

APPENDIX A

**LIST OF MORAL VALUES RECOMMENDED
BY THE MINISTRY OF EDUCATION
TO BE INculcATED IN THE KBSM PROGRAMME**

- 1. Compassion/Empathy
- 2. Self-Reliance
- 3. Humility
- 4. Respect
- 5. Love
- 6. Justice
- 7. Freedom
- 8. Courage
- 9. Physical and Mental Cleanliness
- 10. Honesty/Integrity
- 11. Diligence
- 12. Cooperation
- 13. Moderation
- 14. Gratitude
- 15. Rational
- 16. Public Spiritedness

APPENDIX B

LIST OF GOOD MORAL VALUES
RECOMMENDED FOR THE SCIENCE
PROGRAMME AT THE SECONDARY SCHOOL LEVEL

- possessing an enquiring spirit and working confidently and productively on studies into natural phenomenon ; being honest and objective in organising and reporting results of scientific investigations;
- being open-minded as well as being ready to receive other people's ideas and opinions and be ready to change one's ideas and opinions given strong evidence;
- being cooperative and positive with regards to safety in the laboratory;
- appreciating science as an empirical study into things and phenomenon that can be observed and measured;
- being aware that science is only one of the ways to understand nature;
- appreciating and living a clean and healthy life;
- appreciating and caring for living things and beings, appreciative also of their mutual dependency for survival in nature;
- being responsible in the use of natural resources and energy and being appreciative of man's cooperative effort in the management of the environment;
- appreciating the beauty of the environment and working towards maintaining cleanliness for healthy living;
- being cooperative and united in a common effort to maintain the equilibrium of nature;
- being responsible in planning and making decisions that will have an effect on society and the environment.

APPENDIX C

SPECIFICATION OF SCIENCE SYLLABUS
FOR FORM ONE ON THE TOPIC :
INTRODUCTION TO SCIENCE

Learning Objectives	Attitudes and Moral Values	Scientific Skills
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• science and technology		
• systematic knowledge that result from observing the universe.	To discuss objectively and meaningfully about science and technology as well as its contributions.	
• origin of science and its use.		
• laboratory safety		
• introduction to the laboratory.		
• procedures and safety rules related to lab work.	Should always practice a careful and attentive attitude to ensure safety for self and others.	
• rules for putting fire.	To handle the proper type of fire extinguisher in a correct way for different sources of fire.	
• appropriate actions to take in case of accidents in the laboratory.	To take appropriate actions when accidents occur in the laboratory, for example, accidentally swallowing chemicals, cuts and accidentally breathing in poisonous gases.	

knowledge	Attitudes and Moral Values	Scientific Skills
Measurements and the use of S.I. units.		
Measurement of length and the use of the units millimeters (mm), centimeters (cm) and meters (m).	To realise that in scientific investigations, the validity of a result has to be based on several readings.	To measure the length of a straight line using a ruler. To measure the length of a curved line using a thread and ruler.
		To measure diameter using calipers and ruler.
Measurement of area and the use of the units millimeter square (mm^2) and centimeter square (cm^2).		To determine the area of a uniform and non-uniform object by counting the squares on a graph paper.
Measurement of the volume of a liquid and the use of the units milliliter (ml) and liter (l).		To measure the volume of a liquid using a measuring cylinder and a burette.
Measurement of the volume of a solid and the use of the unit centimeter cube (cm^3).		To measure the volume of a solid (uniform and non-uniform) using the displacement of water method.
Measurement of time and the use of the units seconds (s), minutes (min) and hour (hr). Measurement of mass and the use of the units gram (g) and kilogram (kg). Measurement of temperature and the use of the unit degree Celsius ($^{\circ}\text{C}$).		To measure time, mass and temperature using the stop watch, weighing balance and thermometer respectively.

KNOWLEDGE	ATTITUDES AND MORAL VALUES	SCIENTIFIC SKILLS
The use of laboratory apparatus.		
Using the filter funnel for filtration.	Using the correct technique in a simple filtration using a filter paper.	
Using the bunsen burner correctly to get a perfect flame for complete burning and safety procedures in the handling of a bunsen burner.	To appreciate and take care of the science apparatus in the laboratory. To realise the importance of safety when using laboratory apparatus.	Using the bunsen burner with the proper techniques.
The main parts of a microscope and its use.		To handle the microscope with the proper techniques and to make observations of fine things as well as to prepare simple slides.
The use of chemicals		
Pouring solutions.	To practice using chemicals without wasting.	To pour solutions from a reagent bottle and from one container to another with the proper techniques.
Handling dangerous chemicals.	To realise characteristics of chemicals that may be dangerous and take safety precautions in handling them.	To handle chemicals that are corrosive, explosive, flammable with the proper techniques.

knowledge	Attitudes and Moral Values	Scientific Skills
Science Process Skills		
The meaning of scientific investigations and science process skills, for example, to make observations, to record, analyze and interpret data, to make inferences, to make conclusions and to communicate.	To show perseverance when making observations; honest in recording data and observations; make decisions based on a rational mind and to show cooperation in group work.	<p>To perform activities that will develop the science process skills such as :</p> <ul style="list-style-type: none"> i) to make observations objectively and accurately; ii) to analyze and interpret data analytically, objectively and logically in order to make a rational conclusion, iii) to communicate by graphs, tables and reports. iv) to conduct a 'black box' experiment to show how the scientific method is used in investigations and its limitations.

APPENDIX D

TEACHER'S GUIDE FOR
INCULCATION OF VALUES IN SCIENCE
LESSONS USING THE MORAL DILEMMA EPISODES

I. INTRODUCTION

The moral dilemma episodes were written based on five moral values that could be inculcated in the teaching-learning of the first topic in the Form One KBSM Specification of syllabus for science. The moral values are :

- i) Compassion
- ii) Honesty
- iii) Cooperation
- iv) Cleanliness
- v) Responsibility

The episodes were written in the form of short stories followed by two to five discussion questions. Two types of stories had been written :

1. An 'unfinished story' with one or more characters facing some sort of ethical dilemma. The students are supposed to make a decision for the character facing the dilemma.
2. A 'complete story' with all decisions made by the character in the story and the students are to comment on the decisions made.

Five stories were written related to the science content studied in Chapter 1. Each episode will be given to the students at the end of the related lesson. One episode will be presented every week which will take place during the relevant science lessons until the end of Chapter 1.

II. METHODOLOGY

The recommended procedures in implementing this moral dilemmas approach is listed below :

1. Divide the class into small groups of about 8 - 10 students per group.
2. Give each group a printed copy of the episode and the discussion questions. A group leader nominated by the respective groups then reads the story aloud to the group. When all group members have understood the story, the group leader will then read out the first discussion question. All members are required to participate actively in the discussions and a decision has to be made based on the deliberations. This will go on until all the questions have been answered. A rapporteur has to be nominated to note down the group's answers.
3. Each group will be given ten to twenty minutes to discuss.
4. The teacher will discuss each question and write down every group's answer on the board. The teacher has to ensure that the students give valid reasons for every answer. At the end of the discussion, the teacher should try to bring the students to a higher level of moral reasoning according to Kohlberg's moral reasoning stages. (Kohlberg's Levels of Moral Development as shown in Table 1 of Chapter 1 was entered as Appendix I).

5. If time is limited, the teacher could continue the discussions at the beginning of the next lesson.

III. THE MORAL DILEMMA EPISODES

The table below lists down the five episodes, the moral values to be inculcated and the relevant science lessons to introduce them

Episodes	Moral Values	Lesson
A	Responsibility	Fire extinguishers
B	Compassion Cleanliness Responsibility	Any experiment
C	Cooperation Cleanliness	Any experiment
D	Honesty Responsibility	Any experiment
E	Honesty	Measurement

(The moral dilemma episodes were entered as Appendix II in the Teacher's Guide).

APPENDIX E

MORAL DILEMMA EPISODES
(Bahasa Malaysia version)

A. Kebakaran

Puan Wong adalah seorang suri rumah tangga. Beliau mempunyai dua orang anak perempuan, seorang berumur 2 tahun dan seorang lagi berumur 14 tahun. Anaknya yang sulung itu terencat akal. Ibunya yang berumur 70 tahun tinggal bersama-sama di sebuah rumah bungalo di Kelang.

Seperti lazimnya orang-orang di Kawasan Lembah Kelang, rumah mereka telah dipasang dengan palang besi yang kukuh kerana takut pencuri atau perompak masuk.

Suatu hari, setelah siap makan tengah hari, Puan Wong telah menidurkan anak keciinya. Kemudian beliau pergi ke rumah jirannya yang tidak berapa jauh dari rumahnya. Beliau telah mengunci pintu dari luar kerana pada fikirannya ia akan pergi sekejap dan tidak berani pula membiarkan pintu tidak berkunci. Kedua-dua ibu dan anak sulungnya juga sedang tidur.

Setelah sejam setengah dia berada di rumah kawannya, dia pun meminta diri untuk pulang. Alangkah terkejutnya apabila dia pulang dan melihat api menjulang-julang membakar rumahnya. Ahli bomba tidak dapat menyelamatkan anak-anak dan ibunya kerana api terlalu besar dan menghalang mereka mendekati rumah itu.

1. Adakah Puan Wong bertanggungjawab ke atas kematian anak-anak dan ibunya ? Mengapa ?

2. Patutkah ia membawa kunci itu bersama atau pun memberikan kepada ibunya ?
3. Adakah anda fikir bahawa kita patut mempunyai sepasang kunci di rumah ? alat pemadam api ? Mengapa ?
4. Palang besi merupakan suatu perangkap maut di rumah. Jadi, mengapa kita harus memasangnya di rumah ?

B. Malas

Aniza dan Rosnah tinggal sebilik dengan lapan pelajar lagi di asrama. Peraturan asrama ialah setiap pelajar harus membersihkan tempat tidur dan pakaian sendiri. Jika didapati berselerak, pelajar berkenaan akan didenda.

Aniza seorang pelajar yang rajin berkemas dan sentiasa bersih. Rosnah pula adalah seorang pelajar yang terlalu dimanjakan oleh ibubapanya. Dia sangat malas berkemas dan tempat tidurnya sentiasa berselerak. Kain bajunya juga tidak teratur.

Pelajar-pelajar sebilik dengannya tidak suka melihat perangai Rosnah. Aniza sentiasa membantunya mengemas pakaianya dan juga tempat tidurnya. Suatu hari Aniza cuba menasihati Rosnah tetapi telah dimarahinya dan sejak hari itu Rosnah tidak mahu bertegur sapa dengan Aniza.

Suatu hujung minggu, Rosnah balik kampung. Aniza telah menolong mengemas tempatnya yang berselerak. Apabila Rosnah pulang pada petang Ahad itu, dia dapati tempatnya tersusun dan kemas. Dia tidak berkata apa-apa walaupun dia

tahu Aniza yang melakukannya. Esok harinya dia mendengar berita bahawa warden asrama telah mengadakan pemeriksaan mengejut pada hari Sabtu lalu. Nasib baik Aniza telah membantunya, jika tidak, pasti dia kena denda.

1. Patutkah Rosnah menegur Aniza dan meminta maaf ?
Mengapa ?
2. Adakah patut Aniza membantu Rosnah walaupun telah dimarahi dan tidak ditegur ? Mengapa ?
3. Mengapakah mereka mesti mengemas dan membersihkan bilik mereka ?

