots,$$

as logarithms, to base e, of rational numbers.

Deduce that

$$\log_e 10 = 23a - 6b + 10c.$$

Calculate the numerical value of $\log_e 10$ to five decimal places.

4. A sequence $u_0, u_1, u_2, \ldots$ is derived from its first term u_0 by means of the relation

$$u_{n+1} - u_n = (1-k)(A - u_n),\ n = 0, 1, 2, \ldots$$

where $A \neq u_0$.

Prove that

$$\frac{u_n - A}{u_0 - A} = k^n.$$

(i) If the sequence contains terms less than A and also terms greater than A show that $k < 0$;

(ii) If u_n approaches a limit as $n \longrightarrow \infty$ show that

$$-1 < k \leqq 1.$$

5. Find the coordinates of the stationary points and the inflexions of the curve

$$y = \frac{18x^2}{(x+1)^3}.$$

Draw a sketch of this curve, on a scale and over a range, which shows its essential features. On your sketch mark the maximum and minimum points, the points of inflexion and the asymptotes.

6. (i) If $y = 0$ when $x = 0$ and if

$$(1 - x^2)\frac{dy}{dx} = 2,$$

find the value of x for which $y = 1$.

Taking $e = 2{\cdot}718$ calculate this value of x to three significant figures.

(ii) Find a definite integral which represents approximately the sum

$$S_n = \sum_{r=1}^{n} \frac{r\sqrt{(n^2 - r^2)}}{n^3}$$

when n is a large positive integer. Deduce that

$$\lim_{n \to \infty} S_n = \frac{1}{3}.$$

7. Sketch the curve

$$y = e^{-x}\sin x$$

for $0 \leqq x \leqq 4\pi$.

Show that y has infinitely many maxima which lie on the curve

$$y = \frac{1}{\sqrt{2}} e^{-x}.$$

Show also that the successive areas enclosed between the curve and the x-axis form a geometric progression, and that the sum of the absolute values of all these areas on the positive side of the y-axis is

$$\frac{1}{2}\frac{e^{\pi}+1}{e^{\pi}-1}.$$

8. (i) Find the limit

$$\lim_{n \to \infty} n\left\{1 - \left(1 + \frac{1}{n}\right)^{-p}\right\}.$$

(ii) If u_n, v_n are positive terms and if $\frac{u_n}{v_n}$ approaches a finite limit as $n \longrightarrow \infty$, show that the series

$$u_1 + u_2 + u_3 + \ldots$$

converges, whenever the series

$$v_1 + v_2 + v_3 + \ldots$$

converges.

(iii) By taking

$$v_n = \frac{1}{n^p} - \frac{1}{(n+1)^p}$$

and making use of the results in (i) and (ii), show that the series

$$\frac{1}{1^{1+p}} + \frac{1}{2^{1+p}} + \frac{1}{3^{1+p}} + \ldots$$

converges when p is positive.

9. (i) The numbers z_1, z_2, z_3 are represented in the Argand diagram by the points Z_1, Z_2, Z_3. Explain carefully the geometric meaning of

$$\left|\frac{z_1 - z_3}{z_2 - z_3}\right| \quad \text{and} \quad \arg\left(\frac{z_1 - z_3}{z_2 - z_3}\right)$$

in terms of distances and angles in the diagram.

(ii) The points which correspond to z_1, z_2, z_3 and w_1, w_2, w_3 in the Argand diagram form two similar and similarly situated triangles. Show that

$$\begin{vmatrix} z_1 & w_1 & 1 \\ z_2 & w_2 & 1 \\ z_3 & w_3 & 1 \end{vmatrix} = 0.$$

(iii) Show that the points which correspond to z_1, z_2, z_3 form an equilateral triangle if and only if

$$z_1^2 + z_2^2 + z_3^2 = z_2z_3 + z_3z_1 + z_1z_2.$$

10. Through the vertices A, B, C of a given triangle are drawn lines B′C′, C′A′, A′B′ respectively to form an equilateral triangle A′B′C′ which circumscribes the triangle ABC. If $\angle ACB' = \theta$, $\angle ABC' = \varphi$ show that

$$B'C' = \frac{2}{\sqrt{3}}(b \sin\theta + c \sin\varphi).$$

Prove that if the triangle A′B′C′ has maximum area then

$$b\cos\theta - c\cos\varphi = 0.$$

Deduce that this maximum area is

$$2S + \frac{1}{2\sqrt{3}}(a^2 + b^2 + c^2)$$

where a, b, c are the sides and S is the area of the triangle ABC.

NEW SOUTH WALES

Department of Education

LEAVING CERTIFICATE EXAMINATION, 1961

Mathematics II

PASS PAPER

Chief Examiner: T. G. ROOM, Sc.D.

Assessors: H. MULHALL, B.Sc., Ph.D.
E. S. ROLFE, B.Sc., Dip.Ed.

Time allowed—Three hours

Candidates may attempt all questions.

Question 1 carries 30 marks and the other questions 10 marks each.

Except in Question 1 marks will not be awarded to answers where the work is not shown.

Marks will be deducted for careless or badly arranged work.

Mathematical Tables and Squared Paper will be provided.

Slide rules may not be used.

Answers to the two Parts of this paper are to be returned in *separate books* marked A or B.

Part A

1. (i) Write down the equation of the line joining the origin to the point of intersection of the lines

$$2x + 3y + 1 = 0$$
$$x - y + 5 = 0.$$

(ii) The line $2x + y = 4$ meets the x and y axes respectively in A and B. C is the point on the x-axis such that ABC is an isosceles triangle with AC as base. Find the equation of BC.

(iii) If $\tan\theta = \dfrac{a^2 - b^2}{2ab}$, what are the possible values of $\cos\theta$?

(iv) Without using the tables, find as a surd in its simplest form, the value of

$$\frac{\sin 70^\circ + \sin 20^\circ}{\cos 25^\circ}.$$