C. Membersihkan Tandas Sekolah

Yusuf adalah anak seorang ahli perniagaan yang kaya. Dia menuntut di sebuah sekolah di Kuala Lumpur dalam Tingkatan Satu. Semasa perhimpunan pada hari Isnin lalu, pengetua telah mengumumkan bahawa setiap orang pelajar dikehendaki membasuh tandas sekolah secara bergilir-gilir mengikut kelas.

Yusuf telah pulang ke rumah dan memberitahu perkara tersebut kepada kedua-dua ibubapanya. Mereka agak terperanjat dengan pengumuman itu kerana pada fikiran mereka, mencuci tandas bukanlah pekerjaan pelajar sekolah. Pada pendapat mereka, tukang cuci sekolah itu akan menerima gaji buta tanpa membuat kerja.

Bapa Yusuf telah menelefon pengetua sekolah itu dan memberikan pandangannya. Dia juga tidak membenarkan Yusuf

melakukannya. Pengetua sekolah itu tetap menjalankan rancangan walaupun mendapat bantahan daripada para ibubapa. Giliran kelas Yusuf untuk mencuci tandas jatuh pada hari Isnin berikutnya. Semua pelajar kelas dikehendaki datang awal untuk tujuan tersebut.

1. Jika anda adalah Yusuf, adakah anda akan memberikan kerjasama anda ? Mengapa ?
2. Adakah anda akan memberitahu ibubapa anda jika anda membantu mencuci tandas itu ? Mengapa ?
3. Mengapa agaknya pengetua menyuruh pelajar membantu membersihkan tandas sekolah ?
4. Mengapakah pelajar-pelajar harus memberi kerjasama ?

D. Menghadapi Maut

Puan Muna mengidap sejenis penyakit yang sangat berbahaya dan ia sedang menghadapi maut. Ada sejenis ubat yang baru sahaja dicipta yang boleh menyelamatkan nyawanya tetapi ubat ini tidak boleh didapati di mana-mana hospital di negara ini.

Doktor yang mengubati Puan Muna memberitahu suaminya untuk mencari ubat itu di farmasi-farmasi. Setelah puas ia mencari, ubat itu didapati di sebuah farmasi sahaja. Malangnya ubat itu tidak dapat dibelinya kerana harga ubat itu terlalu mahal. Dia terpaksa membeli ubat itu dalam kuantiti yang banyak dan ini tidak termampu olehnya. Suami Puan Muna berusaha meminjam wang dari kawan-kawannya tetapi

tidak juga mencukupi. Issterinys pula memerlukan ubat itu dengan segera.

1. Apakah yang harus dilakukan oleh suami Puan Muna untuk menyelamatkan nyawa isterinya ?
2. Patutkah ia mencuri ubat itu ? Mengapa ?
3. Adakah suami Pn Muna bertanggungjawab jika sesuatu berlaku kepada isterinya ? Mengapa ?

E. Menipu

En. Leong ialah seorang peniaga buah-buahan di sebuah gerai di pasar Petaling Jaya. Dia mempunyai seorang pembantu bernama Lee. Lee tidak lulus SRP dan terpaksa bekerja tetapi dia seorang budak yang jujur.

Suatu hari Lee terserempak dengan En. Leong yang sedang melakukan sesuatu kepada alat penimbang supaya dapat menambahkan timbangan yang sedikit. En. Leong tidak menyedari bahawa Lee telah melihatnya. Dia telah menjual buah-buahan di gerainya 200 gram kurang daripada yang sepatutnya.

1. Apakah yang seharusnya dibuat oleh Lee ?
2. Patutkah dia memberitahu En. Leong apa yang diketahuinya dengan risiko bahawa dia mungkin diberhentikan kerja ?
3. Patutkah dia mengadu kepada pihak berkuasa ?
4. Patutkah dia memberikan pelanggan buah-buahan yang

dibeli dengan timbangan yang sepatutnya tanpa pengetahuan En. Leong ?

5. Jika En. Leong adalah bapanya. apakah yang harus dilakukan oleh Lee?

APPENDIX E

MORAL DILEMMA EPISODES

A. Fire

Mrs Wong is a housewife. She has two daughters aged two and fourteen. Her fourteen year old girl is mentally retarded. Her seventy year old mother also stays with them in a bungalow in Klang.

As is expected with most people who stay in the Klang Valley, all doors and windows are with iron bars or grills. This is to prevent thieves from breaking in.

After lunch one day, Mrs Wong put her baby to sleep and went to pay a visit to her neighbour's house which is not very far from hers. She locked the door thinking that she would be gone for a short while. She dared not leave the door unlock. Both her mother and elder daughter were asleep at that time.

After spending about one and a half hours at her friend's house, she decided to go home. She had the shock of her life when she saw her house engulfed in flames. The firemen could not save her children nor her mother because of the intense heat.

1. Is Mrs Wong responsible for the death of her children and mother ? Why ?
2. Should she have brought the keys together with her or left them with her mother ?
3. Do you think that we should keep spare keys at home ? a fire extinguisher ? Why ?

4. Iron bars across windows can become death traps at home when a fire breaks out. So, why do we still install them at home ?

B. Laziness

Aniza and Rosnah stay in a dormitory with eight other girls in a hostel. The hostel rule is that every student has to clean her own bed and clothes. If they are not kept tidy, the student concerned will be punished.

Aniza is a very industrious student who likes to keep things tidy and clean. Rosnah is a person who has always been pampered by her parents. She is very lazy and her bed is forever untidy. Her clothes are never kept in order.

The other students do not like Rosnah's behaviour. Aniza is forever helping Rosnah to keep her clothes and bed tidy. One day Aniza tried to give Rosnah some advice but was instead scolded by the latter. Since that day, Rosnah was not on speaking terms with Aniza.

On a particular weekend, Rosnah went back to her hometown. Aniza helped to clean up her place. When Rosnah came back on Sunday evening, she noticed that her place was tidy and orderly. She didn't say anything although she knew that Aniza did it. The next day she found out that the warden had made a random check on their dormitory last Saturday. She felt very lucky indeed that Aniza had helped to tidy up her place, otherwise she would have been punished.

1. Should Rosnah beg for forgiveness from Aniza ? Why ?
2. Should Aniza have helped Rosnah after being scolded by the latter and not spoken to ? Why ?
3. Why should they tidy up and clean their dormitory ?

C. Cleaning the school toilet

Yusuf is the son of a very wealthy businessman. He attends Form One in a school in Kuala Lumpur. During an assembly last Monday, the Principal announced that every student has to clean the school toilet. Every class has to clean the toilet on a rotation basis.

Yusuf went home and informed his parents about it. They were a bit shocked by the news. They thought that the duty of cleaning the school toilet lies on the school janitor and not the students. In their opinion, the janitor would be receiving pay without doing any work.

Yusuf's father phoned the Principal to voice out his opinion. He does not allow his son to do the job. The Principal persisted with his plans even though many parents objected to it. Yusuf's turn to clean the toilet is on the following Monday. All the students involved were asked to come to school earlier for that purpose.

1. If you were Yusuf, would you cooperate ? Why ?
2. Would you tell your parents if you were asked to clean the school toilet ? Why ?

3. Why do you think the Principal asked the students to clean the school toilet ?
4. Why do you think the students need to cooperate ?

D. On the brink of death

Madam Muna is suffering from a very fatal disease. A new drug has just been discovered that could save her life but this particular drug is not available in any of the hospitals in this country. The doctor attending to Madam Muna told the husband to buy it from the pharmacies. After a nearly futile search, he found it at only one pharmacy.

Unfortunately, he couldn't buy them for his wife because they were very expensive. He has to buy them in large quantities which he cannot possibly afford. Madam Muna's husband tried borrowing the money from his friends but the amount was still not enough. His wife needs the drug immediately.

1. What should Madam Muna's husband do to save his wife's life ?
2. Should he steal the drug ? Why ?
3. Do you think that Madam Muna's husband should be held responsible if anything happens to his wife ? Why ?

E. Cheating

Mr Leong is a fruit-seller. He owns a stall in the Petaling Jaya wet market. He has an assistant called Lee.

Lee failed his SRP examinations and has to earn a living but Lee is a very honest person.

One day, Lee saw Mr Leong tampering with the scale so that it reads more than it should. Mr Leong did not realise that Lee saw what he was doing. He sold the fruits by 200 grams less than they should be.

1. What should Lee do ?
2. Should he tell Mr Leong what he knew and risk his job ?
3. Should he report to the authorities ?
4. Should he give the customers the 'correct' weight without Mr Leong's knowledge ?
5. If Mr Leong was his father, what should Lee do ?

APPENDIX F

MORAL VALUES QUESTIONNAIRE

(Bahasa Malaysia version)

ARAHAN

Kertas ini mengandungi kenyataan-kenyataan yang berkaitan dengan sikap dan nilai murni. Bagi setiap soalan, hitamkan abjad di kertas jawapan untuk kenyataan yang anda rasakan menggambarkan diri anda di dalam situasi berkenaan.

SILA JAWAB DENGAN IKHLAS KERANA INI BUKANLAH SATU UJIAN DAN TIDAK TERDAPAT JAWAPAN YANG 'BETUL' ATAU 'SALAH'.

Pastikan anda menjawab semua soalan.

Terima kasih atas kerjasama anda.

- i. Guru anda telah tersalah mengira markah ujian sains anda. Anda diberikan 76 markah yang bermakna anda mendapat gred A, tetapi apabila anda sendiri mengiranya, anda dapati bahawa anda cuma mendapat 73 markah. Ini bermakna anda mendapat gred B. Apakah yang akan anda lakukan ?
 - A. Anda akan beritahu guru markah sebenar kerana anda tidak mahu ditegur olehnya apabila beliau mendapat tahu kemudian.
 - B. Anda akan beritahu guru kerana tidak mahu kawan-kawan kelas yang lain juga tidak berbuat begitu jika guru tersalah kira markah mereka.
 - C. Anda akan beritahu guru supaya guru menghormati anda atas tindakan anda itu.
 - D. Anda akan beritahu guru kerana ibu anda telah mengajar supaya sentiasa berterus terang.
 - E. Anda akan beritahu guru kerana anda hendak menjaga nama baik anda.

3. Waktu pelajaran sains anda ialah dua waktu sebelum masa rehat. Anda telah mengendali bahan-bahan kimia semasa menjalankan eksperimen itu. Anda tahu bahawa bahan-bahan kimia itu adalah beracun. Selepas menjalankan eksperimen, apakah anda akan membasuh tangan sebelum makan semasa rehat ?
- A. Anda akan membasuh tangan kerana anda tidak mahu dimarahi guru.
- B. Anda akan membasuh tangan kerana anda mahukan tangan anda bersih apabila makan.
- C. Anda akan membasuh tangan jika kawan-kawan yang lain juga membasuh tangan mereka.
- D. Anda akan membasuh tangan kerana ibu anda memang mengajar anda membasuh tangan sebelum makan.
- E. Anda akan membasuh tangan kerana anda tidak mahu menyusahkan orang lain jika anda jatuh sakit.
4. Anda sedang berjalan-jalan di taman bunga dengan keluarga anda. Di sana terdapat pokok-pokok bunga yang indah dan menarik. Anda terlihat sekumpulan budak-budak memetik bunga serta mematahkan dahan-dahan pokok di situ. Sanggupkah anda berbuat seperti mereka ?
- A. Tidak, kerana anda tidak mahu orang lain berbuat begitu di taman anda sendiri.
- B. Tidak, kerana ahli keluarga anda tidak melakukannya.
- C. Tidak, kerana terdapat notis yang memberi amaran tentang denda yang akan dikenakan jika ditangkap oleh pengawal.
- D. Tidak, kerana anda mengenangkan orang-orang yang telah berpenat lelah menanamnya.
- E. Tidak, kerana terdapat papan tanda yang melarang berbuat demikian.

1. Kawasan tempat anda tinggal telah diisyiharkan sebagai kawasan denggi. Pihak berkuasa telah meminta kerjasama orang ramai untuk membantu membasmikan penyakit itu dengan membersihkan kawasan rumah masing-masing. Sudikah anda memberikan kerjasama ?

- A. Ya, kerana kawan-kawan anda telah berjanji akan bersama-sama membersihkan kawasan masing-masing.
- B. Ya, kerana anda tidak mahu keluarga anda dijangkiti penyakit denggi.
- C. Ya, kerana anda khawatir ibubapa anda akan didenda apabila rumah anda diperiksa nanti.
- D. Ya, kerana anda tidak mahu orang-orang di kawasan perumahan anda dijangkiti penyakit itu disebabkan kawasan rumah anda menjadi tempat pembiakan nyamuk.
- E. Ya, kerana semua orang telah diminta oleh pihak berkuasa supaya bekerjasama untuk membasmi penyakit itu dengan membersihkan kawasan rumah masing-masing.
- F. Anda telah pun menyiapkan kerja rumah untuk mata pelajaran sains anda. Anda ingin mengulangkaji mata pelajaran matematik anda pula. Rakan sekelas anda meminta pertolongan anda untuk membantunya menyiapkan kerja rumah sainsnya. Sudikah anda membantunya ?
- G. Ya, kerana tidak mahu anda dikatakan sompong jika tidak mahu membantunya.
- H. Ya, kerana anda tidak sempai hati menghampaskan permintaan orang,tidak kira sama ada kawan atau sebaliknya.
- I. Ya, kerana dia adalah kawan karib anda dan anda tidak mahu menghampaskan permintaannya.
- J. Ya, kerana anda mungkin memerlukan pertolongannya pula di lain hari.

1. Ya, kerana guru memang telah berpesan supaya bantu membantu antara satu sama lain.

Pihak sekolah akan menganjurkan aktiviti gotong-royong pada hari Sabtu akan datang. Adakah anda akan turut serta dalam aktiviti gotong royong tersebut ?

Ya, kerana rakan-rakan mengajak anda bersama mereka.

Ya, kerana guru telah memaksa semua orang datang menolong dan sesiapa yang tidak datang akan didenda.

Ya, kerana ibu bapa anda menyuruh anda pergi.

Ya, kerana pengetua sekolah telah berpesan supaya semua pelajar dapat menyumbang tenaga untuk kebaikan sekolah.

Ya, kerana anda rasa setiap pelajar haruslah berperasaan bahawa sekolah adalah hak mereka bersama.

Apakah yang akan anda lakukan jika anda terjumpa dompet yang berisi wang sebanyak \$10.00 di tandas sekolah ?

Anda akan memberikan kepada guru kerana anda tidak mahu orang lain mengambil duit anda jika dompet anda yang tertinggal disitu.

Anda akan memberikannya kepada guru kerana ini adalah peraturan sekolah.

Anda akan mengambilnya jika tidak ada orang lain di situ.

Anda akan memberikannya kepada guru kerana kawan-kawan menyuruh anda berbuat demikian.

Anda akan memberikannya kepada guru kerana anda faham perasaan orang yang kehilangan duit itu.

Selepas menjalankan eksperimen di makmal, semua pelajar haruslah membersihkan alat radas, meja dan sinki. Adakah anda akan membantu membersihkannya ?

- A. Ya, kerana guru telah memberi arahan supaya setiap kumpulan berbuat demikian.
- B. Ya, kerana anda menghormati perasaan kawan-kawan anda dalam kumpulan itu.
- C. Ya, kerana anda tidak suka melihat tempat yang berselerak dan kotor.
- D. Ya, kerana rakan-rakan yang lain tidak akan suka kepada anda jika anda tidak membantu.
- E. Ya, kerana anda tidak mahu guru memarahi kumpulan anda.
- F. Kelas sains anda adalah di waktu terakhir sebelum sekolah bersurai. Anda adalah orang yang terakhir meninggalkan makmal kerana anda terlambat menyalin kerja rumah di papan tulis. Apabila meninggalkan bilik itu, adakah anda akan memadamkan kipas dan lampu ?
- A. Ya, kerana itu adalah peraturan sekolah.
- B. Ya, kerana guru telah berpesan sebelum beliau keluar dan anda tidak mahu dimarahinya jika anda tidak berbuat demikian.
- C. Ya, kerana anda memikirkan betapa banyak pihak sekolah terpaksa membayar bil tetrik.
- D. Ya, kerana tidak ada orang lain yang akan memadamkannya.
- E. Ya, kerana anda tidak mahu kawan-kawan anda mengatakan bahawa anda tidak bertanggungjawab.
- F. Kelas anda telah dibahagikan ke dalam kumpulan-kumpulan kecil oleh guru untuk menjalankan suatu projek sains. Hasil kerja kumpulan akan dipamerkan di makmal dan markah akan diberikan. Oleh kerana itu, setiap ahli kumpulan harus memberikan kerjasama sepenuhnya kerana semua ahli akan menerima markah yang sama. Adakah anda akan memberikan kerjasama ?

- A. Ya, kerana anda takut dimarahi guru kerana tidak mahu bekerjasama.
- B. Ya, kerana anda juga inginkan ahli-ahli lain memberikan kerjasama.
- C. Ya, kerana anda tidak mahu ahli-ahli kumpulan anda menuduh anda tidak mahu bekerjasama.
- D. Ya, kerana itu adalah tanggungjawab setiap ahli kerana semua ahli akan mendapat markah yang sama.
- E. Ya, kerana anda akan merasa bersalah mendapat markah yang baik atas titik peluh orang lain.
- II. Anda sedang bermain dengan abang anda di laman rumah. Tiba-tiba datang seekor anak kucing yang kurus dan kotor. Anak kucing itu masuk ke dalam rumah anda dan mengiau-ngiau kerana kelaparan. Apakah yang anda akan lakukan ?
- A. Anda akan memberikannya minum air susu kerana kucing itu juga mempunyai hak untuk hidup.
- B. Anda akan memberinya minum air susu kerana abang menyuruh anda berbuat demikian.
- C. Anda akan memberinya minum air susu kerana kita sepatutnya menolong sesiapa sahaja yang memerlukan bantuan, walau pun seekor kucing.
- D. Anda akan memberinya minum air susu kerana anda dapat membayangkan perasaan anda ketika anda terasa sangat lapar.
- E. Anda akan memberinya minum air susu kerana telah disuruh oleh abang dan anda tidak mahu dimarahinya.
- III. Kawan anda memberitahu anda bahawa ia kehilangan wangnya di sekolah dan tidak dapat membeli makan tengah hari di kantin. Anda mempunyai wang yang cukup untuk perbelanjaan anda pada hari itu sahaja. Apakah yang akan anda lakukan ?
- A. Anda akan berkongsi makanan dengannya kerana tidak mahu dikatakan kedekut.

- B. Anda akan berkongsi makanan dengannya kerana dia adalah kawan karib anda.
- C. Anda akan berkongsi makanan dengannya kerana anda tahu ibu anda tentu berbangga dengan perbuatan anda itu.
- D. Anda akan berkongsi makanan dengannya kerana kita tidak seharusnya mempunyai sifat kedekut dengan kawan-kawan.
- E. Anda akan berkongsi makanan dengannya kerana anda faham akan keadaan orang yang tiada wang untuk membeli makanan.
- F. Jika juruwang di kedai tersilap kira dan memberi baki yang terlebih, apakah yang akan anda lakukan ?
- G. Anda akan memulangkan wang yang terlebih itu semula kerana itu adalah perbuatan yang jujur.
- H. Anda akan mendiamkan diri tetapi setelah balik ke rumah, anda terkenangkan juruwang itu yang terpaksa menggantikan wang yang terkurang itu.
- I. Anda akan mendiamkan diri tetapi akan memulangkannya jika diminta oleh juruwang tersebut.
- J. Anda akan memulangkan wang yang terlebih itu kerana terkenangkan bahawa juruwang itu terpaksa menggantikan wang yang terkurang itu.
- K. Jika anda memakan gula-gula di kantin sekolah, adakah anda akan membuang bungkusannya merata-rata ?
- L. Tidak, kerana anda mematuhi peraturan sekolah.
- M. Tidak, kerana tukang sapu telah membersihkannya.
- N. Tidak, kerana ada pengawas yang memerhatikan anda.
- O. Tidak, kerana sikap itu bukan suatu amalan anda dan keluarga di rumah.

- F. Tidak, kerana anda suka melihat kawasan sekolah yang bersih.
- G. Adakah anda memberus gigi setiap pagi dan malam?
- H. Ya, kerana ibu anda telah melatih anda berbuat demikian sejak kecil lagi.
- I. Ya, kerana anda tidak mahu menyenggung perasaan orang lain jika milik anda berbau apabila bercakap dengan mereka.
- J. Ya, kerana anda inginkan gigi yang sihat dan bersih.
- K. Ya, kerana anda tidak mahu ibu anda marah pada anda.
- L. Ya, kerana doktor gigi telah menyarankan supaya menggosok gigi dua kali sehari untuk menjaga kesihatannya.
- M. Tugas-tugas di rumah biasanya dilakukan oleh ibu anda.
- N. Takah anda akan membantu membuat kerja-kerja di rumah?
- O. Ya, kerana di rumah anda sememangnya semua orang membantu membuat kerja.
- P. Ya, kerana anda tidak mahu mendengar ibu anda berteriak.
- Q. Ya, kerana anda rasa anda seharusnya membantu untuk meringankan beban ibu.
- R. Ya, jika adik beradik anda yang lain turut membantu.
- S. Ya, kerana anda tidak sampai batil melihat ibu penat bekerja tanpa dibantu.
- T. Apabila anda bermain di padang permainan di kawasan rumahan anda, adakah anda akan bermain di atas buaian anak kanak-kanak kecil?
- U. Tidak, kerana anda tahu buaian itu tidak seharusnya dimain oleh budak-budak besar.
- V. Tidak, kerana rakan-rakan anda juga tidak menaikkinya.
- W. Tidak, kerana ada orang dewasa yang memerhatikan anda.

Tidak, kerana ada papan tanda yang menyatakan bahawa buaian itu hanya untuk kanak-kanak yang berumur 6 tahun ke bawah sahaja.

Tidak, kerana anda tidak mahu merampas peluang kanak-kanak kecil itu untuk bermain.

Adakah anda suka berpakaian bersih dan kemas ke sekolah?

Ya, kerana pengetua telah memberi arahan supaya berpakaian bersih dan kemas apabila ke sekolah.

Ya, kerana anda tidak mahu di denda oleh pengawas sekolah.

Ya, kerana semua rakan-rakan dalam kumpulan anda berpakaian kemas dan bersih.

Ya, kerana anda malu berpakaian comot ke sekolah.

Ya, kerana anda tidak mahu kelas anda dianggap sebagai kelas yang mempunyai pelajar-pelajar comot disebabkan anda.

Anda bersama keluarga sedang menjamu selera di sebuah restoran terkemuka di Kuala Lumpur. Sudu yang digunakan untuk memakan ais krim dan pudung sungguh cantik dan mahal bila harganya. Anda sungguh berminat untuk mengambil sudu tu. Adakah anda akan melakukannya?

Tidak, kerana anda tidak mahu ibubapa anda tersinggung dengan perbuatan anda.

Tidak, kerana anda tidak mahu orang lain berbuat begitu jika itu adalah restoran kepunyaan ibubapa anda.

Tidak, kerana pelayan itu sentiasa berdiri tidak jauh dari meja anda.

Tidak, kerana anda tahu perbuatan sedemikian tidak seharusnya dilakukan.

Tidak, kerana anda tahu bahawa hak orang lain tidak seharusnya diambil.

10. Setiap pelajar dalam kelas mempunyai tugas seperti menyapu sampah, memadamkan papan hitam, menyusun meja dan sebagainya mengikut giliran masing-masing. Adakah anda akan memberikan kerjasama?

Ya, kerana anda tidak mahu kawan-kawan melaporkan anda kepada guru.

Ya, kerana bukan anda seorang sahaja yang terpaksa melakukannya.

Ya, kerana ini adalah peraturan yang telah ditetapkan oleh guru kelas anda.

Ya, kerana semangat gotong royong adalah amalan yang dihargai oleh masyarakat.

Ya, kerana semua kawan-kawan anda berbuat demikian.

11. Anda sedang menanti bas di perhentian bas. Seorang pemuda berumur lebih kurang 18 tahun dengan keadaan yang niekeh tiba-tiba menghampiri anda. Ia meminta belas kasihan anda untuk memberikannya wang bagi membeli sedikit makanan dan menunggu sehingga anda memberikan respons. Anda memang mempunyai duit yang berlebihan pada hari itu. Apakah yang anda akan lakukan?

Anda memberikannya wang kerana anda takut ia akan mengapa-apakan anda jika tidak diberikan.

Anda memberikannya wang kerana ramai juga orang di situ berbuat demikian.

Anda memberikannya wang kerana anda teringat akan pesan ibu anda supaya selalu membantu orang dalam kesusahan.

Anda memberikannya wang itu kerana anda terfikir perkara tersebut mungkin terjadi pada anda suatu hari nanti dan anda juga perlukan pertolongan orang.

- E. Anda memberikannya wang kerana anda dapat bayangkan betapa susah keadaannya untuk pergi meminta belas kasihan orang.
- F. Anda sedang membasuh bikar dan tiba-tiba terhentaknya di tepi sinki. Walaupun bikar itu retak sahaja tetapi tetap bercor apabila dituangkan air ke dalamnya. Tidak ada sesiapa yang melihat kejadian itu. Apakah yang akan anda lakukan ?
- G. Anda akan mendiamkan diri kerana anda rasa anda tidak bersalah.
- H. Anda akan mendiamkan diri dan simpan bikar itu semula di dalam almari kerana takut dimarahi guru.
- I. Anda beritahu rakan anda dan atas desakannya anda melaporkan kepada guru.
- J. Anda akan melaporkan kepada guru kerana menurut peraturan, setiap alat radas yang pecah harus dilaporkan.
- K. Anda akan melaporkan kepada guru supaya orang lain tidak akan tertuduh kelak kerana perbuatan anda.
- L. Anda telah pergi ke pasar raya dengan kawan-kawan anda. Semasa anda semua berada di bahagian alat-alat tulis, anda melihat sebatang pen yang sungguh cantik. Harga pen itu adalah \$2.50. Anda mempunyai wang yang cukup tetapi anda tidak rela mengeluarkan wang sebanyak itu untuk membeli pen. Kawan-kawan anda menyuruh anda mengambil pen itu tanpa membayar. Apakah yang anda akan lakukan ?
- M. Anda akan mengambil pen itu atas desakan kawan-kawan anda.
- N. Anda tidak berani mengambilnya kerana anda takut tertangkap.
- O. Anda tidak akan mengambilnya walaupun kawan-kawan mendesak.

1. Anda tidak akan mengambilnya kerana terkenangkan betapa malunya ibu bapa anda kelak.
2. Anda tidak akan mengambilnya walaupun syarikat itu tidak akan rugi dengan kehilangan sebatang pen.
3. Anda sedang dalam perjalanan pulang dari sekolah dengan
4. Anda berasib baik kerana mendapat tempat duduk.
Jabila bas berhenti, seorang perempuan tua menaiki bas dan berdiri di sebelah tempat duduk anda kerana tidak terdapat tempat duduk yang kosong lagi. Orang yang duduk di sebelah kursi anda pula adalah seorang perempuan hamil. Apakah yang anda akan lakukan ?
5. Anda kasihan melihatnya tetapi anda tetap duduk kerana orang lain pun tidak ada yang bangun.
Anda kasihan melihatnya dan anda berikan tempat duduk anda kepadanya.
6. Anda berikan tempat duduk anda kepadanya kerana kita sepatutnya membantu orang-orang yang lebih lemah daripada kita.
7. Anda segan untuk bangun kerana khuatir orang lain akan mengata bahawa anda hendak menunjuk-nunjuk.
Anda memberikan tempat duduk anda kerana memikirkan bahawa orang tua itu tidak berupaya berdiri.
8. Ibu anda menyuruh anda atau pun adik beradik anda yang lain untuk pergi ke kedai membeli beberapa keperluan dapur.
Apakah anda akan pergi ?
9. Ya, kerana anda tidak mahu ibu anda berlester.
10. Ya, kerana ibu selalu memberi anda upah.
11. Ya, kerana anda hendak menggembirakan hati ibu.
12. Ya, kerana anda memang sentiasa mematuhi perintah ibu.
13. Ya, kerana ibu sudah penat bekerja di rumah.

18. Adakah anda pernah bergurau atau bermain-main di makmal?

Tidak, kerana anda tidak mahu kecederaan berlaku disebabkan oleh kelakuan anda.

Tidak, kerana setiap pelajar dikehendaki mematuhi peraturan makmal.

Tidak, kerana rakan-rakan yang lain pun tidak berbuat demikian.

Tidak, kerana guru akan memarahi sesiapa yang bermain dan bergurau di dalam makmal.

Tidak, kerana anda memang tidak suka berbuat demikian.

Adakah anda pastikan bahawa anda faham tentang sifat sifaya bahan-bahan kimia di makmal?

Ya, supaya rakan-rakan anda kagum dengan kebijaksanaan anda.

Ya, supaya anda tahu akan langkah-langkah keselamatan sekiranya berlaku apa-apa kejadian.

Ya, kerana setiap pelajar seharusnya mengetahui dan faham akan perkara itu.

Ya, supaya anda tidak dimarahi guru sekiranya disoal tentang perkara itu di kelas.

Ya, supaya anda dapat menggunakan dengan selamat tanpa membahayakan orang lain.

Keluarga jiran anda mengadakan kenduri kahwin anak mereka pada musim cuti sekolah akan datang. Mereka meminta intuan anda. Adakah anda akan membantu mereka?

Ya, kerana ibu anda menyuruh anda berbuat demikian.

Ya, kerana adik-beradik dan rakan-rakan anda yang lain juga turut membantu.

Ya, kerana bantu-membantu antara jiran tetangga memang perkara yang patut dibuat.

Ya, kerana anda tidak mahu dianggap sebagai pemalas oleh jiran anda itu.

Ya, kerana jiran anda akan tersinggung jika anda tidak mahu bersama-sama di majlis kenduri mereka itu.

Halaman rumah anda berselerak dengan daun-daun dan anting-ranting disebabkan hujan ribut. Adakah anda akan membersihkannya ?

Ya, kerana nyamuk suka pada tempat yang berselerak dan ini akan menyusahkan keluarga dan jiran-jiran anda.

Ya, kerana ibu anda menyuruh anda membantu membersihkannya.

Ya, kerana adik beradik anda mengajak anda bersama-sama membersihkannya.

Ya, kerana anda tidak mahu dimarahi ibu kerana malas bekerja.

Ya, kerana sudah menjadi kewajipan anda untuk membantu.

Anda sedang belajar di kelas dan seorang pengawas sekolah datang meminta derma untuk menyumbang kepada persatuan kanak-kanak cacat. Adakah anda akan turut menderma?

Ya, kerana anda tidak mahu kawan-kawan anda beranggapan bahawa anda seorang yang kedekut.

Ya, kerana semua kawan-kawan anda menderma.

Ya, kerana guru anda menyuruh semua orang menderma walaupun tidak banyak.

Ya, kerana anda sememangnya hendak menderma.

Ya, kerana kanak-kanak cacat itu memang memerlukan sumbangan orang ramai.

APPENDIX F
MORAL VALUES QUESTIONNAIRE

Directions

This paper contains statements that are related to attitudes and values. For each question, shade the corresponding alphabets on the answer sheet for the statement that you feel reflects you under such situations.

THIS IS NOT A TEST. SO PLEASE ANSWER HONESTLY. THERE ARE NO RIGHT OR WRONG ANSWERS.

Please make sure you answer all questions.

Thank you for your cooperation.

Your teacher has given you a wrong score for your science test. You are given 76 marks, which means you have obtained a grade A, whereas you have only obtained 73 marks when you total the marks yourself. This means that you have actually obtained a grade B. What would you do ?

You will tell your teacher the actual score you have obtained because you do not want to be called upon by your teacher when he/she realised about this later.

You will tell your teacher because you do not want your friends in class to do the same by not informing the teacher if the teacher did the same mistake for their scores as well.

You will tell your teacher so that the teacher would respect you for your actions.

You will tell your teacher because your mother had taught you to be honest.

You will tell your teacher so that your reputation would not be tarnished.

Your science lesson is two periods before recess. During the lesson, you were using some chemicals in an

periment and you know that the chemicals are toxic. After conducting the experiment, would you wash your hands before eating your meal during recess?

You will wash your hands because you do not want to be scolded by the teacher.

You will wash your hands because you want your hands to be clean before taking your food.

You will wash your hands if your friends wash their hands as well.

You will wash your hands because your mother has always taught you to do so before having a meal.

You will wash your hands because you do not want to trouble others if you fall ill.

You were walking with your family in a botanical garden. There were beautiful and attractive flowers in the garden. You saw a group of boys plucking the flowers and breaking the twigs of the trees. Would you do what they have done?

No, because you would not want others to do the same to your own garden.

No, because your family members did not do it.

No, because there was a notice that warned about the fines that will be imposed on those who are caught destroying the plants.

No, because you are thinking of those people who have tirelessly planted them.

No, because there was a sign board which says not to destroy the plants.

The area where you reside has been declared to have a dengue fever outbreak. The authorities have asked the public for their cooperation to wipe out the disease by cleaning

, their compounds. Will you cooperate ?

Yes, because your friends have promised to clean up their compounds.

Yes, because you would not want your family members to get the disease.

Yes, because you are worried that your parents might be fined when the authorities come to check your compound.

Yes, because you do not want the people living in your area to get the disease caused by aedes mosquitoes breeding in your compound.

Yes, because everybody has been asked to cooperate in wiping out the disease by cleaning up their compounds.

You have just completed your science homework. You wanted to practice on your mathematics. Your classmate asks for your help in his/her science homework. Will you help him/her ?

Yes, because you do not want him/her to say that you are arrogant for not wanting to help.

Yes, because you do not have the heart to decline to help, be they your friend or otherwise.

Yes, because he/she is your best friend and you do not want to disappoint him/her.

Yes, because you may need his/her help later.

Yes, because your teacher has told the class to help each other.

Your school is organizing a "community service" activity next Saturday. Will you involve yourself in the activity ?

Yes, because your friends have asked you to join them.

Yes, because your teacher has made it compulsory for everybody to attend and punishment will be given to

those who do not turn up.

Yes, because your parents have asked you to do so.

Yes, because the school principal has reminded all students to do so for the benefit of the school.

Yes, because every student should feel that the school belongs to them.

What would you do if you found a wallet containing 00 in the school toilet ?

You will give the wallet and its contents to your teacher because you do not want others to keep your lost wallet if they were to find it.

You will give it to the teacher because the school rule says so.

You will keep it if nobody is around when you found it.

You will give it to the teacher because your friends advised you to do it.

You will give it to the teacher because you know how the person who lost the wallet feels.

After conducting experiments in the laboratory, all students have to clean up the apparatus, tables and sinks.

Will you help to clean up ?

Yes, because the teacher has ordered every group to do so.

Yes, because you respect the feelings of your friends in the group.

Yes, because you do not like to see a messy and dirty place.

Yes, because your friends will not like you if you do not help them.

Yes, because you do not want your teacher to be angry with your group.

Your science lesson falls on the last period before school dismisses. You are the last person to leave the laboratory because you were slow to copy the homework assignment that was written on the board. When you leave the laboratory, would you switch off the fans and lights ?

Yes, because it is the school regulation.

Yes, because the teacher has already reminded you to do it and you do not want to be scolded for not doing so.

Yes, because you are aware that the school is paying a lot on electricity bills.

Yes, because there was nobody else around to switch them off.

Yes, because you do not want your friends to say that you were irresponsible.

Your class has been divided into small groups by your teacher to work on a project. The outcomes will be displayed in the laboratory and marks will be given. All members in a group have to work closely because equal marks will be given to every member based on the performance of the group. Will you give your cooperation ?

Yes, because you are afraid of being scolded by the teacher for not being cooperative.

Yes, because you would like the other members to give their cooperation too.

Yes, because you do not want the other members to accuse you of not being cooperative.

Yes, because it is every member's responsibility and the same marks will be awarded to every member.

Yes, because you would feel guilty for getting good marks on other's credit.

1. You were playing with your brother in the front yard of your house. Suddenly, a skinny and dirty kitten entered the compound. The kitten then entered your house and was mewing may because it was hungry. What would you do ?

You will give the kitten some milk because the kitten has the right to live.

You will give the kitten some milk because your brother has asked you to do so.

You will give the kitten some milk because you feel that you should help those in need even if it is a kitten.

You will give the kitten some milk because you could imagine how it feels like to be hungry.

You will give the kitten some milk because your brother told you to do so, and you don't want to be scolded by him.

2. Your friend told you that he/she had lost his/her money at school and would not be able to have lunch at the school canteen. You have just enough money for your own lunch that day. What would you do ?

You will share your lunch with your friend so that you would not be called a selfish person.

You will share your lunch because he/she is your best friend.

You will share your lunch because your mother would be very proud of what you have done.

You will share your lunch because we should not have a selfish attitude towards friends.

You will share your lunch because you understand a person's predicament in having no money to buy food.

3. If a cashier mistakenly gives you extra change, what would you do ?

You will return the extra change because it is the honest thing to do.

You will just keep quiet about it but when you get home, you will feel sorry for the cashier who will have to replace the money.

You will just keep quiet about it but will return the money if the cashier asks you about it.

You will return the extra change because your mother has taught you to be honest.

You will return the extra change immediately because you feel sorry for the cashier who will have to replace the money.

i. If you ate sweets at the school canteen, would you throw the wrappers anywhere you like ?

No, because you abide to the school regulations.

No, because the sweeper has just cleaned the canteen.

No, because there is a school prefect watching you.

No, because your family has never made it a habit to throw rubbish anywhere they like.

No, because you like to see a clean school compound.

Do you brush your teeth every morning and night ?

Yes, because your mother has trained you to do so since you were small.

Yes, because you do not want to offend other people with your bad breath.

Yes, because you want a clean and healthy set of teeth.

Yes, because you do not want to be scolded by your mother.

Yes, because the dentist has advised us to brush our teeth twice daily.

Household chores are usually done by your mother. Would help your mother with the chores at home ?

- A. Yes, because everyone at home helps out with the chores.
- B. Yes, because you do not want your mother to nag.
- C. Yes, because you feel that you should help to ease your mother from the burden.
- D. Yes, if your brothers and sisters help as well.
- E. Yes, because you cannot let your mother do all the chores without any help.

17. When you are at the playground, would you play on the swings meant for small children ?

- A. No, because you know that the swings are not meant for bigger children.
- B. No, because your friends do not play on the swings.
- C. No, because there are adults watching you.
- D. No, because there is a sign board stating that the swings are meant for children below six years of age.
- E. No, because you do not want to deprive the small children of the chance to play on the swings.

18. Do you like to dress smart and tidy to school ?

- A. Yes, because the principal has directed everyone to be smart and tidy in school.
- B. Yes, because you do not want to be reprimanded by the school prefects.
- C. Yes, because your peers are smartly and tidily dressed.
- D. Yes, because you are ashamed of being untidily dressed in school.
- E. Yes, because you do not want the students in your class to be branded as untidy students because of you.

19. You are with your family dining at a well knownn restaurant in Kuala Lumpur. The cutlery that was being used for the ice cream and pudding was beautiful and expensive.

You were very keen to take it. Would you have done it ?

- A. No, because you do not want to offend your parents.
- B. No, because you do not want others to do it, if your parents were to own that restaurant.
- C. No, because the waiter was standing close to your table.
- D. No, because you know that you should not do such a thing.
- E. No, because you know that you should not take other people's property.

20. Every student in your class has been given a duty such as sweeping the floor, cleaning the board, arranging the desks and so forth on a rotation basis. Would you cooperate ?

- A. Yes, because you do not want your friends to report you to the teacher for not cooperating.
- B. Yes, because you are not the only person who has to do it.
- C. Yes, because this is the class regulation that has determined by the teacher.
- D. Yes, because cooperation is a practice appreciated by society.
- E. Yes, because all your friends are doing it.

21. You are waiting for a bus at one of the bus stops. A dirty young man about 18 years of age suddenly approaches you. He begged for some money to buy food. He waited until you responded. You do have some extra money with you. What would you do ?

- A. You will give him the money because you are afraid that he might harm you.
- B. You will give him the money because quite a number of people at the bus stop have done so.

- C. You will give him the money because your mother told you to help those who are in need.
- D. You will give him the money because some day you might be in his shoes and you may need help from others.
- E. You will give him the money because you know that it is not easy to beg for people's mercy.
22. You were washing a beaker when all of a sudden it hit the side of the sink. Although there was only a small crack on the beaker, it can no longer contain water which was poured into it. Nobody noticed what had happened. What would you do ?

- A. You will keep quiet because you felt that you are not to be blamed.
- B. You will keep quiet and put back the beaker in the cupboard because you are afraid the teacher will scold you.
- C. You told your friend about it and he/she pressured you into reporting it to your teacher.
- D. You will report to your teacher because according to the regulation, every apparatus that is broken has to be reported.
- E. You will report to your teacher so that others do not get blamed because of you.

23. You have gone to the supermarket with your friends. Whilst browsing at the stationary section, you saw a very beautiful pen. The pen costs \$2.50. You had enough money but you were not willing to spend so much on a pen. Your friends asked you to take the pen without paying for it. Would you do it ?

- A. You would take the pen upon your friends' persuasion.
- B. You wouldn't dare take the pen for fear of being caught.

- C. You wouldn't take the pen even if your friends persuaded you to do so.
- D. You wouldn't take the pen because you were thinking how embarrassed your parents would be.
- E. You wouldn't take the pen even if the company would not suffer a loss for one stolen pen.

24. You are returning from school on a bus. You were lucky to get a seat. When the bus stops for passengers, an old woman boarded the bus and stood beside your seat because there were no vacant seats left. The person sitting beside you is an expecting mother. What would you do ?

- A. You pitied the old woman but refused to get up because no one got up to offer her their seat.
- B. You pitied the old woman and offered her your seat.
- C. You offered her your seat because we should help those who are weaker than us.
- D. You feel embarrassed to offer your seat because you are worried that others might say that you were trying to show off.
- E. You offered your seat because you feel that the old woman would not be able to stand the journey.

25. Your mother asked you or any of your siblings to go to the shops for some groceries. Would you go ?

- A. Yes, because you do not want her to nag.
 - B. Yes, because she always gives some kind of reward.
 - C. Yes, because you want to please her.
 - D. Yes, because you always obey your mother.
 - E. Yes, because your mother is already tired doing the chores at home.
26. Have you ever fooled around or played in the laboratory ?

- A. No, because you do not any accident to happen because of you.
 - B. No, because every student has to obey the laboratory rules.
 - C. No, because your friends do not do so.
 - D. No, because the teacher will scold anybody who plays or fools around in the laboratory.
 - E. No, because you do not like to do so in the first place.
27. Do you make sure that you understand the dangerous characteristics of chemicals in the laboratory ?
- A. Yes, so that your friends would be amazed by your intelligence.
 - B. Yes, so that you would know safety measures to take if anything untoward happens.
 - C. Yes, because every student should know and understand it.
 - D. Yes, so that you will not be scolded by the teacher in case you were asked about it in class.
 - E. Yes, so that you can use the chemicals safely without endangering others in class.
28. Your neighbour is having a wedding ceremony for one of their children during this coming school holidays. They have asked you for help. Would you help them ?
- A. Yes, because your mother has asked you to do so.
 - B. Yes, because your siblings and friends are also going to help.
 - C. Yes, because neighbours should help each other.
 - D. Yes, because you do not want your neighbour to say that you are a lazy person.
 - E. Yes, because your neighbour would feel offended if you are not present at their ceremony.

29. Your house compound is messed up with leaves and twigs after a storm. Would you clean up the area ?

- A. Yes, because mosquitoes like places that are messy and this would be a burden to your family and neighbours.
- B. Yes, because your mother asked you to clear up the mess.
- C. Yes, because your siblings asked you to clean up the mess together with them.
- D. Yes, because you do not want to be scolded by your mother for being lazy.
- E. Yes, because it is your duty to help.

30. You are having a lesson in class. A school prefect came to your class to ask for donations for spastic children.

Would you donate ?

- A. Yes, because you do not want your friends to think that you are a miser.
- B. Yes, because all your friends donated.
- C. Yes, because your teacher told everyone to donate no matter how small.
- D. Yes, because you want to donate.
- E. Yes, because the spastic children need our contributions.

Keys to the Moral Values Questionnaire

Item	Option	Stage of reasoning	Item	Option	Stage of reasoning
1	A	I	2	A	I
	B	V		B	II
	C	III		C	III
	D	IV		D	IV
	E	II		E	V
3	A	II	4	A	III
	B	III		B	II
	C	I		C	I
	D	V		D	V
	E	IV		E	IV
5	A	I	6	A	II
	B	V		B	I
	C	III		C	III
	D	II		D	IV
	E	IV		E	V
7	A	II	8	A	IV
	B	IV		B	V
	C	I		C	II
	D	III		D	III
	E	V		E	I
9	A	IV	10	A	I
	B	I		B	II
	C	V		C	III
	D	II		D	IV
	E	III		E	V
11	A	V	12	A	I
	B	III		B	II
	C	IV		C	III
	D	II		D	IV
	E	I		E	V
13	A	IV	14	A	IV
	B	II		B	V
	C	I		C	I
	D	IV		D	III
	E	V		E	II

15	A	III	16	A	IV
	B	V		B	I
	C	II		C	II
	D	I		D	III
	E	IV		E	V
17	A	II	18	A	IV
	B	III		B	I
	C	I		C	III
	D	IV		D	II
	E	V		E	V
19	A	III	20	A	I
	B	II		B	II
	C	I		C	IV
	D	IV		D	V
	E	V		E	III
21	A	I	22	A	II
	B	III		B	I
	C	IV		C	III
	D	II		D	IV
	E	V		E	V
23	A	III	24	A	III
	B	I		B	II
	C	IV		C	IV
	D	II		D	I
	E	V		E	V
25	A	I	26	A	V
	B	II		B	IV
	C	III		C	III
	D	IV		D	I
	E	V		E	II
27	A	III	28	A	II
	B	II		B	III
	C	IV		C	IV
	D	I		D	I
	E	V		E	V
29	A	V	30	A	I
	B	II		B	III
	C	III		C	IV
	D	I		D	II
	E	IV		E	V

APPENDIX G

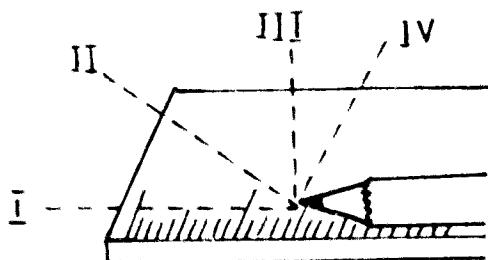
SCIENCE ACHIEVEMENT TEST
(Bahasa Malaysia version)

ARAHAN

Kertas ini mengandungi 30 soalan tentang isi kandungan yang telah dipelajari dalam Bab 1.

Sila jawab SEMUA soalan.

1. Pemadam api yang berlainan jenis sesuai digunakan untuk memadamkan api bagi punca kebakaran yang berlainan. Pemadam api jenis karbon dioksida digunakan untuk kebakaran
- elektrik sahaja.
 - elektrik dan kerosin.
 - gas masak.
 - gas masak dan petrol.
- 2.



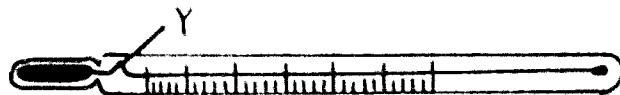
Gambarajah 1

Jika anda hendak mengukur panjang pensel itu, di kedudukan manakah mata anda seharusnya berada ?

- I
- II
- III
- IV

3. Yang manakah adalah pernyataan yang betul tentang jisim?
- Unit S.I. bagi jisim ialah Newton.
 - Unit S.I. bagi jisim dan berat adalah sama.
 - Jisim sesuatu benda tidak berubah di mana sahaja.
 - Jisim boleh disukat dalam unit kilogram-daya.

4.

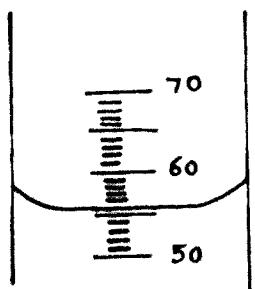


Gambarajah 2

- Gambarajah 2 menunjukkan sebuah termometer klinik. Fungsi bahagian Y adalah untuk
- membenarkan merkuri mengalir ke atas untuk mencatat suhu badan.
 - menelakkan merkuri daripada mengalir balik sebaik sahaja termometer dikeluarkan daripada mulut pesakit.
 - menelakkan alkohol daripada mengalir balik sebaik sahaja termometer dikeluarkan daripada mulut pesakit.
 - membenarkan alkohol mengalir ke atas untuk mencatat suhu badan.
5. Apabila lubang udara penunu Bunsen dibuka, nyalanya menjadi

- tidak berkilau
- kuning
- kurang panas
- berjelaga

6.



Bacaan pada silinder penyukat

dalam Gambarajah 3 ialah

- 53.5 ml
- 56.0 ml
- 55.5 ml
- 54.5 ml

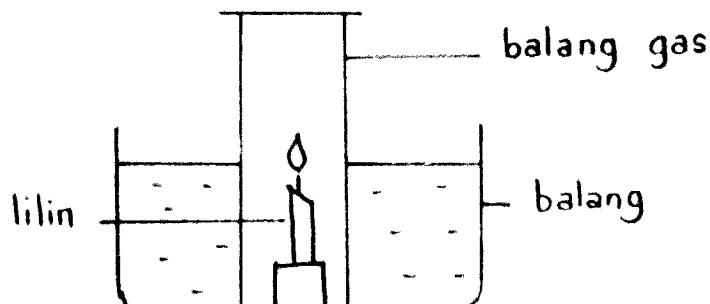
Gambarajah 3

7. Antara alat-alat berikut, yang manakah tidak boleh digunakan untuk menyukat isipadu air ?
- silinder penyukat
 - bikar
 - buret
 - tabung uji

8. Alat yang manakah sesuai digunakan untuk menyukat diameter sebiji guli ?

- A. pembaris meter
- B. angkup luar
- C. pita pengukur
- D. pengukur peta

9.



Gambarajah 4

Seorang pelajar telah menjalankan eksperimen di atas. Pemerhatiannya telah dicatatkan di bawah ini. Nyatakan pernyataan manakah tidak benar ?

- A. Lilin itu tetap menyala pada mulanya.
- B. Setelah beberapa ketika, nyala lilin itu menjadi malap.
- C. Nyala lilin itu menjadi semakin malap.
- D. Nyala lilin itu padam serta mati.

10. Dalam suatu eksperimen yang dijalankan oleh seorang pelajar, didapati bahawa air laut mendidih pada suhu 102°C . Mengapakah air laut itu mendidih pada suhu yang lebih tinggi daripada 100°C ?

- A. Air laut mengandungi garam mineral terlarut.
- B. Air laut mengandungi bahan organik.
- C. Air laut mengandungi pasir halus.
- D. Air laut mengandungi gas-gas terlarut.

11. Sebuah silinder penyukat mengandungi 50cm^3 air. Sepuluh duit syiling dimasukkan ke dalam silinder penyukat

itu. Bacaan aras air dalam silinder penyukat itu naik menjadi 55.5 cm^3 . Hitung isi padu purata satu duit syiling.

- A. 0.55 cm^3
- B. 1.00 cm^3
- C. 5.00 cm^3
- D. 5.55 cm^3

12. Anda hendak membandingkan ketumpatan dua buah benda.

Bagaimanakah caranya anda akan mula menentukannya ?

- A. Benda-benda itu mesti mempunyai saiz yang sama.
- B. Benda-benda itu mesti diperbuat daripada bahan yang sama.
- C. Benda-benda itu mesti mempunyai isi padu yang sama.
- D. Benda-benda itu mesti mempunyai bentuk yang sama.

13. Antara alat-alat berikut, yang manakah boleh digunakan untuk mengukur diameter sebiji buah limau ?

- A. pita pengukur dan benang
- B. pembaris meter dan benang
- C. angkup dalam dan pembaris
- D. angkup luar dan pembaris

14. Antara alat-alat berikut, yang manakah boleh digunakan untuk menentukan denyutan nadi rakan anda ?

- A. termometer
- B. angkup
- C. pembaris
- D. jam randik

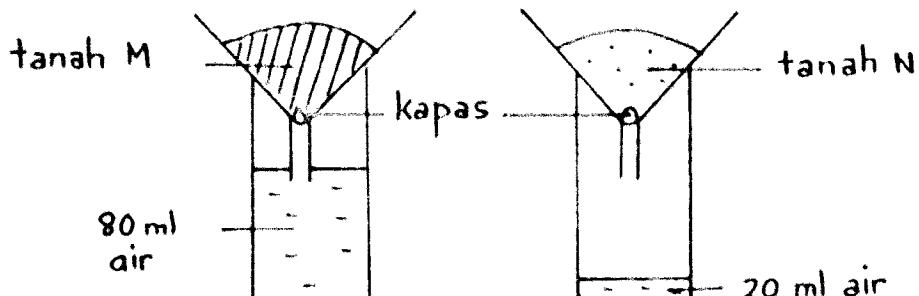
15. Zon nyala penunu Bunsen yang manakah boleh membekalkan tenaga haba yang paling banyak ?

- A. zon biru
- B. zon ungu
- C. zon kuning
- D. zon hijau

16. Apabila anda membuat air teh, serbuk teh dicampurkan dengan air panas. Setelah dituras, air teh itu dipanggil

- A. mendakan
- B. baki
- C. turasan
- D. cecair

17.

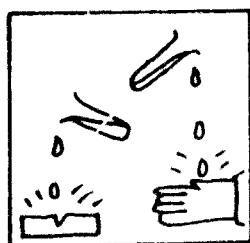


Gambara jah 5

Gambara jah 5 menunjukkan isipadu air yang dikumpulkan selepas 100 ml air dituangkan masing-masing ke tanah M dan N. Yang manakah adalah benar tentang tanah M dan N?

- A. Tanah M menyimpan air dengan lebih banyak.
- B. Tanah N mempunyai ruang udara yang lebih kecil.
- C. Tanah M adalah tanah liat.
- D. Tanah N adalah tanah pasir.

18. Simbol amaran terlekat pada botol bahan kimia di bawah menunjukkan bahan-bahan yang mengakis. Nyatakan cara yang betul mengendalikan bahan-bahan itu.



- A. Jauhkan bahan-bahan itu daripada air.
- B. Jangan dedahkan bahan-bahan itu ke udara.
- C. Jangan simpan bahan-bahan itu di tempat bersuhu tinggi.

D. Jangan simpan bahan-bahan itu di tempat yang terlalu dingin.

19. Matakah antara kenyataan berikut adalah benar tentang ketumpatan besi ?

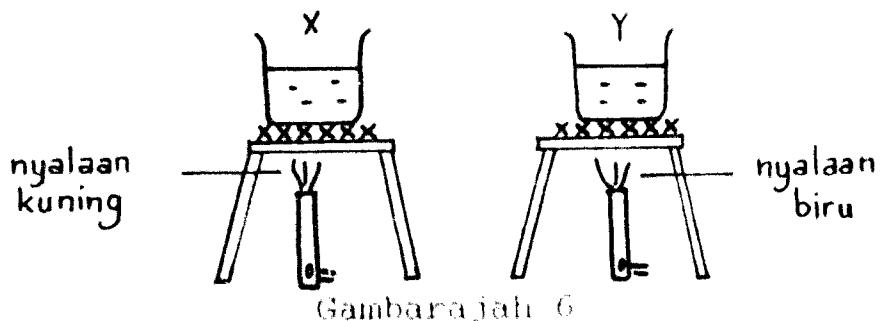
A. Ketumpatan besi adalah satu arakatap bagi sebarang kepingan besi.

B. Ketumpatan besi adalah perbandingan bagi kepingan besi yang berlainan.

C. Ketumpatan besi adalah berlainan di atas bumi dan di atas bulan.

D. Ketumpatan besi bergantung kepada berat besi itu.

20. Gambarajah 6 menunjukkan dua buah bikar berisi air sebanyak 50ml. Salah satu bikar dipanaskan dengan nyalaan kuning daripada penuru Bunsen dan satu lagi bikar dipanaskan dengan nyalaan biru. Kedua-dua bikar dipanaskan pada masa yang sama. Apakah yang akan terjadi ?



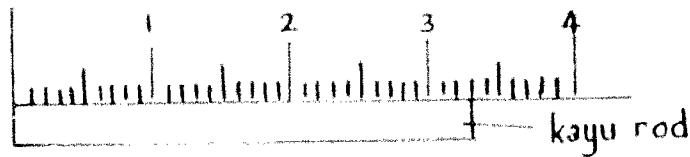
A. X akan mendidih terlebih dahulu.

B. Y akan mendidih terlebih dahulu.

C. X dan Y akan mendidih pada masa yang sama.

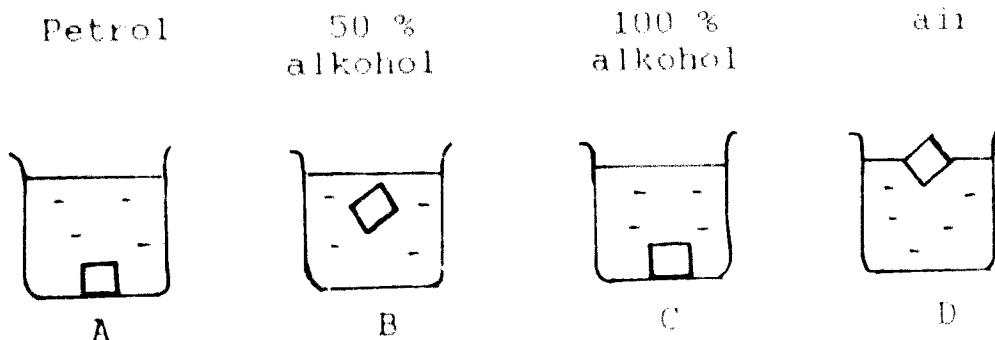
D. X dan Y tidak akan mendidih.

21. Gambarajah 7 menunjukkan ukuran suatu kayu rod. Berikan bacaannya dalam milimeter.



Gambarajah 7

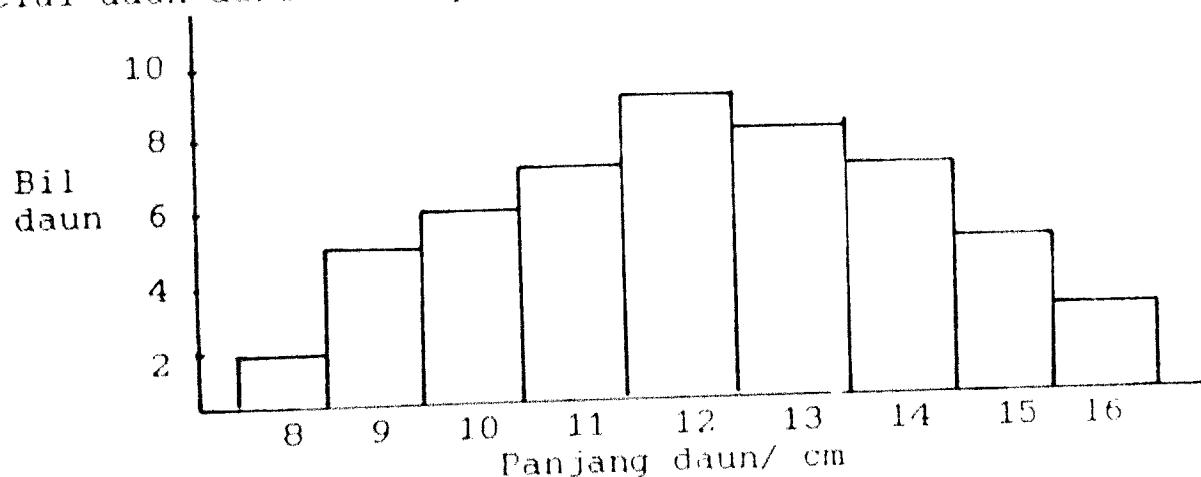
- A. 33,0 mm B. 33,3 mm C. 30,3 mm D. 3,3 mm
22. Gambarajah 8 menunjukkan kedudukan bungkah kayu apabila diletakkan dalam tiap-tiap cecair yang diberi. Dengan memerhatikan rajah itu, bungkah kayu itu mempunyai ketumpatan yang sama dengan



Gambarajah 8

- A. petrol B. 50 % alkohol
C. 100 % alkohol D. air

23. Graf berikut dilukis selepas mengukur panjang sebanyak 50 helai daun dari suatu pokok getah.



Graf itu menunjukkan bahawa

- A. tiada daun getah yang panjangnya kurang daripada 9cm.
- B. tiada daun getah yang panjangnya sampai 16 cm.
- C. hitung panjang daun getah ialah 12 cm.
- D. kebanyakannya daripada daun getah adalah 12 cm panjang.

24. Anda sedang menjalankan suatu eksperimen dalam kumpulan. Tiba-tiba tangan baju kurung kawan anda terbakar kerana terkena api Bunsen. Apakah yang sepatutnya anda lakukan untuk membantunya ?

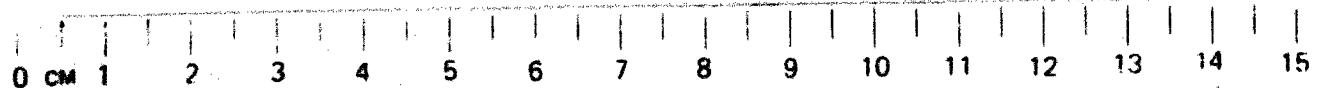
- A. Tadah air pili ke dalam bikai dan siramkan ke lengannya.
- B. Pergi ambil alat pemadam api dengan serta merta.
- C. Basahkan tuala dan balut tangan bajunya yang terbakar.
- D. Padamkan api penunu dengan segera.

25. Anda diberikan seketul batu yang jisimnya adalah 10 gm. Bagaimanakah caranya anda hendak mendapatkan isipadunya?

- A. Ukur diameter batu itu. Kemudian cari isipadunya dengan menggunakan formula $2\pi r$.
- B. Ambil sebikar air dan timbang. Masukkan batu itu ke dalam air dan timbang semula. Isipadu batu itu boleh didapati dengan mencari selisih jisim batu dan air dengan jisim air sahaja.
- C. Masukkan batu itu ke dalam silinder penyukat yang berisi 50 ml air. Isipadu batu itu boleh didapati daripada isipadu air yang disesarkan.
- D. Letakkan batu itu di atas kertas graf. Lukiskan garisluar batu itu dan kemudian kira bilangan petak yang terdapat dalamnya.

26. Yang manakah antara berikut adalah cara yang betul dilakukan setelah menuang beberapa larutan kimia ke dalam tabung uji berasingan ?
- Labelkan kesemua tabung uji itu dengan segera.
 - Goncang kesemua tabung uji untuk melihat sama ada terdapat mendakan.
 - Susun kesemua tabung uji di rak tabung uji.
 - Teruskan ujian yang hendak dilakukan dengan segera sebelum larutan tercemar.
27. Mengapakah botol-botol bahan kimia disimpan di atas para yang parasnya sama atau lebih rendah daripada aras mata ?
- Untuk mengelakkan botol-botol itu daripada terjatuh.
 - Supaya kesemua botol-botol itu jelas kelihatan semasa mengambilnya.
 - Supaya botol-botol itu senang untuk diambil oleh orang yang rendah.
 - Tidak perlu menggunakan tangga untuk menyusun atau mengambilnya.
28. Di antara bahan-bahan berikut, yang manakah mempunyai takat didih yang tertinggi sekali ?
- air suling
 - air laut
 - merkuri
 - alkohol
29. En. Kasim memandu kereta dari Kuala Lumpur ke Seremban di lebuhraya. Had maksima kelajuan ialah 110 km sejam. En Kasim memandu dengan kelajuan 100 km sejam. Jauhnya kedua-dua tempat itu ialah 60 km. Berapa lamakah masanya beliau mengambil untuk sampai di Seremban?
- 46 min.
 - 36 min.
 - 56 min.
 - 60 min.

30. Kumpulan alat-alat yang manakali yang boleh digunakan untuk membesarkan penglihatan objek ?
- A. mikroskop, kanta pembesar, periskop.
 - B. binokular, makroskop, kanta pembesar.
 - C. cermin, prisma, kanta pembesar.
 - D. periskop, binokular, mikroskop.



APPENDIX G

SCIENCE ACHIEVEMENT TEST

Directions

This paper consists of 30 questions on the content in Chapter 1.

Please answer all questions.

1. Different types of fire extinguishers are used to put out flames of various sources. A carbon dioxide fire extinguisher is used to extinguish fire caused by
- electricity only.
 - electricity and kerosene.
 - cooking gas.
 - cooking gas and petrol.

2.

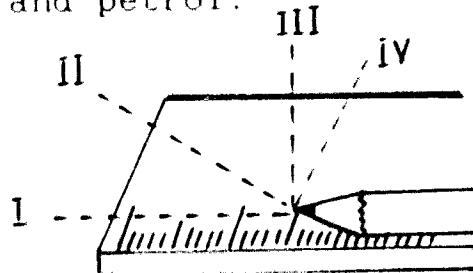


Figure 1

If you are to measure the length of the pencil, where should you view it from to take the reading ?

- I
- II
- III
- IV

3. Which statement about mass is correct ?

- The S.I. unit for mass is Newton.
- The S.I. unit for mass and weight are the same.
- The mass of a body does not change wherever it is.
- Mass can be measured in kilogram-force.

4.



Figure 2

Figure 2 shows a clinical thermometer. The function of Y is to

- A. allow mercury to flow upwards so as to record body temperature.
- B. prevent mercury from flowing back immediately after the thermometer is removed from the patient's mouth.
- C. prevent alcohol from flowing back immediately after the thermometer is removed from the patient's mouth.
- D. allow alcohol to flow upwards so as to record body temperature.

5. When the air hole in the bunsen burner is open, the flame becomes

- | | |
|----------------|-------------|
| A. not glaring | C. less hot |
| B. yellow | D. sooty |

6.

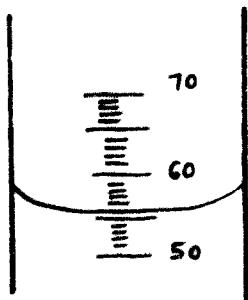


Figure 3

The reading on the measuring cylinder as shown in Figure 3 is

- A. 53.5 ml
- B. 56.0 ml
- C. 55.5 ml
- D. 54.5 ml

7. Among the apparatus listed below, which one cannot be used to measure the volume of water?

- | | |
|-----------------------|--------------|
| A. measuring cylinder | C. burette |
| B. beaker | D. test-tube |

8. Which instrument is suitable for measuring the diameter of a marble ?

- A. meter rule
- C. measuring tape
- B. external calipers
- D. opisometer

9.

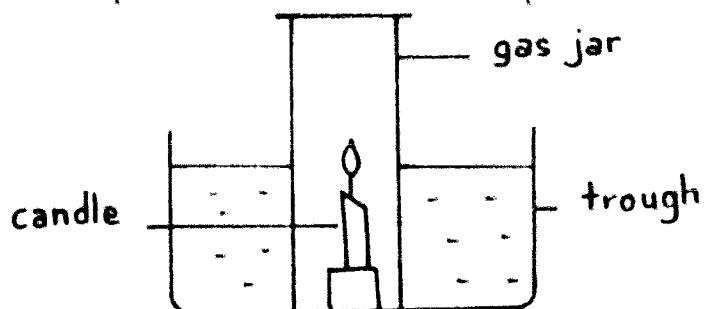


Figure 4

A student performed the above experiment. His observations were recorded below. Which statement is incorrect ?

- A. The candle keeps on burning initially.
- B. After a while, the flame becomes dim.
- C. The flame becomes very dim.
- D. The flame extinguishes immediately.

10. In an experiment performed by a student, it was noted that sea water boils at 102°C . Why does sea water boil at a temperature higher than 100°C ?

- A. Sea water contains dissolved mineral salts.
- B. Sea water contains organic substances.
- C. Sea water contains fine sand.
- D. Sea water contains dissolved gases.

11. A measuring cylinder contains 50 cm^3 of water. Ten coins were dropped into the measuring cylinder. The water level reads 55.5 cm^3 . Calculate the average volume of each coin.

- A. 0.55 cm^3 C. 5.00 cm^3
B. 1.00 cm^3 D. 5.55 cm^3

12. You want to compare the density of two things. How would you start determining it?

- A. The two things must be of the same size.
B. The two things must be made of the same material.
C. The two things must have the same volume.
D. The two things must have the same shape.

13. Among the instruments below, which can be used to measure the diameter of an orange?

- A. measuring tape and thread.
B. meter rule and thread.
C. internal calipers and ruler.
D. external calipers and ruler.

14. Which of the instruments can be used to determine your friend's pulse rate?

- A. thermometer C. ruler
B. calipers D. stop watch

15. Which zone of the flame of a bunsen burner can provide the most heat energy?

- A. blue zone C. yellow zone
B. violet zone D. green zone

16. When you make tea, the tea leaves are mixed with hot water. After you filter the mixture, the liquid is called

- A. solute C. filtrate
B. balance D. liquid

17.

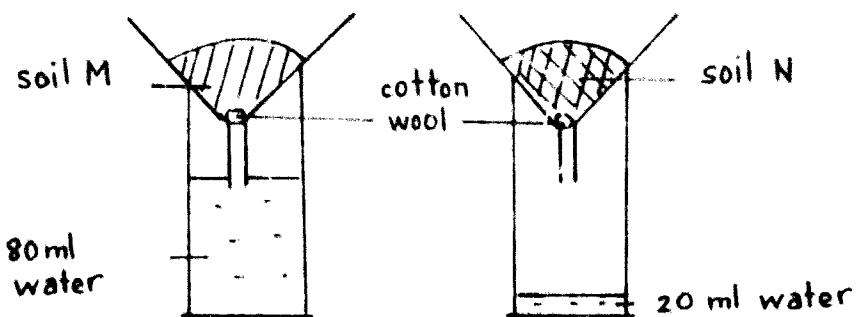


Figure 5

Figure 5 shows the volume of water collected after 100 ml of water was poured through soil M and soil N respectively. Which of the following is true about soil M and soil N ?

A. Soil M retains more water.

B. Soil N has smaller air spaces within it.

C. Soil M is mud.

D. Soil N is sand.

18. The warning symbol on a bottle of chemical shown below shows that it is a corrosive substance. State the correct method of handling the substance.



A. keep the substance away from water.

B. do not expose the substance to the atmosphere.

C. do not keep the substance under high temperature.

D. do not keep the substance in a very cold place.

19. Which of the following is true about the density of iron ?

A. The density of iron is a constant for any piece of iron.

- B. The density of iron is different for different pieces of iron.
- C. The density of iron is different on earth as compared to that on the moon.
- D. The density of iron depends on the weight of the iron.
20. Figure 6 shows two beakers, each containing 50 ml of water. One of the beakers is heated using yellow flame from a bunsen burner and the other using blue flame from another bunsen burner. The beakers were both heated at the same time. What will happen ?

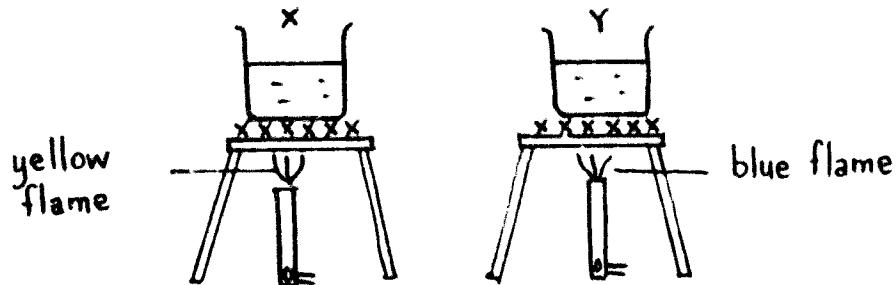


Figure 6

- A. X will boil first.
- B. Y will boil first.
- C. X and Y will boil at the same time.
- D. X and Y will not boil.
21. Figure 7 shows the measurement for a wooden rod. State the reading in millimeters.

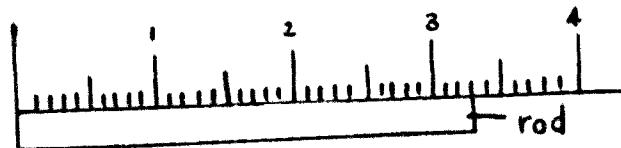


Figure 7

- A. 33.0 mm B. 33.3 mm C. 30.3 mm D. 3.3 mm

22. Figure 8 shows the position of a wooden block when it was placed in the liquids given. By observing the figure, the density of the wooden block is the same as

- A. Petrol B. 50 % alcohol C. 100 % alcohol
D. water

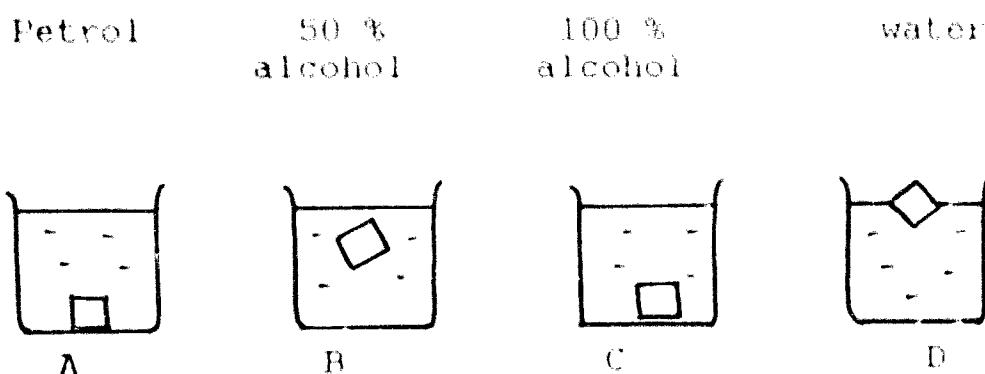
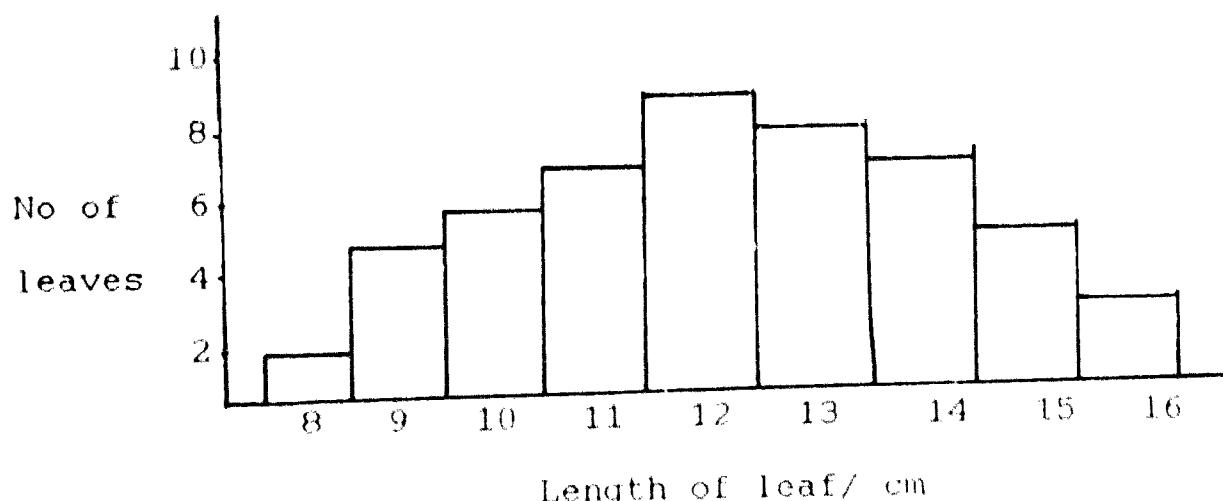


Figure 8

23. The following graph was plotted after measuring the length of 50 leaves from a rubber tree.



The graph shows that

- A. None of the leaves is lesser than 9 cm.
B. None of the leaves reached 16 cm.
C. The average length of the leaves is 12 cm.

- D. Most of the leaves are 12 cm in length.
24. You are doing an experiment in a group. All of a sudden, the sleeves of your friend's shirt caught fire from the bunsen burner. What should you do to help ?
- A. Collect water from the pipe into a beaker and pour it onto his/her arm.
- B. Immediately get the fire extinguisher.
- C. Wet a towel and wrap it around the burning sleeve.
- D. Immediately put out the flame of the bunsen burner.
25. You are given a stone having a mass of 10 gm. How do you determine the volume of the stone ?
- A. Measure the diameter of the stone and then use the formula $2\pi r$ to find the volume.
- B. Get a beaker of water and weigh it. Put the stone in the water and reweigh it. The volume of the stone can be found from the difference between the mass of the stone and water and the mass of the water.
- C. Put the stone in a measuring cylinder containing 50 ml of water. The volume of the stone can be determined from the volume of water displaced.
- D. Place the stone on a graph paper. Draw its outline and then count the number of squares contained in the outline.
26. Which of the following ways is the correct one to do after pouring samples of chemical reagents into different test-tubes ?
- A. Label the test-tubes immediately.
- B. Shake all the test-tubes to see whether there are any deposits.
- C. Arrange all the test-tubes on a test-tube rack.

Keys to the Science Achievement Test

Item	Cognitive Level	Answer	Item	Cognitive Level	Answer
1	I	B	2	I	C
3	I	C	4	I	B
5	I	A	6	I	C
7	I	D	8	I	B
9	I	D	10	I	A
11	II	A	12	II	C
13	II	D	14	I	D
15	I	A	16	I	C
17	III	B	18	I	B
19	II	C	20	II	B
21	II	A	22	II	B
23	III	C	24	III	C
25	II	C	26	II	A
27	III	B	28	III	C
29	III	B	30	II	B